Supplemental Appendix for

EMPLOYERS AND UNEMPLOYMENT INSURANCE TAKE-UP

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A The role of employer claim rate in determining the benefit ratio

Washington state uses the benefit ratio method to determine the employer tax rate. There are two sources of variation in an employer's benefit ratio: the layoff rate and the claim rate. We now show that variation in the employer claim rate is as important in determining the employer's benefit ratio as the employer separation rate. Finding that the claim rate is influenced by employers is novel as past literature on UI financing reform has typically viewed only the separation rate as the employer's decision variable.

The benefit ratio formula used by Washington state can be written as:

$$\text{Benefit ratio in year } t = \frac{\text{Sum of benefits charged over last four years}}{\text{Sum of taxable wages over last four years}}, \tag{A1}$$

where "taxable wages" is the base to which the tax rate is applied. We expand the right-hand side of equation for the benefit ratio of a employer j as follows:

$$\begin{aligned}\text{Benefit ratio} &= \frac{\text{Benefits charged}}{\text{Number of employees}} \Big/ \frac{\text{Taxable wages}}{\text{Number of employees}} \\ &= \underbrace{\frac{\text{Number of separators}}{\text{Number of employees}}}_{\text{separation rate}} \times \underbrace{\Pr(\text{claiming}|\text{separating})}_{\text{claim rate}} \\ &\quad \times \underbrace{\underbrace{\Pr(\text{receiving}|\text{claiming})}_{\text{beneficiary rate}} \times \underbrace{\frac{\text{Mean benefit paid}}{\frac{\text{Taxable wages}}{\text{Number of employees}}}}_{\text{replacement rate}}}_{\text{realized replacement rate}}.\end{aligned} \tag{A2}$$

That is, we write the benefit ratio as the product of the separation rate, the claim rate, and the realized replacement rate. In practice, we first compute averages number of separators, the claim rate, beneficiary rate, and mean benefits paid in the last four years. We then divide the terms by the average number of an employer's employees in the last four years. We compute these benefit ratios for each employer observed in 2009.

Upon seeing equation (A2), a typical inclination would be to take logs and report a linear variance decomposition. In this context, however, this step is unappealing because the benefit ratio in levels — not logs — is the object of interest. Instead, we apply the following "nonlinear" decomposition. We compute "simulated" benefit ratios by in turn replacing the separation rate, the claim rate, and the realized replacement rate by their sample averages (as well as combinations of each of these three terms) and then recomputing the variance of the benefit ratio. We then compute the variance of the observed benefit ratio as well as the variance of these "simulated" benefit ratios. By dividing the simulated variance by the observed variance, we obtain an estimate of the contribution of each term.

As an example, define the "claim-rate constant" benefit ratio as $\text{BR}(\overline{\text{claims}})$ and the true benefit ratio as BR. Then, $1 - \frac{\text{var}(\text{BR}(\overline{\text{claims}}))}{\text{var}(\text{BR})}$, represents the share of the variance explained by the claim rate. This calculation quantifies what share of the variance of the benefit ratio each component explains.

Table A7 shows the shares explained for all three individual terms and their combinations. Because this decomposition is nonlinear, the components do not sum to one. The results show that the claim rate explains slightly more of the variance in the benefit ratio than the separation rate (86% vs. 84%). Second, when combined with the realized replacement rate, the claim rate explains more of the variance than the separation rate.

Therefore, a key finding is that the claim rate is at least as important as the separation rate in explaining the variation in the benefit ratio across employers. This stands in contrast to most of the literature on

experience rating, which typically assumes that the only source of variation in the claim rate is the separation rate (Brechling, 1981; Topel, 1983; Topel, 1984; and Ratner, 2013).[1] Our results highlight that the variation in claim rate across employers is a quantitatively important margin determining the benefit ratio, and as a result, the experience-rated tax rate.

B Shrinking employer-level rates

First, we define notation. Let there be N_j separators from employer j and C_j workers who claim UI (here, C_j is a level, whereas elsewhere it is a rate). Then a natural estimate of the claim rate is $\hat{c}_j = \frac{C_j}{N_j}$. This estimate will be over-dispersed. We assume that the true claim rate follows a beta distribution: $c \sim \mathcal{B}(\alpha, \beta)$. Then, the probability of the observed data given c follows a binomial distribution (i.e, $Pr(C_j|c, N_j) = \binom{N_j}{C_j} c^{C_j}(1-c)^{N_j - C_j}$). Because we are ultimately interested in making statements about the labor market as perceived by workers, we weight observations by the number of separators, $\omega_j = \frac{N_j}{\sum_j N_j}$. Letting $\theta = \{\alpha, \beta\}$ denote our parameter vector, and $\mathcal{O}$ denote the matrix of data (the j^{th} row is (N_j, C_j)), we are interested in the following maximization problem:

$$\begin{aligned}\max_{\theta} \mathbb{P}\{\mathcal{O}|\theta\} &= \max_{\theta} \Pi_j \omega_j \mathbb{P}\{\mathcal{O}_j|\theta\} \\ &= \max_{\theta} \Pi_j \omega_j \left(\int_{c=0}^{1} \mathbb{P}\{\mathcal{O}_j|c\} \times \mathbb{P}\{c|\theta\} dc \right), \end{aligned} \tag{A3}$$

where $\mathbb{P}\{c|\theta\}$ is the probability density function (PDF) of the beta distribution and $\mathbb{P}\{\mathcal{O}_j|c\}$ is the probability mass function (PMF) of the binomial distribution. Casting the problem in this way takes small samples into account: even if a employer has a true claim rate that is in the interior of the support, say, 0.2, there is some probability (given by the binomial probability mass function) that we instead observe a claim rate of 0 or 1. More generally, the binomial PMF captures the over-dispersion that we expect given that we do not observe infinite samples for each employer. We numerically maximize this expression.[2]

This maximization problem gives us estimates of the beta distribution parameters $\hat{\theta} = \{\hat{\alpha}, \hat{\beta}\}$. We then use these parameters to compute the posterior mean of the employer-level claim rate, which takes into account the sample size:

$$\hat{c}_j^{EB} = \frac{C_j + \hat{\alpha}}{N_j + \hat{\alpha} + \hat{\beta}}, \tag{A4}$$

where the super-script indicates empirical Bayes.

Table A8 shows the parameter estimates. The variance of a beta distribution is given by $\frac{\alpha\beta}{(\alpha+\beta)^2(\alpha+\beta+1)}$. Thus, the implied variance of the employer claiming rates is 0.0361, which is larger than what we estimate for the employer effects (in Table 4), of 0.022. The implied variance of the appeal rates is 0.0006 which is slightly smaller than what we estimate for the employer effects on appeals (in Table 4), of 0.0008.

C Elasticities in Anderson and Meyer (2000)

Table 4 in Anderson and Meyer (2000) reports the mean of monthly claims in Washington state from 1972–1984 to equal 0.0304. The quarterly separation-issue denials/quarterly claim rate in the same period and state is 0.0521.

[1] Auray, Fuller, and Lkhagvasuren (2019) and Auray and Fuller (2020) are exceptions.

[2] We approximate the integral with 99 points, which in Monte Carlo experiments was sufficient for stability.

	(1)	(2)	(3)
Table 5 (50 states, DC)	-0.277	-0.279	-0.183
Table 6 (Oregon and Idaho)	-0.149	-0.237	-0.128
Controls	None	State $\times$ ln(US UR)	State $\times$ ln (state UR)

D Linking experience rating to employer effects on claiming and appeals

To provide more direct evidence between employers' appeal behavior and experience rating, we relate average employer effects to employers' experience rating incentives. As we discussed in Section 1.2, experience rating operates as follows. For low-enough levels of past claims, employers are on the "sloped" part of the schedule and face approximately full experience rating where in steady state an additional $1 of UI collected by its past workers translates into $1 of additional taxes. For high-enough levels of past claims, the UI tax rate reaches its maximum level and in steady state the employer faces no marginal experience rating incentives. Online Appendix Figure A4 plots the experience rating schedule in Washington state.

To study the relationship between experience rating and claims and appeals, we rely on the cross-sectional variation. As can be seen in the histogram in Online Appendix Figure A4, there are very few employers that are ever on the flat part of the experience rating schedule. Accordingly, we divide employers into two mutually exclusive groups: those that are at least once on the maximum flat part of the schedule and those who are never. Those employers that are at least once on the flat part of the schedule face weaker marginal incentives to appeal than those that are always on the sloped part.

We compute the average employer effects for both groups. Online Appendix Figure A11 shows that employers facing weaker marginal incentives to appeal (they have been at least once on the maximum flat part of the schedule) do indeed appeal less, though the relationship is noisy. This finding echoes the results in Ashenfelter and Levine (2000) who find that employers on the maximum flat part of the schedule are less likely to appeal claims than employers on the sloped part. The figure also shows that those employers facing weaker incentives to appeal do indeed have higher claim rates. These results are consistent with the idea that the incentives provided by experience rating affect employer's appealing decisions and the subsequent claiming decisions of workers.

E Distribution of UI taxes and benefits by worker wages and the role of the employers

E.1 Distribution of taxes and benefits by workers' wages

To obtain the distribution of average taxes paid by employers on behalf of workers by wage rates, we calculate the taxes paid on behalf of each worker (i) by each employer (j) in each year (t) by multiplying worker i's taxable earnings by employer j's tax rate in year t, taken from the tax records. For workers who appear in multiple years, we calculate their average hourly wage and the average annual taxes paid on their behalf over the whole sample period. We then assign each worker to a wage-rate centile. Each observation is weighted by the number of times they appear in the data.

To obtain the distribution of average benefits received by hourly wage rates, we obtain the UI benefits received by each worker, and calculate an annual average by dividing by the number of years the worker is observed in the data and plot average annual benefits received for each wage-rate centile. Each observation is weighted by the number of times they appear in the data.

E.2 The role of employer effect in distribution of benefits

We are interested in understanding how employer effects in claiming influence the distribution of UI benefits paid.

For each wage-rate centile c, we decompose the average benefits b into the probability of separating (sep), probability if claiming upon separation, the probability of receiving benefits upon claiming, and the expected value of benefits among benefit recipients:

$$\mathbb{E}(b)_c = \Pr(sep = 1)_c \cdot \Pr(claim = 1 \mid sep = 1)_c \cdot \Pr(b > 0 \mid claim = 1)_c \cdot \mathbb{E}(b \mid b > 0)_c. \tag{A5}$$

We can link the average benefits to employer effects on claiming using equation (1):

$$\Pr(claim = 1 \mid sep = 1)_{i,i(j,t)} = \alpha_i + \psi_{j(i,t)} + x'_{it}\beta + \epsilon_{i,i(j,t)}. \tag{A6}$$

to "turn off" employer effect on claiming. To do so, we:

1. Normalize each $\hat{\psi}_{j(i,t)}$ to match the overall claim rate in the sample in Table 1, column 4.
2. Using normalized employer effects, we calculate a predicted claim rate $\hat{p}_{i,i(j,t)} \equiv \hat{\alpha}_i + \hat{\psi}_{j(i,t)} + x'_{it}\hat{\beta}$.
3. We "turn off" employer effects by calculating a claim rate where all employer effects are set to equal the sample mean of normalized employer-effects, $\overline{\hat{\psi}}$. We denote this simulated claim rate as $\tilde{p}_{i,i(j,t)} \equiv \hat{\alpha}_i + \overline{\hat{\psi}} + x'_{it}\hat{\beta}$.
4. We merge $\hat{p}_{i,i(j,t)}$ and $\tilde{p}_{i,i(j,t)}$ to every identified employer j in the wage records.
5. For each centile c, we calculate every component of equation (A5) substituting either $\hat{p}_c$ or $\tilde{p}_c$ for the term $\Pr(claim = 1 \mid sep = 1)_c$.

F Details on estimating the model

F.1 Parameters for eligible workers

In the no-growth region ($g = ng$) the claim rate can be expressed as a simple weighted average of the claim rate of eligible workers (C_1) and of ineligible workers (C_0), weighted by $\sigma = \Pr(e = 1)$, the share of eligible workers. In the contracting region ($g = ml$), we assume that all incremental separators are eligible and so the claim rate can be expressed as a weighted average of claim rates of the "excess" separators (all eligible) at point g and of the remaining share of ineligible separators. Specifically:

$$cl_{ng} = \sigma C_1 + (1 - \sigma)C_0 \tag{A7}$$

$$cl_{ml} = \frac{sep_{ml} - sep_{ng}}{sep_{ml}} C_1 + \frac{sep_{ng}}{sep_{ml}} cl_{ng}. \tag{A8}$$

This gives rise to one equation in one unknown. Hence:

$$C_1 = \frac{sep_{ml}}{sep_{nl} - sep_{ng}} \left(cl_{ml} - \frac{sep_{ng}}{sep_{ml}} cl_{ng} \right). \tag{A9}$$

Similarly, the probability of appeal at ng and at ml gives rise to one equation in one unknown:

$$pa_{ng} = p_0 \frac{(1-\sigma)C_0}{(1-\sigma)C_0 + \sigma C_1} + p_1 \frac{\sigma C_1}{(1-\sigma)C_0 + \sigma C_1} \tag{A10}$$

$$pa_{ng} = p_0 \frac{(1-\sigma)C_0}{cl_{ng}} + p_1 \frac{\sigma C_1}{cl_{ng}} \tag{A11}$$

$$pa_{ml} = pa_{ng} \frac{sep_{ng} cl_{ng}}{sep_{ml} cl_{ng}} + \frac{sep_{ml} cl_{ml} - sep_{ng} cl_{ng}}{sep_{ml} cl_{ml}} p_1 \tag{A12}$$

$$p_1 = (pa_{ml} - pa_{ng} \frac{sep_{ng} cl_{ng}}{sep_{ml} cl_{ml}}) \frac{sep_{ml} cl_{ml}}{sep_{ml} cl_{ml} - sep_{ng} cl_{ng}}. \tag{A13}$$

Finally, for the probability of receiving UI conditional on applying and facing an appeal:

$$rec_{ng} = \frac{p_0(1-\sigma)C_0}{p_0(1-\sigma)C_0 + p_1 \sigma C_1} r_0 + r_1 \frac{p_1 \sigma C_1}{p_0(1-\sigma)C_0 + p_1 \sigma C_1} \tag{A14}$$

$$rec_{ml} = \frac{sep_{ng} cl_{ng} pa_{ng}}{sep_{ml} cl_{ml} pa_{ml}} rec_{ng} + \frac{sep_{ml} cl_{ml} pa_{ml} - sep_{ng} cl_{ng} pa_{ng}}{sep_{ml} cl_{ml} pa_{ml}} r_1 \tag{A15}$$

$$r_1 = \frac{sep_{ml} cl_{ml} pa_{ml}}{sep_{ml} cl_{ml} pa_{ml} - sep_{ng} cl_{ng} pa_{ng}} (rec_{ml} - \frac{sep_{ng} cl_{ng} pa_{ng}}{sep_{ml} cl_{ml} pa_{ml}} rec_{ng}). \tag{A16}$$

F.2 Parameters for the ineligible

To compute the parameters related to the ineligible population, we use the additional moment from the BAM data that the share of ineligible workers among dollars paid out is 12.7%, which we assume refers to employers with zero growth rate, $g = ng$. We further assume that the dollars paid out to the eligible and ineligible are identical.

The mass of ineligible workers who collect is given by:

$$(1-\sigma)C_0 p_0 r_0 + (1-\sigma)C_0(1-p_0) = (1-\sigma)C_0(1-(p_0(1-r_0))). \tag{A17}$$

The first term says that a worker applies, faces an appeal, and collects. The second terms says that a worker applies and does not face an appeal (and so collects). Analogous expressions apply to the eligible. Hence, the share of ineligible workers among those who collect UI is given by:

$$inelig_0 = \frac{(1-\sigma)C_0(1-(p_0(1-r_0)))}{(1-\sigma)C_0(1-(p_0(1-r_0))) + \sigma C_1(1-p_1+p_1 r_1)}. \tag{A18}$$

We now have four equations ((A7), (A10), (A14), and (A18)) in four unknowns (σ, C_0, p_0 and r_0).
We first rearrange (A7), (A10), and (A14):

$$C_0 = \frac{cl_{ng} - \sigma C_1}{1-\sigma} \tag{A19}$$

$$p_0 = \frac{pa_{ng} - p_1 \frac{\sigma C_1}{(1-\sigma)C_0 + \sigma C_1}}{\frac{(1-\sigma)C_0}{(1-\sigma)C_0 + \sigma C_1}} = \frac{pa_{ng}((1-\sigma)C_0 + \sigma C_1) - p_1 \sigma C_1}{(1-\sigma)C_0} \tag{A20}$$

$$r_0 = \frac{rec_{ng} - r_1 \frac{p_1 \sigma C_1}{p_0(1-\sigma)C_0 + p_1 \sigma C_1}}{\frac{p_0(1-\sigma)C_0}{p_0(1-\sigma)C_0 + p_1 \sigma C_1}} = \frac{rec_{ng}(p_0(1-\sigma)C_0 + p_1 \sigma C_1) - r_1 p_1 \sigma C_1}{p_0(1-\sigma)C_0}. \tag{A21}$$

We combine equation (A20) and (A21) to write:

$$p_0(1-r_0) = \frac{pa_{ng}((1-\sigma)C_0+\sigma C_1) - p_1\sigma C_1}{(1-\sigma)C_0}\left(1 - \frac{rec_{ng}(p_0(1-\sigma)C_0 + p_1\sigma C_1) - r_1 p_1\sigma C_1}{p_0(1-\sigma)C_0}\right) \tag{A22}$$

$$= \frac{pa_{ng}((1-\sigma)C_0+\sigma C_1) - p_1\sigma C_1}{(1-\sigma)C_0}\left(\frac{(1-rec_{ng})p_0(1-\sigma)C_0 - (rec_{ng}-r_1)p_1\sigma C_1}{p_0(1-\sigma)C_0}\right) \tag{A23}$$

$$= \frac{pa_{ng}((1-\sigma)C_0+\sigma C_1) - p_1\sigma C_1}{(1-\sigma)C_0}\left(\frac{(1-rec_{ng})(1-\sigma)C_0 - (rec_{ng}-r_1)\frac{p_1(1-\sigma)C_0}{pa_{ng}((1-\sigma)C_0+\sigma C_1)-p_1\sigma C_1}\sigma C_1}{(1-\sigma)C_0}\right) \tag{A24}$$

$$= \frac{pa_{ng}((1-\sigma)C_0+\sigma C_1) - p_1\sigma C_1}{(1-\sigma)C_0}\left(\frac{(1-rec_{ng}) - (rec_{ng}-r_1)\frac{p_1}{pa_{ng}((1-\sigma)C_0+\sigma C_1)-p_1\sigma C_1}\sigma C_1}{1}\right). \tag{A25}$$

Now we substitute in for (A19):

$$p_0(1-r_0) = \frac{pa_{ng}cl_{ng} - p_1\sigma C_1}{cl_{ng}-\sigma C_1}\left(\frac{(1-rec_{ng}) - (rec_{ng}-r_1)\frac{p_1}{pa_{ng}cl_{ng}-p_1\sigma C_1}\sigma C_1}{1}\right) \tag{A26}$$

$$= \frac{(1-rec_{ng})(pa_{ng}cl_{ng} - p_1\sigma C_1) - (rec_{ng}-r_1)p_1\sigma C_1}{cl_{ng}-\sigma C_1} \tag{A27}$$

$$= \frac{(1-rec_{ng})pa_{ng}cl_{ng} - (1-r_1)p_1\sigma C_1}{cl_{ng}-\sigma C_1} \tag{A28}$$

$$1 - p_0(1-r_0) = \frac{cl_{ng} - \sigma C_1 - (1-rec_{ng})pa_{ng}cl_{ng} + (1-r_1)p_1\sigma C_1}{cl_{ng}-\sigma C_1}. \tag{A29}$$

Now substitute (A19) and (A29) into equation (A18) to have:

$$inelig_0 = \frac{cl_{ng} - \sigma C_1 - (1-rec_{ng})pa_{ng}cl_{ng} + (1-r_1)p_1\sigma C_1}{cl_{ng} - \sigma C_1 - (1-rec_{ng})pa_{ng}cl_{ng} + (1-r_1)p_1\sigma C_1 + \sigma C_1(1-p_1+p_1r_1)} \tag{A30}$$

$$= \frac{cl_{ng} - \sigma C_1 - (1-rec_{ng})pa_{ng}cl_{ng} + (1-r_1)p_1\sigma C_1}{cl_{ng} - (1-rec_{ng})pa_{ng}cl_{ng}}. \tag{A31}$$

Now we simplify to solve for σ in closed form:

$$inelig_0\left(cl_{ng} - (1-rec_{ng})pa_{ng}cl_{ng}\right) = cl_{ng} - \sigma C_1 - (1-rec_{ng})pa_{ng}cl_{ng} + (1-r_1)p_1\sigma C_1 \tag{A32}$$

$$\frac{(1-inelig_0)\left(cl_{ng} - (1-rec_{ng})pa_{ng}cl_{ng}\right)}{C_1(1-(1-r_1)p_1)} = \sigma. \tag{A33}$$

Given σ, we solve for $\{C_0, p_0, r_0\}$ using equations (A19)-(A21).

F.3 Intermediate statistical model results: how claims and appeals vary with the employer growth rate

Appendix Figure A8 plots the estimates of the growth rate-specific outcomes with and without controlling for employer effects where we normalize the employer effects so that we match the sample means in the zero growth bin (Appendix Table A6 shows the values).

The first outcome we look at is the probability that the employer is on the flat part of the experience rating schedule the following year (see Appendix Figure A4 for the experience rating schedule, and see Section 1.2 and Appendix D for further discussion). The reason to look at this outcome is the following. We show below that as the employer contracts it is less likely to appeal the worker's claim. There are at least two plausible interpretations of this finding. First, as the employer contracts, its incentives to appeal claims change. Intuitively, if the employer is going to shut down or else lay off many workers who receive UI, then its incentives to appeal claims would be lower. Second, as the employer contracts, the share of monetarily eligible separators who are separation eligible increases. Intuitively, if the employer is contracting then it is laying off more workers who should be separation-eligible for UI. In Panel A the OLS estimate shows, as expected, that employers that expand or contract are more likely to be on the flat of the tax schedule than employers where hours are constant. But, when employer effects are added, and the comparison is made within an employer, the relationship is near zero and invariant to the employer's growth rate. This finding supports the approximate validity of the idea that employers face constant marginal experience rating incentives even when they contract and so we can interpret the change in appeals when employers contract as reflecting changes in the composition of the separators rather than the employers' incentives.

Panels B through E of Appendix Figure A8 show the relationship between the employer growth rate and separation, claim, appeal, and receipt rates conditional on appeal. Panel B of Appendix Figure A8 shows that as employers contract, the separation rate increases.[3] Panel C shows that as employers contract, the claim rates increases, which is consistent with the model (and with robustness checks in Anderson and Meyer (1997) and the mass-layoff analysis in Figure 3) in that, the marginal separators are more likely to be UI eligible. It is notable that even during a massive contraction the claim rate never exceeds 60%, which implies that claiming even among the eligible is incomplete. Panel D shows that as employers contract, the appeal rate decreases, which—under our empirically validated assumption that the employer's marginal experience rating incentives do not change—implies that employers are less likely to appeal claims of eligible workers. Panel E shows that the relationship between employer growth rates and receipt rate conditional on appeal is very noisy (because appeals occur relatively rarely) but that it is increasing, consistent with the idea that eligible workers are more likely to receive UI when their claims are appealed.

To compute the share of ineligible separators and the same three outcome, we need an estimate of the share of ineligible workers who receive UI at employers that are neither growing nor shrinking. The reason is that even once we know the claim rate among the eligible, the observed claim rate reflects a mix of the share of ineligible workers and the claim rate among the ineligible. To identify the ineligible share, we use the U.S. Department of Labor's Benefit Accuracy Measurement (BAM) program, under which each state investigates random samples of weekly benefit payments to determine whether claimants were paid the proper benefit amount (Department of Labor, 2020). For each investigation, the BAM record indicates what the payment should have been. From 2005 to 2013, 12.7% of payments in the Washington sample, should have been zero.[4]

To summarize the model fit, we use the separation rate from panel B and the model parameters to predict the claim rate, appeal rate, and receipt rate by employer growth rate, which are shown in panels C through E of Appendix Figure A8. Since it was used in estimation, the model fits the data perfectly at the zero growth rate bin, and the contraction of 15%. The model is fairly close for the claim and receipt rates at non-targeted

[3]This increase is lower than the rates reported in Davis, Faberman, and Haltiwanger (2012, Figure 6) where at a 50% contraction, the separation rate is closer to 50%. The reason is that we focus on separations of a more stable subset of the workforce: workers who are monetarily eligible and who only have one base-period employer (and who do not make an employer-to-employer transition when separating). The small increase (about 5%) in the separation rate is similar to in Flaaen, Shapiro, and Sorkin (2019, Figure 1) who look at separations among workers with at least a year of tenure. Appendix Figure A9 plots the same relationship for *any* quarter-to-quarter separation in the data. The average separation rate is much higher in the overall sample.

[4]This compares with 11.8% of payments for the entire U.S. We thank Ross Miller of the Employment and Training Administration, U.S. Department of Labor, for providing the data and documentation of the BAM data, and for helpful advice.

moments. The model struggles with the appeal rate—its predictions are higher than the data at very negative growth rates, which suggests that our estimate of the appeal rate for eligible claimants are too high.

F.4 Elasticity of appeals with respect to experience rating

Suppose that an employer pays τ if its worker collects UI (which is consistent with the fact that in steady state experience rating is approximately complete along the sloped part of the experience rating schedule). If an employer appeals the claim of an eligible worker, the employer can expect to save $(1 - r_1)\tau$, while if it appeals the claim of an ineligible worker it can expect to save $(1 - r_0)\tau$. In terms of an employer's incentives to appeal, changing $(1 - r_e)$ is identical to changing τ.

Hence the arc elasticity of appeals with respect to a decrease in experience rating is given by:

$$\zeta^a = \frac{p_1 - p_0}{(1 - r_1)\tau - (1 - r_0)\tau} \frac{(1 - \bar{r})\tau}{\bar{p}} = \frac{p_1 - p_0}{r_0 - r_1} \frac{(1 - \bar{r})}{\bar{p}} = \frac{0.102 - 0.022}{0.402 - 0.743} \frac{(1 - 0.5725)}{0.062} \approx -1.6, \tag{A34}$$

where $\bar{r} = \frac{r_1 + r_0}{2}$ and $\bar{p} = \frac{p_1 + p_0}{2}$, the average of the eligible and ineligible rates. See Table 6 for the numbers.

F.5 Model fit

We fit the model using two points of employer growth: an employer growth around 0 (ng), and a negative growth rate, $g = ml$, which we took to be a 15% contraction. To assess the fit of the model, we ask how the model fits the data at growth rates that we did not use. To do so, we take as given the separation rates by employer growth rate, and then compute the resulting model predictions for the UI claim rate, appeal rate, and receipt rate.

Mechanically, we take the below expression and substitute in separation rates ($sep_{\tilde{ml}}$) at different rates of contraction than the benchmark rate we use.

$$cl_{\tilde{ml}} = \frac{sep_{\tilde{ml}} - sep_{ng}}{sep_{\tilde{ml}}} C_1 + \frac{sep_{ng}}{sep_{\tilde{ml}}} (\sigma C_1 + (1 - \sigma) C_0). \tag{A35}$$

$$pa_{\tilde{ml}} = pa_{ng} \frac{sep_{ng} cl_{ng}}{sep_{\tilde{ml}} cl_{\tilde{ml}}} + \frac{sep_{\tilde{ml}} cl_{\tilde{ml}} - sep_{ng} cl_{ng}}{sep_{\tilde{ml}} cl_{\tilde{ml}}} p_1. \tag{A36}$$

Finally, for the probability of receiving UI conditional on claiming and facing an appeal:

$$rec_{\tilde{ml}} = \frac{sep_{ng} cl_{ng} pa_{ng}}{sep_{\tilde{ml}} cl_{\tilde{ml}} pa_{\tilde{ml}}} rec_{ng} + \frac{sep_{\tilde{ml}} cl_{\tilde{ml}} pa_{\tilde{ml}} - sep_{ng} cl_{ng} pa_{ng}}{sep_{\tilde{ml}} cl_{\tilde{ml}} pa_{\tilde{ml}}} r_1. \tag{A37}$$

F.6 Details on counterfactuals

For a 10% decrease in experience rating, we use our estimates of the elasticity of appeals with respect to experience rating to get the change in appeal rates among eligible and ineligible workers:

Letting variables with a tilde denote counterfactual, using the definition of the arc elasticity, and letting $\Delta\%\tau$ denote the percent change in experience rating, we have that the counterfactual appeal rates are given by

$$\frac{\tilde{p}_e - p_e}{p_e} = \zeta^a \Delta\%\tau \tag{A38}$$

$$\tilde{p}_e = p_e \zeta^a \Delta\%\tau + p_e, \tag{A39}$$

for $e \in \{0, 1\}$.

Letting ζ^c be the elasticity of claims with respect to appeals, we have that the counterfactuals claim rates are given by

$$\frac{\tilde{A}_e - A_e}{A_e} = \zeta^c \frac{\tilde{p}_e - p_e}{p_e} \tag{A40}$$

$$\tilde{A}_e = A_e \zeta^c \frac{\tilde{p}_e - p_e}{p_e} + A_e, \tag{A41}$$

for $e \in \{0, 1\}$.

G Validation using the statistical model

In this Appendix, we use the statistical model to confirm that the empirical relationships—employer effects on UI claims and appeals as well as the wage gradient in claims and appeal—reflect the behavior of eligible separators, rather than differences in an employer's mix of eligible and non-eligible or differences in the eligibility of low- vs. high-wage separators.

G.1 Validation of employer effects

The basic idea of the validation exercise is to relate employer-level estimates of claiming among the eligible to the employer effects on claiming. The model gives us an estimate of the claim rate (C_1) among the eligible. If we had enough data (and variation) to estimate the model at the employer-level, then we could relate the employer effects in claims (the $\hat{\psi}_j$) to the employer-level claim rate of eligible separators ($C_{1,j}$). A high correlation would indicate that the estimated employer effects reflect variation in claims among eligible separators.

As noted above, we do not have sufficient data and variation to estimate employer-level measures of claiming among the eligible. Instead, we group employers into five bins based on the quintiles of the estimated employer effects on claiming. We then assess the relationship between the average employer effect in each bin and the estimated take-up rate among eligible separators in each bin.[5] Parallel reasoning and an analogous procedure holds for the appeal rates, except that we use same grouping of employers for the appeals as for claiming. Appendix Figure A10, panel A, shows that the claim rates among the eligible claimants are tightly related to the estimated employer effects on claiming. Thus, this exercise provides further evidence that the employer effects reflect differences in the employer environment, rather than employer differences in eligibility among an employer's separators.

G.2 Validation of wage gradients

We extend the logic of the previous exercise to validate the wage gradients reported in Figure 3, panels A and C. Interpreting the relationship between claims and wages as differences in claiming due to wage differentials could be confounded by differences in UI eligibility between low- and high-wage separators. To show that the wage gradients reflect patterns among eligible separators, we group workers into equal-sized bins of base-period earnings, and estimate the model for each earnings bin (we use the same coarsened employer-growth rate bins as in the previous validation exercise).[6] We then relate the claim-wage gradient

[5] Even with five groups of employers, we do not have enough data to use narrow growth rate bins and so we use the following four coarse categories: $[-0.40,-0.05)$, $[-0.05,0.05)$, $[0.05,0.40)$, and $[0.40,1.0]$. Using either more than five groups of employers or narrower growth rates bins generated some cases where the restrictions of the model failed. For example, separations rates did not increase as employers contracted. For the purposes of this exercise, we are only interested in parameters for eligible separates and so do not need the additional moment from the BAM data that allowed us to estimate various rates for the ineligible separators.

[6] We pick the largest number of bins such that the model returns claim and appeal rates that are positive in all bins.

among the eligible separators to the claim-wage gradient of all separators (as in Figure 3, panel A). We repeat the same exercise for appeal rates.

Appendix Figure A10, panel C, plots the relationship between claim rates and wages among eligible separators (marked in xs) and all separators (marked in circles). In both cases, there is an inverted-U shape between claim rates and wages. Appendix Figure A10, panel D, shows the relationship between appeal rates and wages among eligible separators and all separators. In both cases, appeal rates are negatively related to wages.

In summary, the validation suggests that the wage gradients in claims and appeals largely reflect a relationship between these outcomes and wages, rather than differences in eligibility.

Table A1: Relationship between UI claim rate and replacement rate

Outcome variable	Pr(Claimed UI)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Predictors							
Replacement rate	0.292	0.075	0.248	0.012	0.220	0.077	0.206
	(0.052)	(0.073)	(0.030)	(0.026)	(0.045)	(0.042)	(0.030)
Worker fixed effects	no	yes	no	yes	no	yes	no
Employer fixed effects	no	no	yes	yes	no	no	yes
Mean UI claim rate	0.453	0.453	0.453	0.487	0.487	0.487	0.487
Mean replacement rate	0.583	0.583	0.583	0.590	0.590	0.590	0.590
Number of workers	1,010,966	1,010,966	1,010,966	188,973	188,973	188,973	188,973
R-squared	0.012	0.903	0.260	0.712	0.007	0.603	0.278

Notes: The analysis sample in columns 1-3 consists of separations as defined in Table 1, column 4, and the sample in column 4-7 consists of the sample of job movers. Columns 1 and 5 are estimated using ordinary least squares. Columns 2 and 6 absorb worker indicators; columns 3 and 7 absorb employer indicators, and column 4 absorbs worker and employer indicators. The replacement rate is calcuated using the standard weekly benefit amount divided by base-period hourly wage rate scaled by 35 hours per week. Standard errors, clustered at the employer level, are in parentheses.

Table A2: First-stage relationship between split-sample employer effects on claims and appeals

Outcome variable	ΔEmployer UI claim effect ($\Delta\psi_{claims}$), sample A	ΔEmployer appeal effect ($\Delta\psi_{appeals}$), sample A	Employer UI claim effect (ψ_{claims}), sample A
	(1)	(2)	(3)
Predictors			
ΔEmployer UI claim effect ($\Delta\psi_{claims}$), sample B	0.105		
	(0.006)		
ΔEmployer appeal effect ($\Delta\psi_{appeals}$), sample B		-0.000	
		(0.011)	
Employer UI claim effect (ψ_{claims}), sample B			0.122
			(0.003)
Employer UI claim effect ($\psi_{appeals}$), sample B			
Constant	0.0060	-0.003	0.115
	(0.003)	(0.003)	(0.004)
First-stage F-statistic	164.5	0.0011	37.77
Adj. R-squared	0.0129	-0.0001	0.0218
Number of observations	25,647	7,525	159,618
Number of employers	12,004	4,493	16,737
Sample	Workers who separated twice	Workers who claimed twice	Separators in the leave-out connected set

Notes : Column 1 consists of workers who separated twice whose employer effects on claims where identified in both split-sample AKM estimations. Column 2 consists of workers who claimed twice whose employer effects on appeals where identified in both split-sample AKM estimations. Column 3 consists of workers in the leave-one-out connected sample for claims whose employer effects on claims where identified in both split-sample AKM estimations. The model in columns 3 controls for deciles of base-period hourly earnings. Δ denotes a change from quarter q+1 to q. Standard errors are in parentheses.

Table A3: Employer effects on the probability of being a non-main sample separation

Outcome	Pr(temp layoff) / Pr(temp layoff) ∪ Pr(main sample)	(1- [Pr(main sample)) / Pr(main sample) ∪ Pr(monetarily eligible	Pr(EE) / Pr(EE) ∪ Pr(main sample)
	(1)	(2)	(3)
Mean of outcome	0.286	0.617	0.500
Total variance	0.204	0.236	0.250
Variance components			
Worker effects	0.025	0.020	0.041
Employer effects	0.020	0.025	0.030
Cov(worker, employer)	0.009	-0.011	-0.007
Std. dev. employer effects	0.140	0.157	0.500
N employers	16,737	16,737	16,737
N worker-qtrs	275,675	918,684	533,478
N movers	71,876	340,256	221,621

Notes : The columns shows the KSS-corrected variance decomposition of the probability of an observations not being in the main sample, defined in Table 1, columns 4, as a "likely eligible separation." For example, column1 shows the decomposition of the probability of being a temporarily paid off worker, relative to the union of the set of temporary layoffs and the main sample. Column 2 shows this probability for not being a "likely eligible separator", relative to all monetarily eligible transitions (including likely eligible separators). Column 3 shows the probability of an observation being an employer-to-employer transition, relative to that set and the main sample. Throughout, we restrict to the same set of employers as in our main AKM analysis (Table 1, column 6).

Table A4: Variance decomposition of UI claim rates among separators whose employers are experiencing a mass layoff

Sample	(1) Main sample, restricted to mass layoffs (5+%) employers	(2) Main sample, restricted to mass layoffs (10+%) employers	(3) Main sample, restricted to mass layoffs (15+%) employers	(4) Main sample, restricted to mass layoffs (20+%) employers
Total variance	0.250	0.250	0.250	0.250
Variance components				
Worker effects	0.049	0.047	0.042	0.018
Employer effects	0.028	0.027	0.043	0.057
Cov(worker, employer)	0.002	0.002	-0.004	0.019
Std. dev. employer effects	0.167	0.165	0.208	0.239
N employers	2,809	1,497	416	102
N worker-qtrs	66,135	42,648	16,813	3,044
N movers	22,543	13,637	4,304	550

Notes : The columns show the KSS-corrected variance decomposition of the probability to claiming estimated using the main sample (Table 1, column 4) and restricted to mass-layoff employers listed in columns 7-10 in Table 4.

Table A5: UI claims and appeals by earnings decile: worker-level probabilities and employer effects

Outcome variable	Pr(Claimed UI)		Predicted employer claim effect (ψ_{claims})		Pr(Claim appealed)		Predicted employer appeal effect ($\psi_{appeals}$)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Controls								
Deciles of base-period hourly earnings								
Decile 2	0.081	0.001	0.047	0.047	-0.001	0.000	-0.001	-0.001
	(0.015)	(0.021)	(0.016)	(0.005)	(0.006)	(0.006)	(0.005)	(0.005)
Decile 3	0.128	0.021	0.067	0.067	-0.000	0.007	-0.007	-0.007
	(0.015)	(0.025)	(0.016)	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)
Decile 4	0.170	0.024	0.093	0.093	-0.006	0.001	-0.007	-0.007
	(0.015)	(0.026)	(0.017)	(0.007)	(0.006)	(0.006)	(0.005)	(0.006)
Decile 5	0.180	0.020	0.103	0.103	-0.009	0.002	-0.011	-0.011
	(0.016)	(0.028)	(0.018)	(0.007)	(0.006)	(0.006)	(0.005)	(0.006)
Decile 6	0.175	0.022	0.102	0.102	-0.012	0.002	-0.014	-0.014
	(0.015)	(0.029)	(0.016)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)
Decile 7	0.182	0.006	0.119	0.119	-0.014	-0.000	-0.014	-0.014
	(0.015)	(0.031)	(0.016)	(0.008)	(0.006)	(0.006)	(0.005)	(0.007)
Decile 8	0.170	0.001	0.118	0.118	-0.021	-0.005	-0.017	-0.017
	(0.017)	(0.032)	(0.017)	(0.008)	(0.006)	(0.006)	(0.005)	(0.007)
Decile 9	0.155	-0.055	0.133	0.133	-0.023	-0.004	-0.019	-0.019
	(0.018)	(0.036)	(0.017)	(0.009)	(0.006)	(0.006)	(0.005)	(0.008)
Decile 10	0.037	-0.174	0.129	0.129	-0.018	-0.004	-0.014	-0.014
	(0.019)	(0.037)	(0.017)	(0.010)	(0.006)	(0.006)	(0.006)	(0.008)
Predicted employer effect (ψ)		1.546				1.000		
		(0.181)				(0.000)		
First-stage F-statistic		37.77						
Number of worker-quarters	160,712	159,618	160,712	160,712	39,623	39,623	39,623	39,623
Number of employers	16,737	16,227	16,737	16,737	6,160	6,160	6,160	6,160
Standard errors	Robust	Robust	Robust	KSS-corrected	Robust	Robust	Robust	KSS-corrected

Notes : Columns 1-4 show observations in the leave-one-out connected set (from Table 3, column 6). The outcome variable in columns 1 and 2 equals one if the separation resulted in a UI claim and zero otherwise. The outcome variable in columns 3 and 4 is the estimated employer claim effect. Columns 5-8 show observations in the leave-one-out connected set (from Table 3, column 8). The outcome variable in column 5 and 6 equals one if the a UI claim resulted in an appeal and zero otherwise. The outcome variable in columns 7 and 8 is the estimated employer appeal effect. To account for measurement error, the employer effect on claiming (column 2) is instrumented using a split-sample approach, resulting in slightly smaller sample sizes. The coefficient on the employer effect on appeals in column 6 is constrained to equal one; see text for details. Deciles are the indicators for deciles of base-period hourly earnings computed using workers in Table 1, column 4. Standard errors are in parentheses: columns 1-3 and 5-6 show standard errors clustered by employer and column 4 shows standard errors corrected using the approach described in KSS.

Table A6: UI outcomes and employer growth rate

Outcome variable	Pr(Flat part in $t+1$)		Pr(Separation)			Pr(Claimed UI)			Pr(Claim appealed)			Pr(Receipt | Appeal)	
Model	OLS	Employer FE	OLS	Employer FE	Worker & Employer FE	OLS	Employer FE	Worker & Employer FE	OLS	Employer FE	Worker & Employer FE	OLS	Employer FE
5 p.p. firm-growth bins*													
-0.5	0.109	0.191	0.043	-0.019	-0.002	0.631	-0.097	-0.263	0.009	-0.026	-0.013	0.692	0.943
-0.45	0.137	0.199	0.033	-0.025	-0.026	0.613	-0.106	-0.304	0.011	-0.024	-0.006	0.600	0.263
-0.4	0.107	0.185	0.027	-0.029	-0.027	0.556	-0.132	-0.272	0.013	-0.013	-0.024	0.759	0.275
-0.35	0.123	0.191	0.024	-0.030	-0.031	0.545	-0.116	-0.321	0.011	-0.014	-0.005	0.438	0.105
-0.3	0.129	0.185	0.022	-0.031	-0.034	0.553	-0.133	-0.311	0.012	-0.012	0.009	0.655	0.193
-0.25	0.125	0.182	0.019	-0.034	-0.037	0.540	-0.149	-0.291	0.019	-0.012	-0.011	0.690	0.318
-0.2	0.096	0.182	0.023	-0.031	-0.034	0.497	-0.165	-0.315	0.016	-0.011	-0.025	0.662	0.334
-0.15	0.040	0.174	0.018	-0.037	-0.039	0.521	-0.165	-0.317	0.021	-0.007	-0.008	0.638	0.284
-0.1	0.022	0.184	0.012	-0.041	-0.044	0.494	-0.182	-0.358	0.027	-0.007	-0.015	0.605	0.279
-0.05	0.018	0.184	0.012	-0.041	-0.045	0.467	-0.198	-0.395	0.030	-0.005	-0.008	0.633	0.281
0 (-2.499% to +2.5%)	0.015	0.185	0.010	-0.042	-0.046	0.439	-0.212	-0.390	0.033	-0.003	-0.000	0.617	0.227
Observations	244,699	244,699	488,704	488,704	55,376	488,704	488,704	55,376	218,535	218,535	13,097	6,377	6,377

Notes: The analysis sample is based on column Table 1, column 4. The outcome Pr(Flat part in $t+1$) is defined as the probability that the employer is on the flat part of the experience-rating schedule next year. To compute the separation rate, we use employer size in the denominator. Each outcome variable is regressed on 40 dummies indicating 5 percentage-point quarter-to-quarter changes in firm growth, defined as percentage change in total annual hours at the employer. For each outcome variable, the first column presents estimates obtained without absorbing employer indicators (OLS). The second column presents estimates (scaled by the sample average) obtained after absrorbing employer fixed effects (Employer FE). For all outcomes (other than Pr(flat part in $t+1$) and Pr(Receipt | Appeal) for which there is not enough variation) the table also shows estimates absorbing employer and worker indicators (Worker & Employer FE), scaled by the sample average. The table only presents coefficients from -50 percent to 0 percent growth.

*Note that the 0-percent growth bin spans -2.499 percent to 2.5 percent; -5-percent bin spans -7.499 percent to 2.5 percent, etc.

Table A7: Decomposition of the benefit ratio

Variance of benefit ratio	1.000
Variance components of benefit ratio explained by variation in:	
Separation rate	0.844
Claim rate	0.860
Realized replacement rate	0.622
Separation rate and claim rate	0.987
Sep. rate and realized replacement rate	0.885
Claim rate and realized replacement rate	0.973
Number of employers	5,327

Notes: An employer's benefit ratio is computed as the product of the four-year averages of the separation rates, claims rates, and realized replacement rates (as described in the text) for year 2009 (hence, values are based on four prior years' values 2005–2008). Each rates' share of variance is computed by replacing the employer's observed rate by the sample average. Therefore, each number in the table shows the share of the variance in the benefit ratio that would be reduced if the rate corresponding to a given bar was made equal across all employers.

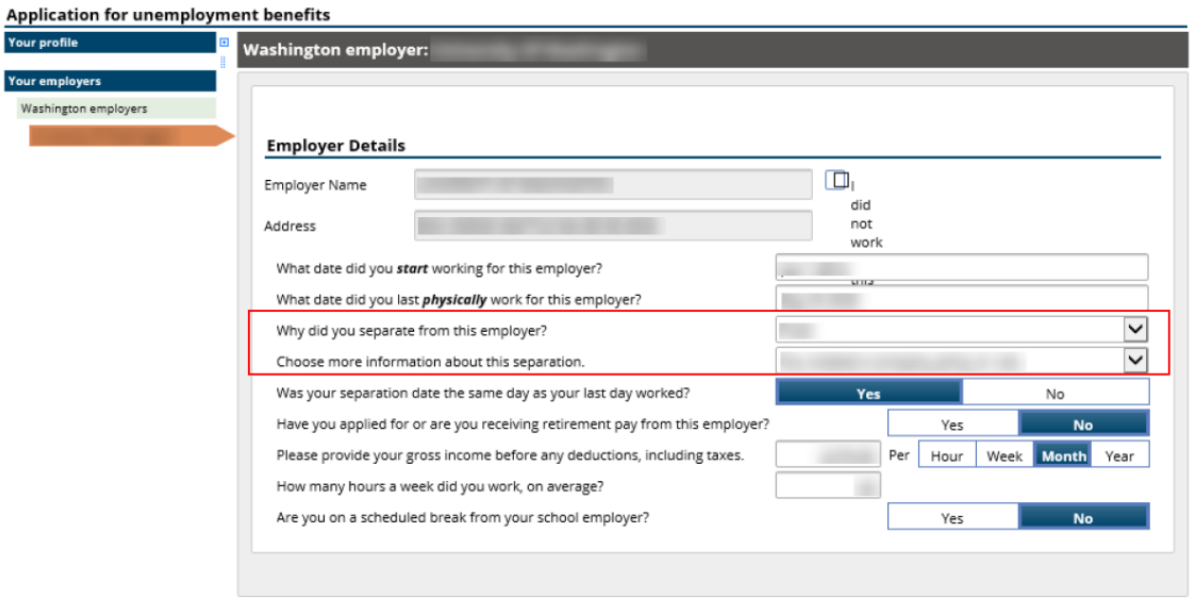
Table A8: Distribution of shrunken and raw employer-level UI claim rates, appeal rates, and receipt rates

Variable	Mean	Variance	Worker-quarters	Estimate of α	Estimate of β
Employer UI claim rate	0.458	0.099	841,533		
Shrunk employer UI claim rate	0.450	0.035	841,533	2.57	3.26
Employer appeal rate	0.033	0.012	732,133		
Shrunk employer appeal rate	0.035	0.00008	732,133	3.72	94.15

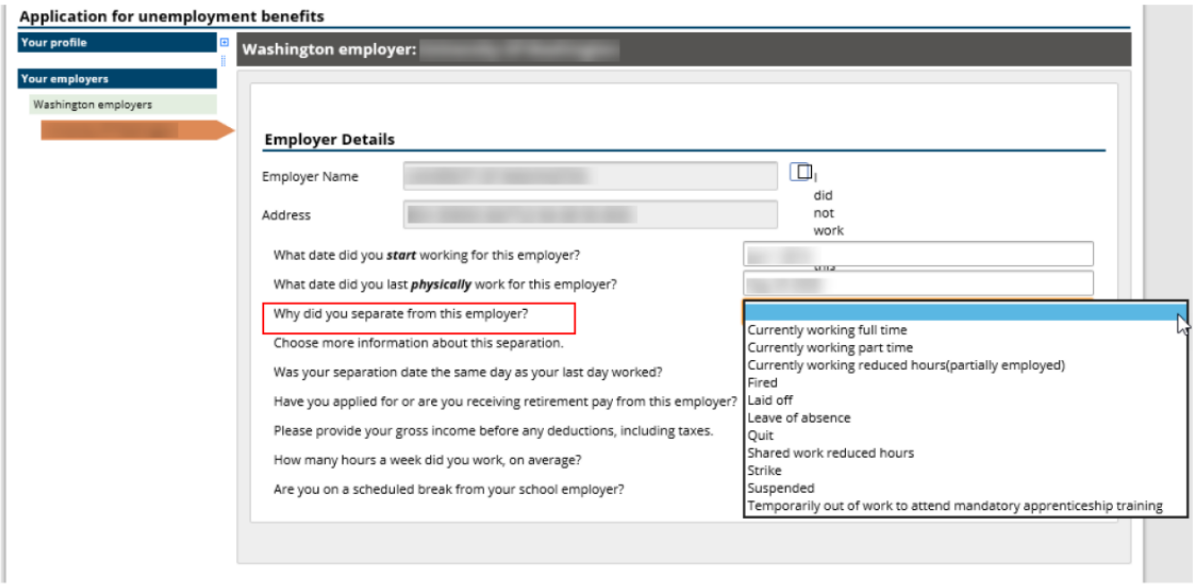
Notes: The correction applies the posterior estimates based a two-parameter (α,β) beta distribution fitted by maximum likelihood.

Figure A1: “Reason for separation” questions asked of UI applicants

Separation questions on the initial unemployment insurance application:

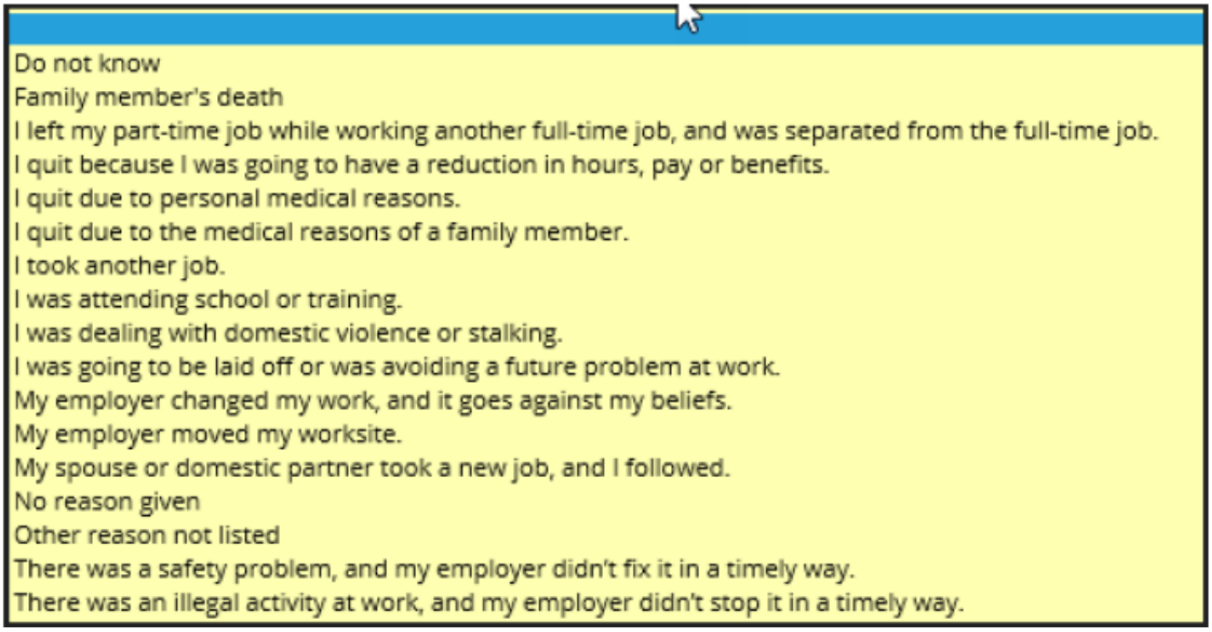


Drop down menu for the “Why did you separate from this employer?” question:



Claimant job separation questions, continued

Drop down menu example for the "Choose more information about this separation" question. These options would be available if you selected "Quit" for the "Why did you separate from this employer?" question:



Notes: These screenshots obtained from Washington State ESD through public records request PRR-2023-0133 asking for "information about the reason for separation questions that UI claimants are asked when they apply for UI benefits in WA."

Figure A2: Example of a factfinding letter

Once a separation issue sets on a claimant's account, they are sent a fact finding letter. Example of a fact finding letter:

Dear : Separation from a job

You must respond to this letter by Sep 11 2023.

We need you to answer the questions below. Then we will decide whether we can pay or continue to pay you unemployment benefits. If you don't respond by the deadline, we'll use the information we have to make our decision. This means we might not pay you unemployment benefits, and you might have to pay back benefits you already received.

What you need to do
We received information that you quit your job with . Answer the questions below and send back this letter on eServices or mail or fax it to:

Employment Security Department
P.O. Box 9046
Olympia, WA 98507-9046
Fax: (800) 301-1796
Toll Free: (800) 318-6022

If you decide to answer the questions on eServices, you don't have to mail or fax in your response.

1. Did you work for this employer? ☐ Yes ☐ No
2. Employer's phone number, including area code: _____
3. Employer's email: _____
4. Your job title with the employer: _____
5. Your job duties with the employer: _____
6. What was your first day of work? _____
7. What was the last day you physically worked?
8. What was the actual date of separation? _____
9. Did your employer give you the option to resign, rather than be fired? ☐ Yes ☐ No
10. Did you give your employer a resignation letter or notice that you were quitting? ☐ Yes ☐ No

PRR-23-0133
00003

Notes: These screenshots obtained from Washington State ESD through public records request PRR-2023-0133 asking for "information about the reason for separation questions that UI claimants are asked when they apply for UI benefits in WA."

If yes:

- On what date? _____
- What date did you say would be your last day of work? _____
- Were you allowed to work until that day? ☐ Yes ☐ No

If not, were you paid through that day? ☐ Yes ☐ No

11. Why did you quit your job on that day? Please explain what happened on that day to make you decide to quit._____
_____
_____

Your rights

You may request an interview before we make a decision about whether you are eligible for unemployment benefits. We conduct interviews by phone unless you request an in-person interview. You may:

- Have anyone help, including an attorney.
- Present evidence, documents, or witnesses.
- Cross-examine witnesses or parties at the interview.
- Ask for copies of all records or documents related to the issue.

Tell the Truth

If you make a false statement or withhold information about your claim, we consider that fraud. If you commit fraud, you may be denied benefits for future weeks, have to pay back benefits you already received, and pay a penalty.

Potential overpayment

We may have already paid you $ in unemployment benefits. We must decide whether you were actually eligible to receive those benefits. The amount we paid you includes any money we withheld for federal income tax, child support or repaying unemployment benefits.

If we paid you too much (called an overpayment), and it was your fault, you must pay it back. If you don't, we can:

- Take money from your federal Internal Revenue Service (IRS) income-tax refund.
- Place a lien on your property.
- Garnish your wages and bank account.
- Withhold future unemployment benefit payments.

If you had an overpayment and it was not your fault, you can request a waiver. If we approve your request, you won't have to pay us back. Any amounts already paid to the IRS or for child support will not be waived.

Why do you feel you were not at fault for this overpayment? _____
_____
_____
_____
_____

Will we pay you while we're making our decision?
If we have not paid you in the last four weeks, we won't pay you while we make our decision. If we approve your claim for unemployment benefits, we'll pay you for all the weeks you claimed and qualify.

If we have paid you in the last four weeks, we typically will continue to pay you "conditionally" until we make a decision about your claim. If we deny your claim, state law says you must pay back all conditional benefits you received.

I have read and understand my rights. The information I provided is true to the best of my knowledge.

Your signature: _____
Your phone number: (____) _____
Date: _____

Keep submitting your weekly claims
Even while we are investigating, continue to submit your weekly claims on time. If we decide you are eligible for benefits, we will pay you only for weeks you claimed. We may deny benefits for weeks you claim late.

PRR-23-0133
00005

Figure A3: Employer job separation statement

(1 OF 2)

State of Washington — Employment Security Department
Notice to Employer — Job Separation Statement

Important: This employee has applied for unemployment benefits. Complete and return this form and any other relevant documents. If you don't respond on time with complete information and we later determine benefits were paid in error, RCW 50.29.021(6) says you may be charged for benefits paid.
Exception: If the employee is off work or working reduced hours due to a lack of work, you do not need to return this form unless you want this employee on standby.
You must return this form by ➔ ➔ ➔ ➔ ➔ **02/25/2014** . Mailed on: **02/14/2014**

BUSINESS NAME
ADDRESS

CITY STATE ZIP

Return address:
EMPLOYMENT SECURITY DEPT
PHONE: 1-(877) XXX-XXXX
FAX: (800) 301-1796
PO BOX 19019
OLYMPIA WA 98507-0019

Sample

Sample

Name: JANE B. DOE **SSN: 000000000** **Seq #: 000**

Start date: 10/10/2012 Last day worked: 02/13/2014 ES reference #: XXXXXX 00

Employee separation reason: LACK OF WORK

❑ Check here if this person never worked for you ❑ Check here if the employee is working all available hours

Employer's statement:

Employee's start date: _____ Last day physically worked: _____ Date separated (if different): _____

Employee's job title or occupation: _____

If this employee is no longer working for you, please tell us why: ❑ Lack of work ❑ Quit ❑ Leave of absence ❑ Fired ❑ Strike/lockout

Complete this section if you want the employee on standby:

Employees who worked full time (40 hours per week) for you may request standby if they have a definite date to return to full time work within 4 weeks. Claimants on standby don't have to look for work but must accept any suitable work you offer. You may request to place your employee, with a definite return to work date, on standby up to a maximum of 8 weeks per claim year.

❑ I would like this person on standby ❑ This person regularly works full time Standby start date:_____ Return to work date:_____

Complete this section if the employee quit:

1. Did the employee tell you why he or she quit? ❑ Yes ❑ No
2. What was the main reason the employee gave for quitting? Please provide specific details: _____
3. Did the employee pursue any alternatives to resolve any problems, such as requesting a transfer or leave of absence, etc.?
   ❑ Yes ❑ No If yes, please explain: _____
4. Do you have any documents relating to the reason the employee quit (such as a resignation letter, request for a leave of absence, etc.)?
   ❑ Yes ❑ No If yes, please send copies of the documents with this form (include the employee name and SSN on the documents).

Complete this section if the employee is on a leave of absence:

1. When did the leave of absence begin? _____
2. When is it scheduled to end? _____
3. Are you holding the same or similar job for the employee? ❑ Yes ❑ No If yes please explain: _____

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Employer job separation statement, continued

(2 OF 2)

Name: **JANE B. DOE** SSN: 000000000

Complete this section if you fired the employee:

1. What date did you decide to fire the employee? _____

2. What happened on that day to make you decide to fire the employee? _____

_____

3. If you did not fire the employee on the same day you made the decision, tell us why: _____

_____

4. Please provide specific details about the reason(s) you fired the employee, including dates, prior warnings, or similar incidents: _____

_____

_____

_____

_____

_____

5. Do you believe the employee's actions or inactions were: ❑ deliberate, ❑ careless/negligent or ❑ neither (explain): _____

_____

_____

_____

6. What effects did the employee's action(s) or inaction(s) have on your business? _____

_____

_____

7. Do you have any documents relating to the reason you fired this employee (such as written warnings, copy of a policy, witness statements, attendance records, etc.)? ❑ Yes ❑ No If yes, please send copies of the documents with this form and include the employee name and SSN on the document(s).

Complete this section if the employee is not available for work:

Explain why and provide dates if known: _____

_____

_____

RCW 50.29.021(21) says you may be charged for any benefits paid in error if you do not respond to this notice timely or adequately. If you are returning this form after the deadline, please explain why you are late: _____

_____

_____

Your information:

Name: _____ Title: _____ Business name: _____

Signature: _____ ES Ref #: _____ Phone: (_____) _____

Please tell us who we should contact if we need more information:

❑ Same as above

Name: _____ Title: _____ Phone: (_____) _____

Email: _____

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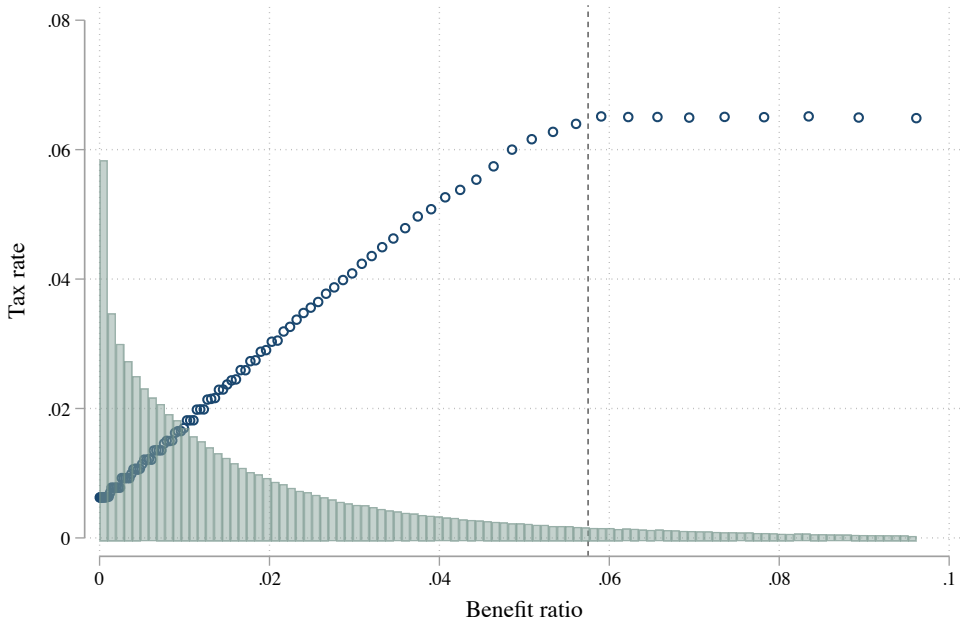
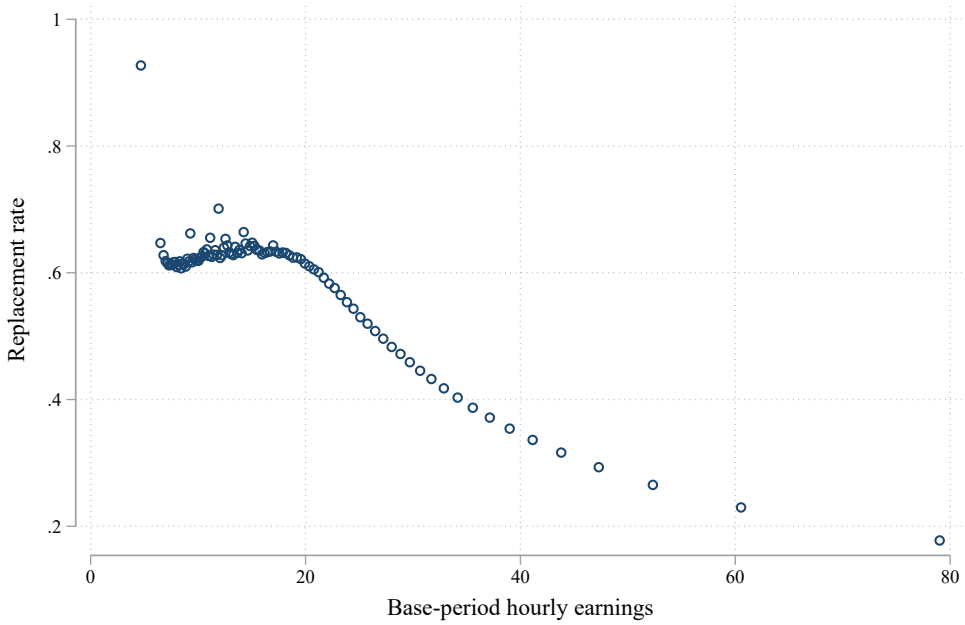
Notes: This form was obtained from Washington state ESD webpage `https://esd.wa.gov/Contents/Item/Display/18726`.

Figure A4: Employer tax rate as a function of benefit ratio



Notes: The circles show the relationship between an employer's benefit ratio the tax rate for years 2005–2013. The tax rate reaches the maximum when the benefit ratio equals 0.0575 or more. The average tax rate at the maximum is about 6.5% (with small fluctuations between the years). The grey bars in the background show distribution of employers by benefit ratio. The figure shows benefit ratio values larger than zero and smaller than 0.10 .

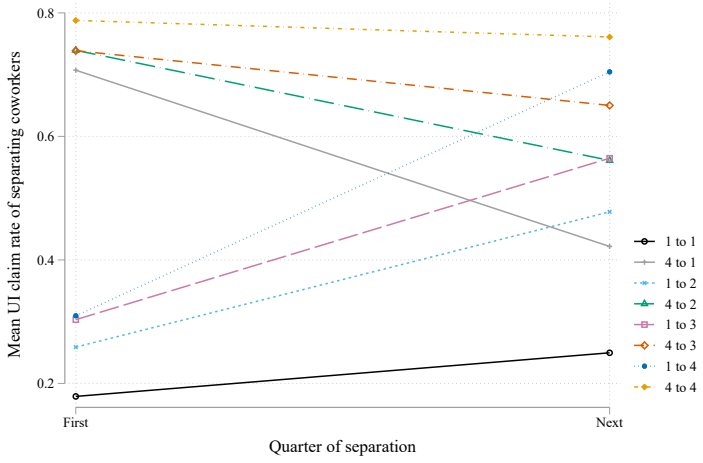
Figure A5: Replacement rate versus base-period hourly earnings



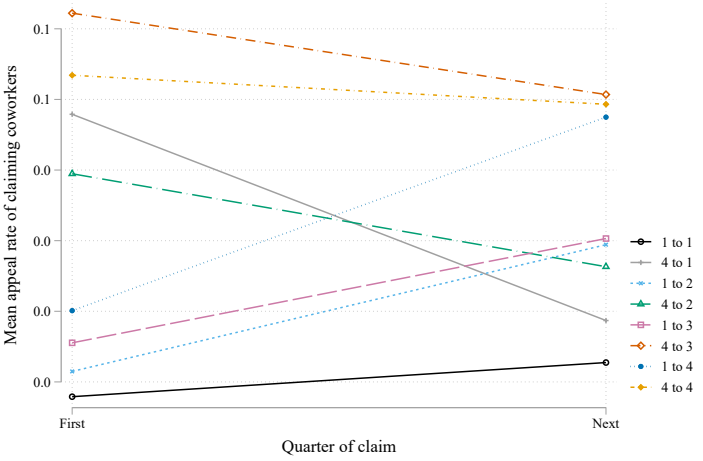
Notes: The figure shows a scatter plot of the replacement rate as a function of base-period hourly wages, based on the sample summarized in Table 1, column 4.

Figure A6: Event study version of switcher analysis

Panel A: Mean UI claim rate of switchers, classified by quartile of mean claim rate of separating coworkers at origin (first quarter) and destination (next quarter) employer



Panel B: Mean appeal rate of switchers, classified by quartile of mean appeal rate of claiming coworkers at origin (first quarter) and destination (next quarter) employer

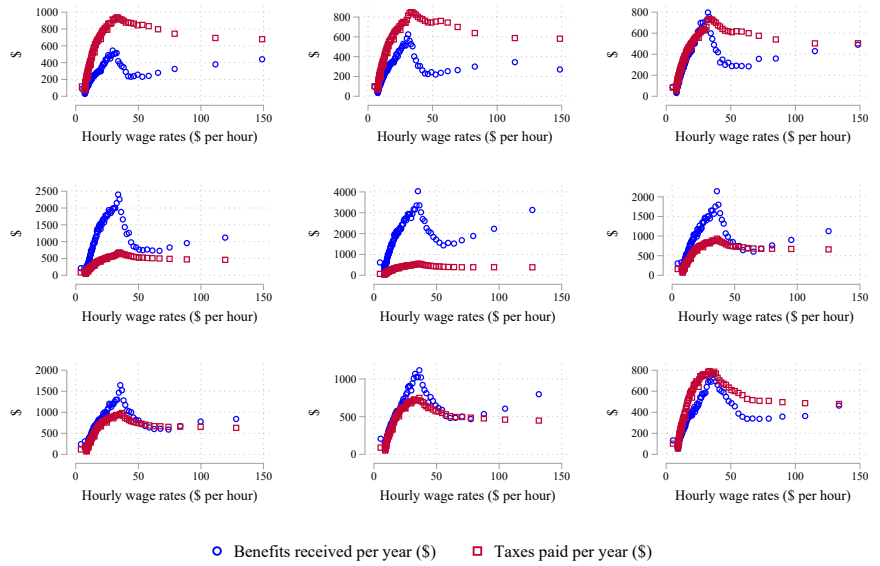


Notes: For each switcher, we classify employers into quartiles by the average claim rate (appeal rate) of their coworkers. We then select a) workers who switch employers twice (and are eligible to claim twice) and b) workers who claim twice (and may have their claim appealed twice). We calculate average claim (appeal) rate before and after the switch for each interquartile move. Following Card, Heining, and Kline (2013) we plot the moves from the top and bottom quartiles.

Figure A7: Actual and simulated UI claim rate and benefits, by worker hourly wages

Panel A: UI taxes and benefits, by hourly wages

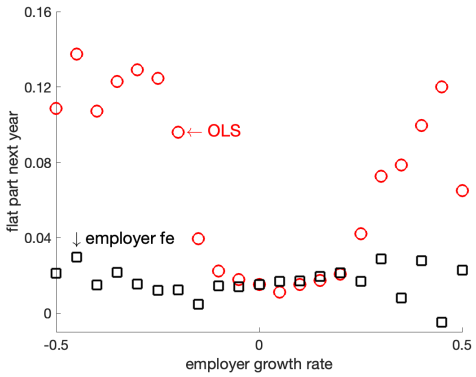
Panel B: UI taxes and benefits, by worker hourly wages: annual



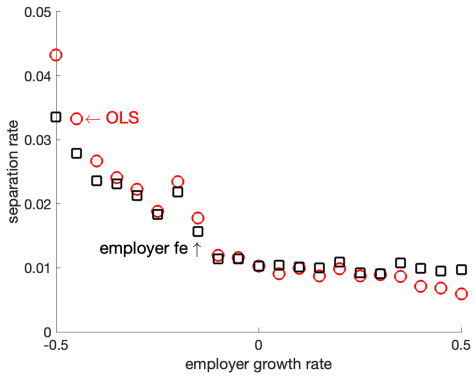
Notes: In the top panel, the red hollow dots show predicted average benefits paid for each centile. The blue dots show simulated average benefits paid for each centile, where the employer effects on claiming have been set to the sample mean. The squares denote the average UI taxes paid. The bottom panel repeats the empirical analysis in each year.

Figure A8: Employer growth rate and UI outcomes

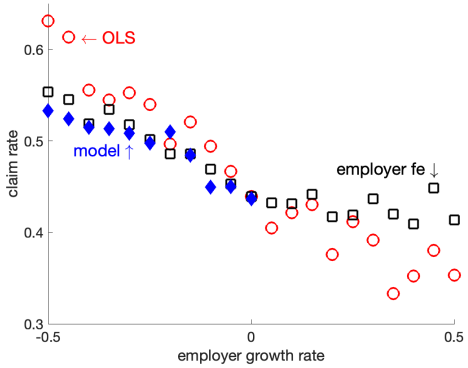
Panel A: Employer on flat part next year



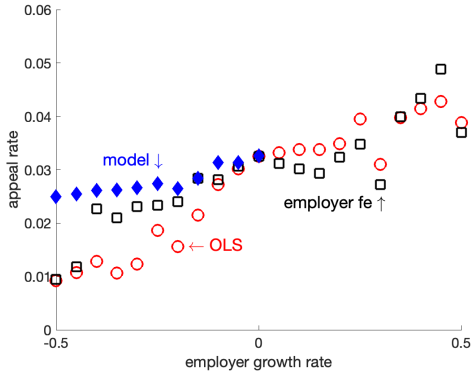
Panel B: Separation rate



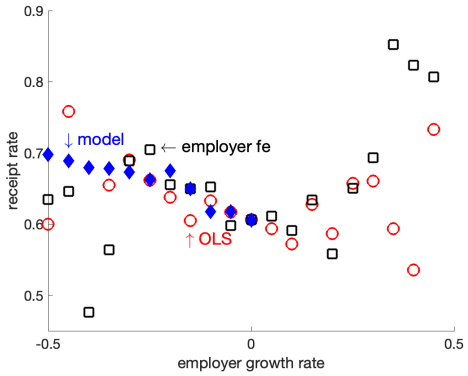
Panel C: UI claim rate



Panel D: Appeal rate

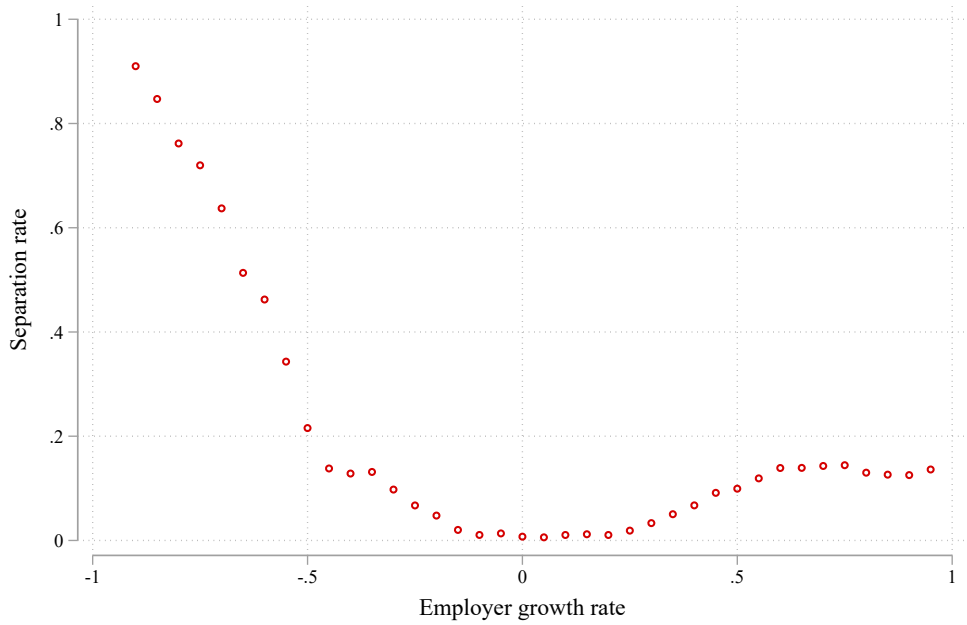


Panel E: Receipt rate (conditional on appeal)



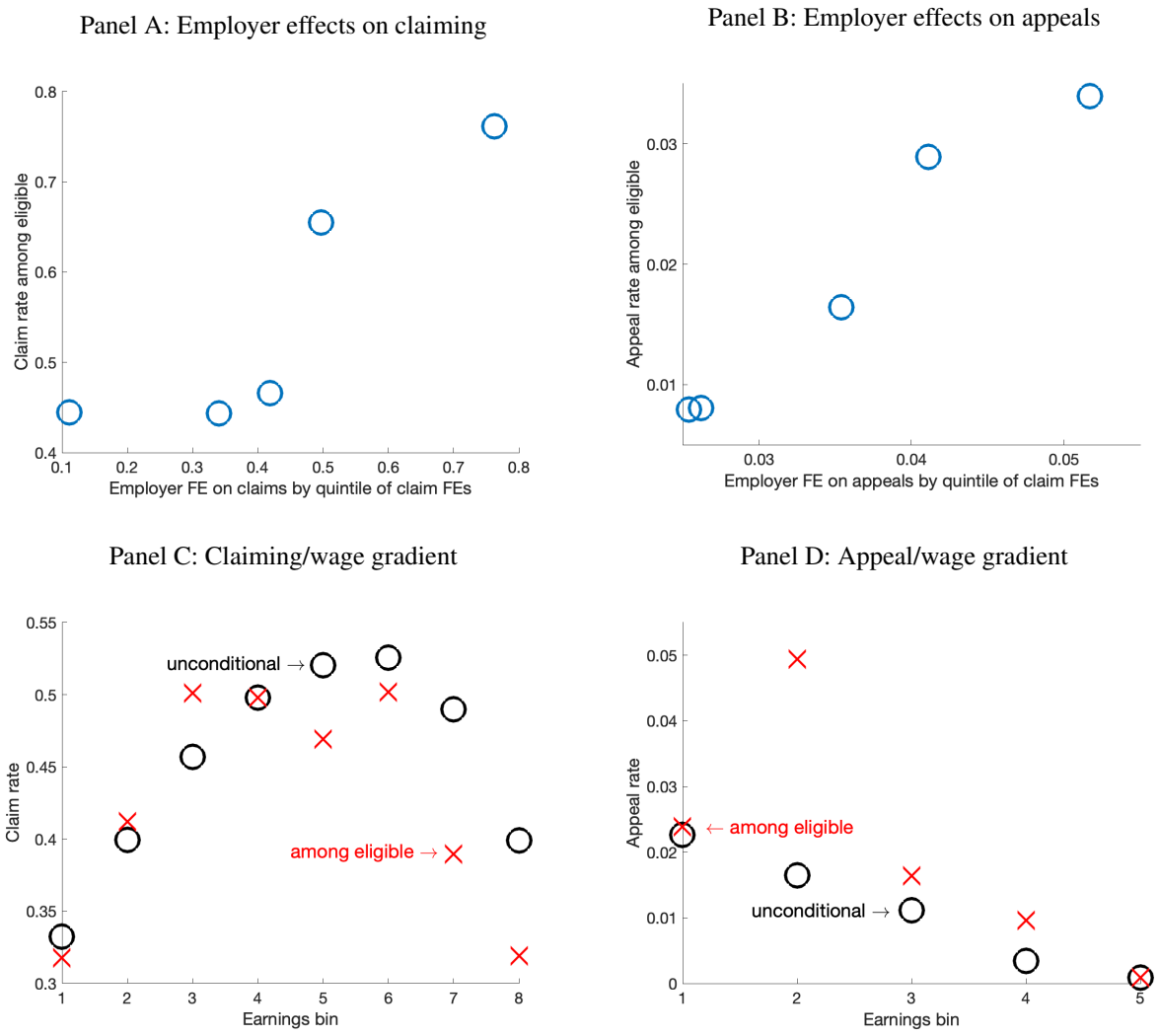
Notes: The outcome "employer on flat part next year" is the probability that the employer is observed on the flat part the experience rating schedule in the following year. The analysis sample consists of separations in Table 1, column 4. The employer growth rate is defined as the difference in total annual employer hours and is grouped using twenty-one five percentage-point-wide bins. Each panel plots the coefficients resulting from a regression of the variable listed on the vertical axis against the growth-rate bin dummies. OLS shows coefficients without controlling for employer effects. The employer effect points add employer effects. The model points are based on the framework in Section 5. See Table A6 for the regression coefficients.

Figure A9: Quarter-to-quarter separation rate as a function of employer-growth rate, any separation



Notes: The line shows the quarter-to-quarter separation rate based on work hours with primary employer. The numerator is the number of separations defined as observations where a worker has a different primary employer in quarter $t+1$ than in t or has no hours in $t+1$. The denominator is the total number of observations with positive hours in t. employer growth rate is defined as the year-to-year change in total employer hours. The sample includes all worker-quarter observations of primary employment in the Washington administrative wage records, 2001–2014.

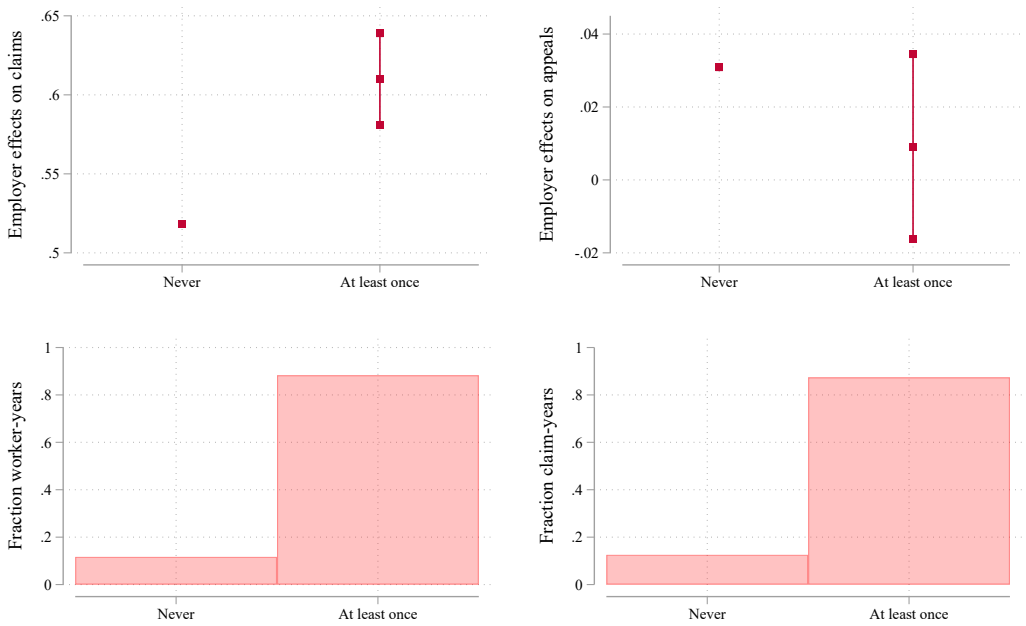
Figure A10: Validation of employer effects and wage gradients



Notes: Panel A shows the relationship between estimated employer effects on claiming and claim rates among separation eligible workers. Panel B shows the analogous relationship for appeals. All workers are monetarily eligible. The rates for the separation-eligible workers are derived from the framework in Section 5.

Panel C compares the claim rates of separation-eligible workers (derived from the framework in Section 5) with our main sample of separators (based on the sample in Table 1, column 4). All workers are monetarily eligible. Panel D presents analogous results for appeals. The number of points in panels C and D are chosen to maximize the number of points where the model provides non-negative estimates of the claim and appeal rate. In panel C the two series are normalized to be equal in the fourth bin and in panel D they are normalized to be equal in the fifth bin.

Figure A11: Linking experience rating to average employer claim and appeal effects



Percent of time employer is on the maximum flat part of benefit-ratio tax schedule

Notes: The top two panels shows coefficients (squares) and associated 95-percent confidence intervals (CI) (bars) from separate univariate regressions of estimated employer effects on an indicator for whether the employer is ever observed on the flat part of the benefit ratio formula as opposed to never observed on the flat part. There is no CI on "never" because it is the omitted category. The coefficients have been scaled to sample averages. The CIs are based on KSS-corrected standard errors. The bottom two panels show the fraction of observations ever vs. never observed on the flat part.

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