All Events: 2004-2016

We follow Equation 7, and include relative lags and leads for each event between 2004 through 2016. We present these results in Panel A of Figure A.1. Detailed estimates can be found in Col. 2 of Table I. Prior to the enactment of the policy, the dynamic effects are small and confidence intervals always include zero. In this specification, we estimate that wages fall by 1.6% (p-value = 0.021) in the first year after the policy and that they continue to fall to -2.6% (p-value = 0.039) by year three.

Figure A.2 Panel A reports the estimated coefficients, replacing our dependent variable with the share of workers employed full time in the private sector. Our point estimates suggest that employment remains constant leading up to the ROWTT enactment, and continues on the same path after ROWTT. After one year, the coefficient is 0.21% (p-value= 0.243) and after three years the point estimate is 0.33% (p-value= 0.407). We cannot reject zero impact on employment during the 3 years after ROWTT enactment.

Including Region-by-Year Fixed Effects

In this specification, we depart from the baseline by adding region-by-year fixed effects $\alpha_{rt}$ using the nine detailed divisions of the U.S. Census.\(^1\) We present these results in Panel B of Figure A.1.\(^2\) Detailed estimates can be found in Col. 3 of Table I. Prior to the enactment of the policy, the dynamic effects are small and confidence intervals always include zero. In this specification, we estimate that wages fall by 2% (p-value = 0.023) in the first year after the policy and that they continue to fall to -2.5% (p-value = 0.125) by year three.

Figure A.2 Panel B reports the estimated coefficients, replacing our dependent variable with the share of workers employed full time in the private sector. Our point estimates suggest that employment remains constant leading up to the ROWTT enactment, and continues on the same path after ROWTT. After one year, the coefficient is -0.08% (p-value= 0.719) and after three years the point estimate is 0.18% (p-value= 0.537). We cannot reject zero impact on employment during the 3 years after ROWTT enactment.

Weighting by Gender-by-Education in $t = -1$

In this specification, we estimate the baseline model presented in Panel A of Figure II, re-weighting to fix the gender-by-education at its level in $t = -1$. The reweighting factor can be expressed as $w_t^{e gs} / w_t^{e gs}$, where $w_t^{e gs}$ is the total weight of all of the workers with education $e$ and gender $g$ in state $s$ at time $t$. We present these results in Panel C of Figure A.1.\(^3\) Detailed estimates can be found in Col. 4 of Table I. Prior to the enactment of the policy, the dynamic effects are small and confidence intervals always include zero. In this specification, we estimate that wages fall by 1.8% (p-value < 0.001) in the first year after the policy and that they continue to fall to -2.4% (p-value = 0.017) by year three.

---

\(^1\)We pool together the “West North Central” and “East North Central” divisions to form the “Midwest” Census region to ensure that there are no singleton divisions.

\(^2\)Analogous results for employment are available in Panel B of Figure A.2.

\(^3\)Analogous results for employment are available in Panel C of Figure A.2.
Figure A.2 Panel C reports the estimated coefficients, replacing our dependent variable with the share of workers employed full time in the private sector. Our point estimates suggest that employment remains constant leading up to the ROWTT enactment, and continues on the same path after ROWTT. After one year, the coefficient is 0.11% (p-value= 0.399) and after three years the point estimate is 0.40% (p-value= 0.049). While the effect after three years reaches significance at the 0.05 level, this is due in large part to the increased precision of the estimate - in this model, our 95% confidence interval allows us to rule out increases of larger than 0.81% after three years. This is a tighter upper bound than the baseline upper bound of 0.97%.

Sun-Abraham Weighted Interaction Estimator

Following the Sun and Abraham (2020) procedure, we fully interact a vector of cohort indicators with the dynamic effect indicators. Thus, we estimate the following equation, recovering the cohort-specific dynamic effects $\beta_{we}$.

$$y_{ist} = \alpha_s + \sum_{e \in E} \left[ 1\{E_s = e\} \times \left( \sum_{w=-6}^{-2} \beta_{we} 1\{t - E_s = w\} + \sum_{w=0}^{3} \beta_{we} 1\{t - E_s = w\} + \gamma_e 1\{t - E_s < -6\} + \delta_e 1\{t - E_s > 3\} \right) \right] + \lambda X_{ist} + \epsilon_{ist}$$

(10)

where $E$ is the set of all event times $E_s$. We then recover the interaction-weighted dynamic effects $\beta_{IW}$ by taking the weighted average of the underlying cohort-specific dynamic effects $\beta_{we}$ in a given period $w$. We assign each cohort its sample weight $\omega_e$, which is simply the (sample-weighted) number of observations in each cohort divided by the total weight of the sample such that $\sum_{e \in E} \omega_e = 1$. The IW estimates $\beta_{IW}$ are given by

$$\beta_{IW} = \sum_{e \in E} \omega_e \beta_{we}$$

(11)

To create a valid control for a final cohort, we do not estimate the treatment effects of the 2016 cohort. We then collapse these cohort-specific dynamic effects and report the weighted average, where each cohort is weighted by its share of the estimation sample. To ensure a consistent set of states in the post period, (and to make estimates comparable to the baseline balanced specification) 2014 and 2015 cohorts receive zero weight in the post period $w \geq 0$.

We present these results in Panel D of Figure A.1.4 Detailed estimates can be found in Col. 4 of Table I. Prior to the enactment of the policy, the dynamic effects are small and similar to the baseline specification. However, these estimates are much more precisely estimated, so standard errors do exclude zero in periods -3 and -2. Post period effects are also much more precise and exclude zero with p-values < 0.001 in all periods. The estimate in the first year of the event is a 2.2% decrease, and the estimated effect after three years is -2.8%. The 95% confidence intervals of the average effect in the post period $w \geq 0$ covers -2.6% to 1.8%.

Figure A.2 Panel D reports the estimated coefficients, replacing our dependent variable with the share of workers employed full time in the private sector. Our point estimates sug-

4 Analogous results for employment are available in Panel D of Figure A.2.
gest that employment remains constant leading up to the ROWTT enactment, and continues on the same path after ROWTT. After one year, the coefficient is 0.15% (p-value= 0.499) and after three years the point estimate is 0.18% (p-value= 0.119). We cannot reject zero impact on employment during the 3 years after ROWTT enactment.

B. Empirical results by heterogeneity

Unconditional Quantile Regression

In Figure A.3 we use a series of unconditional quantile regressions (Firpo et al., 2009) to estimate the dynamic effects of ROWTT at various quantiles of the wage distribution (Panel A). In Panel B, we take advantage of the flexibility of the recentered influence function (RIF) estimation procedure to define the quantiles within state-year-occupation-industry cells, excluding cells with fewer than 10 observations.\(^5\) The second stage regression taking the RIF as the outcome follows the baseline model outlined in Section III.C. As in the baseline specification, we two-way cluster standard errors by state and year.

In Panel A, the median income effect closely tracks the average treatment effect. One year after enactment, the wage decline is 1.8% (p-value= 0.008) and by the third year it is 1.9% (p-value = 0.083). The average post-treatment effect for the 10th, 25th, 50th, 75th and 90th percentiles are -3.8%, -2.5%, -1.2%, -1%, and -1.4% respectively (p-values = 0.032, 0.071, 0.080, 0.153, 0.068, respectively).

In Panel B, the median income effect closely tracks the average treatment effect. One year after enactment, the wage decline is 1.6% (p-value=0.067) and by the third year it is 1.8% (p-value = 0.154). The average post-treatment effect for the 10th, 25th, 50th, 75th and 90th percentiles are -2.3%, -2.8%, -1.4%, -1.7%, and -0.9% respectively (p-values = 0.014, 0.003 , 0.015, 0.002, 0.190, respectively).

Comparing Panels A and B provides evidence of different wage effects by quartile for within vs. across narrowly-defined labor markets. Confidence intervals are generally smaller in Panel B, revealing smaller variance in the wage effects of those at different parts of the wage distribution within state-year-occupation-industry cell. However, in both specifications, we observe a larger drop in wages for those at the bottom of the wage distribution following ROWTT enactment (wage declines for the 10\(^{th}\) percentile are roughly twice the magnitude of those of the 90\(^{th}\) percentile in both panels), suggesting that overall wages are not compressed in the economy, or even within narrowly-defined labor market. Recall that our theory predicts only within firm wage compression, and as we discuss on page 8, our bargaining framework is consistent with increased dispersion in wages within a labor market.

Employment Share by Unionization

In Figure A.4 Panel A we separately plot the dynamic effects of ROWTT on the share of workers employed in the private sector for occupations with above and below the median share of unionized workers, estimated jointly following equations 7 and 9. In Panel B we plot the difference between the effects for occupations with low and high rates of unionization. Leading up to the enactment of ROWTT, share employment in high and low unionized

\(^5\)Our sample includes just under two million observations after this restriction; roughly 15% of our sample is excluded.
occupations follow the same trajectory, and remain statistically unchanged in the years following enactment. Among relatively unionized occupations, employment rises by 0.36% (p-value = 0.279) one year after enactment and remains at 0.03% (p-value = 0.923) three years after enactment. For occupations with relatively low rates of unionization, employment rises by 0.21% (p-value = 0.716) one year after enactment and remains at 0.71% (p-value = 0.363) three years after enactment. Differences in each year are statistically insignificant.

Effect by Quartile of Occupation-Level Unionization

In Figure A.5, we find evidence of a strong unionization gradient in the effect of pay transparency. In the least-unionized quartile, wages fall by 3.5% (p-value = 0.002) three years after the event. However, in the most unionized quartile, wages fall by only 1.5% (p-value = 0.011) over the same period.

In the first quartile, 1.9% of workers are covered by a union or collective bargaining agreement. In the second quartile, that share is 3.5%, in the third 7.6% and in the fourth quartile 19.4%.

Public Sector Workers

In Figure A.6, we replicate our baseline specification on a sample restricted to public sector workers. The sample size is smaller and standard errors are wider, however, the evidence points to minimal or no change in overall wages following ROWTT enactment in this subsample. The average of all post-period coefficients is -1.1% (p-value =0.255). Visually, point estimates of the change in wages year over year appear to decline only slightly, and the confidence interval always includes 0 effect. Our interpretation of a null effect on wages must be taken with a grain of salt, because the post-treatment confidence interval ranges from -3.0 to +0.9.

Figure Panel B reports the estimated coefficients, replacing our dependent variable with the share of workers employed full time in the private sector. Our point estimates suggest that employment remains constant leading up to the ROWTT enactment, and continues on the same path after ROWTT. After one year, the coefficient is -0.02% (p-value= 0.367) and after three years the point estimate is -0.12% (p-value= 0.377). We cannot reject zero impact on employment during the 3 years after ROWTT enactment.

C. Internal Validity Checks

Balance Plot

In Figure A.7, we present several characteristics of states in the year before they implement a ROWTT policy. In the first row we show the mean gender gap, without adjusting for covariates. In the second row, we show the difference between the 90th and 10th percentiles of the state-level wage distribution. In the third row, we show the statutory state-level minimum wage. In the fourth row, we show the share of prime-age women who report being employed. Finally, in the fifth row, we present means of our occupation-level union coverage variable.

Corporate tax

In Figure A.8, we show that the state corporate tax rates in the states with events remains flat through the enactment of the ROWTT policies. In Panel A, we present results
with a balanced post-period and find a reasonably precisely estimated null result. The 95% confidence interval of the mean of the post period coefficients ranges from -0.55% to 0.08%. In Panel B, we lift the balance restrictions and recover estimates that are even closer to zero, and the 95% confidence interval of the mean of the post period coefficients ranges from -0.50% to 0.20%.

D. Employee Composition Decomposition Exercises

Our model identifies two channels that could result in changes in wages after an increase in pay transparency. First, increased bargaining power to firms will lower wages within firm. Second, transparency may lead to either increase or decrease employment, or a reallocation of workers across firms.

In this section, we attempt to decompose the impact of the composition effect on wages. To do so, we assume that transparency has no (bargaining) effect on wages within a firm, and then bound the total wage effect the composition change would have.

In this section, let $A$ represent the average wage prior to an increase in transparency, $N$ the number of employed workers, $\epsilon$ the proportional increase in employment following the transparency policy, and $\delta$ the elasticity of wages with respect to reallocation toward lower-value firms. To create a conservative estimate for the impact of bargaining on reducing wages, in all parameter estimates we describe below, we input a figure that is two-standard deviations from the respective coefficient estimate, in the direction of inflating the composition change.

An important component for our technique is to estimate $\delta$. We do this in two steps.

First, we compute the change in the firm-level revenue per worker of the average worker from a subsample of firms included the Fundamentals Annual series provided by Compustat. Our sample covers 1,088 large, publicly traded companies. In 2016, the median firm in our sample employed 1,147 people and had revenues of roughly 400 million dollars. We estimate the change in the average firm’s revenue-per-worker (weighted by the number of workers at each firm) following ROWTT, using our event-study framework. The post-transparency effect can be bounded (at two standard deviations) at decreasing the firm-level revenue per worker of the average worker by no more than 0.021 log points.

Second, we bound the expected effect of a decrease of 0.021 log points in the firm-level revenue per worker on wages. Table 7 of Barth et al. (2013) finds that each log point decrease in revenue per worker is associated with (bounded at 2 standard errors from their largest parameter estimate) a 0.386 log point decrease in wages at the firm level. Therefore, we estimate an upper bound for $\delta$ as $0.021 \cdot 0.386 = 0.008$.

Method 1

The first bound assumes, as in our model, that each firm has a value $v$ per labor. Therefore, reallocation toward lower-value firms could result in lower wages. The proportional wage change due to the composition effect is

$$
\frac{(1 - \delta)A \cdot \frac{N(1+\epsilon)}{N(1+\epsilon)} - A \frac{N}{N}}{A \frac{N}{N}} = -\delta
$$

where the first term in the numerator on the left-hand side is the average wage following the
policy, and the second term is the average wage before the policy. Note that the change in overall employment, $\epsilon$, does not appear in the final wage effect. Therefore, from our upper bound estimate of $\delta$ above, this method yields a 0.008 log point decrease in wages.

Method 2

This method assumes that workers are differentially productive, and therefore, changes in the overall workforce may affect average productivity, thus driving down wages.

From Table I Col. 2, the overall level of employment changes by $\epsilon \in (0.000, 0.004)$ log points. Again, to conservatively bound our estimates of wage decline due to bargaining, we take $\epsilon = 0.004$. Moreover, we assume that this change is due to an $\epsilon$ increase in hiring (i.e. no existing workers exit). To bound the impact of new arrivals, we assume that all new workers are from the bottom of the productivity distribution and receive 0 wages. The proportional wage change due to the decomposition effect is therefore

$$\frac{(1-\delta)AN+\theta N}{N(1+\epsilon)} - A^N_N = -\frac{(\epsilon + \delta)}{1 + \epsilon}$$

Using our bound on $\delta$ from above, we calculate an overall upper bound on the wage decline at 0.012 log points.

E. STUDY DETAILS FROM META-ANALYSIS

In Table A.1 we include the full set of studies surfaced using our criteria for inclusion, described in Section IV. Figure A.9 plots the point estimates of the effect of transparency on the gender wage gap in each study.

F. OMITTED PROOFS

Proof of Proposition 1: Due to the fact that the distribution of worker outside options $G(\cdot)$ is continuous and has full support over $[0, 1]$, and assumptions A2-3, there is some worker $j \in I$ such that $w^*_j = \bar{w}$. Therefore, upon renegotiating, any worker $i$ will receive a flow wage equal to $\bar{w}$. Let $\bar{F}(x) = P(\bar{w} \leq x)$, for all $\lambda < \infty$. Each worker $i \in I$ negotiates at time $t = 0$ to solve:

$$w^*_i \in \arg\max_{w_i} \left( \frac{(1-k) \cdot w_i + k \cdot \mathbb{E}(\bar{w}|\bar{w} \geq w_i)}{\delta + \lambda} \right) \left( 1 - \bar{F}(w_i) \right) + \frac{\theta_i}{\delta} \bar{F}(w_i)$$

where the first term represents the expected discounted wage the worker receives, given the arrival rate of information, if matched with the firm: she receives a convex combination of $w_i$ and $\bar{w}$ until the transparency process arrives, at which time she renegotiates her wage to $\bar{w}$. The second term represents the discounted earnings of the worker if she exceeds $\bar{w}$ and instead consumes her outside option. When $\lambda = \infty$, the pricing scheme is a posted price in which all workers can elect to make an offer $w^*_i = \bar{w}$ or unmatched with the firm.

In a series of steps, we modify the objective function without affecting the maximizer. For $\lambda \in [0, \infty)$
\[
\begin{align*}
    w_i^* & \in \argmax \left( \frac{(1-k) \cdot w_i + k \cdot \mathbb{E}(w|w \geq w_i)}{\delta + \lambda} + \frac{\lambda}{\delta + \lambda} \frac{\mathbb{E}(\bar{w}|\bar{w} \geq w_i)}{\delta} \right) (1 - F(w_i)) + \theta_i F(w_i) \\
\iff \quad w_i^* & \in \argmax \left( \frac{\delta}{\delta + \lambda} \left[ (1-k) \cdot w_i + k \cdot \mathbb{E}(\bar{w}|\bar{w} \geq w_i) \right] + \frac{\lambda}{\delta + \lambda} \mathbb{E}(\bar{w}|\bar{w} \geq w_i) - \theta_i \right) (1 - F(w_i)) \\
\iff \quad w_i^* & \in \argmax \left( (1-\Lambda) \left[ (1-k) \cdot w_i + k \cdot \mathbb{E}(\bar{w}|\bar{w} \geq w_i) \right] + \Lambda \mathbb{E}(\bar{w}|\bar{w} \geq w_i) - \theta_i \right) (1 - F(w_i)) \\
\iff \quad w_i^* & \in \argmax \int_0^1 ((1-\Omega) w_i + \Omega x - \theta_i) \tilde{f}(x) dx
\end{align*}
\]  

where the last equivalence comes from assumption \textbf{A3} that \( w_i^* \) and \( \bar{w} \) are absolutely continuous, \( \Lambda = \frac{\lambda}{\delta + \lambda} \), and \( \Omega = (1-\Lambda)k + \Lambda \). When \( \lambda = \infty \), the scheme is equivalent to a posted price in which \( \Omega = 1 \) (workers always receive \( \bar{w} \) if they are employed at the firm).

For \( \lambda < \infty \) the firm solves:
\[
\bar{w} \in \argmax \int_0^w \frac{(v - (k w + (1-k)y))}{\delta + \lambda} \tilde{g}(y) dy + \bar{G}(w) \frac{\lambda}{\delta + \lambda} \frac{1}{\delta} \left( v - w \right) \tag{14}
\]

where \( \bar{G}(x) = P(w_i^* \leq x) \). The first term gives the total expected discounted profits made by the firm from a hired worker before the arrival of the transparency process. The second term is the profit made from a worker after she renegotiates their wages to \( \bar{w} \). When \( \lambda = \infty \) the firm will hire every worker \( i \) with \( \theta_i \leq \bar{w} \) at a constant wage \( \bar{w} \). We can similarly manipulate the objective as with the worker problem:
\[
\bar{w} \in \argmax \int_0^w \left( v - (1-\Omega) y - \Omega w \right) \tilde{g}(y) dy \tag{15}
\]

The rest of the proof is outlined in the main text. ■

\section*{Frequent Renegotiations}

We begin with some preliminaries before formally stating and proving Proposition 3. We modify the stage game to allow for frequent renegotiation. We refer to this as the frequent renegotiation game: At each time \( t \geq 0 \) first, each employed worker \( i \) learns \( W_i \) independently with arrival rate \( \lambda \), and second \( i \) bargains with the firm according to the protocol laid out above.

Clearly, any worker will never make a wage offer lower than one that was previously accepted. We say that a worker \( i \) renegotiates at time \( t \) if and only if her time \( t \) offer \( w_{i,t} > w_{i,t'} \) for all \( t' < t \).

We also specify the following restriction, WLOG, on off-path beliefs: At any time \( t \geq 0 \), any worker \( i \) who makes an offer \( w_{i,t} \) that should have been rejected according to equilibrium strategies but is not, believes with probability 1 that \( \bar{w} = w_{i,t} \) until observing the wages of others via the transparency process. In other words, if a worker makes an offer that is higher than the highest offer the firm is supposed to accept in equilibrium, yet the offer is accepted, the worker believes she is extremely lucky and is receiving the highest possible wage until she is presented with evidence to the contrary. These are the most favorable beliefs to the firm allowable in a PBE, so any equilibrium sustainable under this assumption is sustainable for any off-path beliefs.

Denote worker \( i \)'s wage demands in the absence of wage information by a non-decreasing function \( \omega : \mathbb{R}_+ \to [0,1] \), which specifies the time \( t \) wage offer \( w_{i,t} \) made by worker \( i \). In equilibrium, worker \( i \) will bid according to some function \( \omega \) until the earliest time that she
observes the wage information of her peers. At this point, as before, she will immediately demand a flow wage of \( \hat{w} \).

**Proposition 3:** Let \( k = 0 \). In the frequent renegotiation game each worker \( i \) will play a constant sequence \( \omega_i \) on equilibrium path until wage information arrives.

**Proof of Proposition 3:** We prove this result by contradiction, modifying any non-constant \( \omega \) and showing that it gives strictly lower utility than some other function. Toward this end, we present some notation. Consider some arbitrary worker \( i \), and (dropping the \( i \) subscript) let \( u(\omega) \) denote the worker’s expected discounted equilibrium utility from playing function \( \omega \), and \( u(\omega|t) \) as the additional discounted expected utility the worker receives starting at time \( t \) by following \( \omega \) over ceasing to renegotiate further, i.e. setting \( w_{i,t'} = w_{i,t} \) for all \( t' > t \). Let \( U(\omega,t) \) represent the ex-ante expected utility \( \omega \) yields over the first \( t \) periods.

Suppose there is an equilibrium function \( \omega^* \) that is not constant in \( t \). In equilibrium it must be the case that \( u(\omega^*|t) \geq 0 \) for all \( t > 0 \). First, let us consider the case in which \( u(\omega^*|t) > 0 \) for all \( t > 0 \) in which \( \omega^*_t < \lim_{t \to \infty} \omega^*_t \). Construct an alternative function \( \hat{\omega}(t_1) \) that provides the same ex-ante expected utility to the worker as function \( \omega^* \) where

\[
\hat{\omega}(t_1)_t = \begin{cases} 
\omega^*_t & t \in [0,t_1) \\
\omega^*_1 & t \geq t_1 
\end{cases}
\]

for some \( t_1 > t_2 > 0 \) such that \( \omega^*_t > \omega^*_0 \). Note that \( \hat{\omega}(t_1) \) has three requirements: first, that it is constant before time \( t_1 \), second, that the value it takes before time \( t_1 \) is achieved by function \( \omega^* \) at some time \( t_2 \), and third, that the function yields the same utility as the original optimal function. The following lemma states that such a function always exists.

**Lemma 1.** For any optimal function \( \omega^* \) there exists a function \( \hat{\omega}(t_1) \) satisfying Equation 16.

**Proof of Lemma:** Take some \( t_2 > 0 \) and consider a function \( \omega' \) that equals \( \omega^*_t \) for all \( t \geq 0 \). Both \( U(\omega',t) \) and \( U(\omega^*,t) \) are clearly continuous in \( t \). Since \( u(\omega^*|t) > 0 \) for all \( t \) by assumption, there are two possibilities. First, there exists a unique \( t_1 > t_2 \) such that \( U(\omega',t_1) = U(\omega^*,t_1) \), with \( U(\omega',t) < U(\omega^*,t) \) for all \( t > t_1 \), in which case we have found the sought after \( t_1 \) for the specified \( t_2 \). Second, it could be that \( U(\omega',t) > U(\omega^*,t) \) for all \( t > 0 \), in which case \( \omega^* \) is not an optimal function. \( \blacksquare \)

Now define a new function \( \tilde{\omega}(t_1) \) that takes on the pointwise maximum value of functions \( \hat{\omega}(t_1) \) and \( \omega^* \), that is,

\[
\tilde{\omega}(t_1)_t = \begin{cases} 
\hat{\omega}(t_1)_t & t \in [0,t_2] \\
\omega^*_t & t > t_2 
\end{cases}
\]

As \( \tilde{\omega}(t_1)_t = \hat{\omega}(t_1)_t \) for all \( t \leq t_2 \), \( U(\tilde{\omega}(t_1),t) = U(\hat{\omega}(t_1),t) \) for all \( t \leq t_2 \). Since \( u(\omega^*|t) > 0 \) for all \( t \), \( U(\tilde{\omega}(t_1),t) > U(\hat{\omega}(t_1),t) \) for all \( t > t_2 \). Therefore, \( u(\tilde{\omega}(t_1)) > u(\hat{\omega}(t_1)) = u(\omega^*) \), which contradicts the optimality of function \( \omega^* \).

It now remains to consider the case in which \( u(\omega^*|t) = 0 \) for some \( t > 0 \). Let \( t = \inf \{ t | u(\omega^*|t) = 0 \} \). We can create a new function \( \omega^{**} \) such that

\[
\omega^{**}_t = \begin{cases} 
\omega^*_t & t \in [0,t) \\
\omega^*_t & t > t 
\end{cases}
\]
Since \( u(\omega^*|t) = 0, \omega^{**} \) is also an optimal function. If \( t > 0 \) then replacing \( \omega^* \) with \( \omega^{**} \) in the earlier parts of this proof gives the desired result. If however, \( t = 0 \), we must take a different approach. Since \( u(\omega^*|t) \geq 0 \) for all \( t \geq 0 \), it must be the case that \( u(\omega^*|t) = 0 \) for all \( t \geq 0 \), i.e. that the worker is indifferent between ever renegotiating. Similarly to above, we can construct a function \( \hat{\omega}(t_1) \) that is constant over the first \( t_2 \) periods and ex-ante payoff equivalent to \( \omega^* \). But since \( u(\omega^*|t) = 0 \) for all \( t \) then it must also be optimal to never renegotiate from \( \hat{\omega}(t_1) = \omega^{**} \). In other words, this says that the agent is indifferent between initially asking for \( \omega_0^* \) or \( \omega^{**}_t \) and never renegotiating, and moreover, both such functions are optimal. But the right hand side of Equation 4 is strictly decreasing in the initial offer, meaning there cannot be two optimal constant functions. Contradiction.  

**Proof of Proposition 4:** Let \( \bar{w} = \beta(v) \) and let \( w^*_i = \gamma(\theta) \) and assume that a linear equilibrium exists. Workers are hired at initial wages in some range \([a, h]\) where \( 0 \leq a \leq h \leq 1 \). By the linearity hypothesis, it must be the case that

\[
\bar{w} = \begin{cases} 
  v & 0 \leq v < a \\
  a + \frac{h-a}{1-a}(v-a) & a \leq v \leq 1
\end{cases} \\
\quad w^*_i = \begin{cases} 
  a + \frac{h-a}{h-i}\theta_i & 0 \leq \theta_i \leq h \\
  \theta_i & h < \theta_i \leq 1
\end{cases}
\tag{19}
\]

Furthermore, by definition \( \bar{F}(x) = P(\beta(v) \leq x) = F(\beta^{-1}(x)) \), and similarly \( \bar{G}(x) = G(\gamma^{-1}(x)) \). Inverting the functions in Equation 19 and plugging in to the distributions in Equation 6 yields that for all \( a \leq x \leq h \)

\[
\bar{F}(x) = 1 - \left( 1 - a + \frac{(x-a)(1-a)}{h-a} \right)^r, \quad \bar{G}(x) = \left( \frac{(x-a)h}{h-a} \right)^s \quad a \leq x \leq h
\tag{20}
\]

Equations 4 and 5 give another set of equations for \( \gamma^{-1}(\cdot) \) and \( \beta^{-1}(\cdot) \). Plugging these in to the distributions in Equation 6 yields that for all \( a \leq x \leq h \)

\[
\bar{F}(x) = 1 - \left( 1 - x - \frac{\bar{G}(x)}{\bar{g}(x)} \right)^r, \quad \bar{G}(x) = \left( x - (1 - \Omega) \frac{1-F(x)}{f(x)} \right)^s
\tag{21}
\]

Solving Equations 20 and 21 simultaneously results in a unique solution in which

\[
a = \frac{(1-\Omega)^s}{(s+\Omega)r+(1-\Omega)s}, \quad h = \frac{(1-\Omega)^s+rs}{(s+\Omega)r+(1-\Omega)s}
\tag{22}
\]

As \( \bar{w} \) and \( w^*_i \) are pinned down by \( a \) and \( h \) due to linearity, there is a unique linear equilibrium. 

**Proof of Proposition 5:** We first show \( \bar{w} \) is strictly decreasing in \( \Omega \) for all \( v \in [a, 1] \). Using Equations 19 and 22, we see that \( \bar{w} = a + \frac{s}{s+\Omega}(v-a) \) for all \( v \in [a, 1] \). Differentiating with respect to \( \Omega \) yields

\[
\frac{\partial \bar{w}}{\partial \Omega} = \frac{\partial a}{\partial \Omega} \left( 1 - \frac{s}{s+\Omega} \right) - \frac{s}{(s+\Omega)^2} (v-a)
\tag{23}
\]

Noting that \( \frac{s}{s+\Omega} \in (0, 1) \) and that from Equation 22, \( \frac{\partial a}{\partial \Omega} \\text{sign} -r(s+1) < 0 \) implies that \( \frac{\partial \bar{w}}{\partial \Omega} < 0 \) for all \( v \in [a, 1] \). From Equation 20 we see that \( \frac{\bar{G}(x)}{\bar{g}(x)} = \frac{x-a}{s} \) for all \( x \in [a, h] \).
Therefore, from Equation 5 we see that \( \bar{w} \to v \) for all \( v \in [0, 1] \) as \( \Omega \to 0 \).

By virtue of the fact that \( \bar{w} \) is decreasing in \( \Omega \), it must also be the case that \( h \) is decreasing in \( \Omega \). (It is possible to directly verify this by computing \( \frac{\partial h}{\partial \Omega} \).) From Equation 20 we calculate \( \frac{1 - F(x)}{f(x)} = \frac{h - x}{r} \) for all \( x \in [a, h] \). Since \( h \) is decreasing in \( \Omega \), \( \frac{1 - F(x)}{f(x)} \) is also decreasing in \( \Omega \) over this range. Therefore, from Equation 4 we see that \( w_i^* \) is strictly decreasing for \( \theta_i \in [0, h] \), and \( w_i^* \to \theta_i \) for all \( \theta_i \in [0, 1] \) as \( \Omega \to 1 \). ■

**Proof of Theorem 1:** To prove point 1., note that for all \( \theta_k < h \) we have from Equation 19 that \( w_k^* = a + \frac{h - a}{h} \theta_k \). Therefore, for any relevant workers \( i \) and \( j \), we have that \( w_i^* - w_k^* = \frac{h - a}{h} (\theta_i - \theta_j) \). From Equation 22 we see that the derivative of this function is increasing in \( \Omega \), completing the claim. To prove point 2., recall from Equation 13 that the expected lifetime earnings of a worker with outside option \( \theta_i \) is \( T(\Omega, v, \theta_i) = (1 - \Omega) w_i^* + \Omega \bar{w} - \theta_i \). A sufficient condition for \( T(\cdot, v, \theta_i) - T(\cdot, v, \theta_i) \) being strictly decreasing in \( \Omega \) is that \( \frac{\partial^2 T(\Omega, v, \theta_i)}{\partial \theta \partial \Omega} < 0 \) for all \( \Omega, \theta_i \in [0, 1] \) and all \( v \in [0, 1] \). From Equations 13 and 19 we see that

\[
\frac{\partial^2 T(\Omega, v, \theta_i)}{\partial \theta \partial \Omega} = \frac{\partial (1 - \Omega) \frac{h - a}{h} \theta_i}{\partial \Omega} = \frac{-r}{r + 1 - \Omega}
\]

where the second equality comes from Equation 22. Since \( \Omega, r > 0 \) we have \( \frac{\partial^2 T(\Omega, v, \theta_i)}{\partial \theta \partial \Omega} < 0 \) as desired. To show \( T(\cdot, v, \theta_i) - T(\cdot, v, \theta_i) \to 0 \) in \( \Omega \), we note that \( T(\cdot, v, \theta_i) = (1 - \Omega) w_i^* + \Omega \bar{w} \). Since \( w_i^* \) is bounded below by \( \theta_i \) then \( T(\cdot, v, \theta_i) \) converges to \( \bar{w}(\Omega) \) for any \( \theta_i \). ■

**Proof of Theorem 3:** To see the equilibrium hiring rate of the firm, we calculate the probability that a worker is hired by the firm ex-ante. Let \( \mathbb{E}(r, s, \Omega) \) be the expected equilibrium hiring rate in a market with distribution parameters \( r \) and \( s \) and transparency \( \Omega \). Then

\[
\mathbb{E}(r, s, \Omega) \equiv \int_0^h Pr(\bar{w} \geq w_i^*(\theta)) g(\theta) d\theta = \int_0^h Pr(\bar{w} \geq a + \frac{h - a}{h} \theta) g(\theta) d\theta = s \cdot (1 - a)^r \int_0^h (1 + \frac{h}{a} \theta)^r \theta^{s-1} d\theta = (1 - a)^r h^s \frac{\Gamma(r + 1) \Gamma(s + 1)}{\Gamma(r + s + 1)}
\]

where the first equality comes from substituting in Equation 19, the second equality comes from substituting in the distribution of outside options from Equation 6 and the third from the definition of the Gamma Function, i.e. \( \Gamma(x) \equiv \int_0^\infty y^{x-1} e^{-y} dy \). As we see, transparency affects the hiring rate through changing \( a \) and \( h \). We know from Equation 25 that

\[
\operatorname{argmax}_{\Omega} \mathbb{E}(r, s, \Omega) = \operatorname{argmax}_{\Omega} (1 - a)^r h^s
\]

Substituting in from Equation 22 and taking the first order condition with respect to \( \Omega \) yields

\[
\Omega^* = \frac{r + 1}{r + s + 2}
\]

A.9
It remains to show that the maximization problem in Equation 26 is concave in $\Omega$ over $[0,1]$. Taking the first order condition of Equation 26 we see that
\[
\frac{\partial(1-a)^r h^s}{\partial \Omega} = -\frac{r^2 s^2 (1-a)^{r-1} h^{r-1} (r(\Omega - 1) + (2+s)\Omega - 1)}{(s + r - \Omega) + r\Omega^3}
\] (28)

From this, since $r, s > 0$ and $a < 1$ we see that the first order condition in Equation 27 holds. Substituting in from Equation 6 gives us the particular form of $\Omega^*$ in the theorem. We further can calculate
\[
\frac{\partial^2(1-a)^r h^s}{\partial \Omega^2} \geq -r s h^s (1-a)^r \left( s^3 (r^2 + r (2 - \Omega^2) + (1 - \Omega^2)) \right)
\]
\[
- r \Omega^r (2 - \Omega) + 2r \left( \Omega^2 - 3\Omega + 2 \right) + 4\Omega^2 - 5\Omega + 2 \right) \right)
\]
\[
- s^2 (r^2 + 2\Omega + 2) + r \left( -2\Omega^2 + 4\Omega + 1 \right) + 2\Omega \left( 1 - \Omega^2 \right) \right)
\]
\[
- s (r^3 \left( -\Omega^2 + 2\Omega + 1 \right) + r^2 \left( 3 - 2\Omega^2 \right) \right)
\]
\[
- s (r(6\Omega^2 - 6\Omega + 3) + (-4\Omega^3 + 7\Omega^2 - 4\Omega + 1)) \right)
\]

A sufficient condition for $\frac{\partial^2(1-a)^r h^s}{\partial \Omega^2} < 0$ for all $\Omega \in (0,1)$ is that each of the polynomial terms involving $\Omega$ be strictly positive for $\Omega \in (0,1)$. It is easy to check each of these polynomials separately to see that this sufficient condition is indeed satisfied. Therefore, extreme point $\Omega^*$ is the global maximizer of expected employment. To see the second point, note that in equilibrium, there is an outside option cutoff for employment $\theta^*$ such that all workers with outside options weakly less than $\theta^*$ negotiate wages that are acceptable to the firm. Then the hiring rate is equal to $G(\theta^*)$. Noting that a worker $i$ with outside option $\theta^*$ sets $w_i^* = \bar{w}$ it must be the case that $G(\theta^*) = G(\bar{w})$. From Equations 19 and 20 it is the case that for all $v \geq a$
\[
\bar{G}(\bar{w}) = \left( \frac{h}{1-a} (v-a) \right)^s
\] (29)

We can use a monotonic transformation of $\bar{G}(\bar{w})$ to complete the claim, that is, we show submodularity of $\frac{h}{1-a} (v-a)$ in $v$ and $\Omega$.
\[
\frac{\partial \frac{h}{1-a} (v-a)}{\partial v} = \frac{h}{1-a} = \frac{(1 - \Omega) s + r s}{(s + \Omega) r}
\] (30)

Which is clearly decreasing in $\Omega$. Therefore, $\bar{G}(\bar{w})$ is submodular in $v$ and $\Omega$ for a firm of type $v \geq a(\Omega)$.

**Proof of Theorem 2:** We show that the expected equilibrium profit of the firm is strictly increasing in $\Omega$. That the worker expected equilibrium surplus is strictly decreasing in $\Omega$ follows a similar calculation. We invoke the law of iterated expectations by first finding the firm’s profit for a particular draw $v > a$ which we denote by $\pi(v, \Omega)$. 

A.10
\[ \pi(v, \Omega) = \int_{\hat{w}}^{a} \left( v - (1 - \Omega) y - \Omega \hat{w} \right) \overline{g}(y) dy \]
\[ = \int_{a}^{\hat{w}} \left( v - (1 - \Omega) y - \Omega \hat{w} \right) s \left( \frac{h}{h-a} \right)^s (y-a)^{s-1} dy \]
\[ = \frac{(\hat{w} - a)^s}{s + 1} \left( \frac{h}{h-a} \right)^s (a(\Omega - 1) - \hat{w}(\Omega + s) + sv + v) \]  

where the second equality comes by using Equation 20. The ex-ante expected profit of the firm can be expressed as \( \pi(\Omega) = \int_a^1 \pi(v, \Omega) f(v) dv \). A tedious, but straightforward calculation shows that \( \frac{\partial \pi(\Omega)}{\partial \Omega} > 0 \) for all \( r, s > 0 \) as desired.

The proof that expected discounted wages are decreasing in \( \Omega \) follows from Theorem 3 and the earlier part of the current proof. Let \( \Omega^* \) be the expected employment maximizing level of transparency as defined in Equation 27. From Theorem 3 we know that the expected hiring rate is increasing in \( \Omega \) on \([0, \Omega^*]\) and we have just shown that expected worker surplus is decreasing in \( \Omega \) on \([0, \Omega^*]\). Therefore, it must be the case that expected discounted wages, conditional on employment, must be decreasing in \( \Omega \) on \([0, \Omega^*]\). Similarly, from Theorem 3 we know that the expected hiring rate is decreasing in \( \Omega \) on \([\Omega^*, 1]\) and we have just shown that firm surplus is increasing in \( \Omega \) on \([\Omega^*, 1]\). Therefore, it must be the case that expected discounted wages, conditional on employment, must be decreasing in \( \Omega \) on \([\Omega^*, 1]\). Combining these two arguments, we see that expected discounted wages, conditional on employment, are decreasing in \( \Omega \) on \([0, 1]\), as desired. ■

**Example 1.** Increasing transparency does not increase profits for all firm types: Let \( v = 1 \) and let \( E(\theta) = E(v) = \frac{1}{2} \). This implies that \( r = s = 1 \). We can calculate the profit \( \pi(v, \Omega) \) of the firm using Equation 31. We see that \( \pi(1, 1) = \frac{1}{4} \) while \( \pi(1, \frac{1}{2}) = \frac{9}{32} \). Notice that by symmetry of our model, this example implies that increasing transparency can strictly increase the expected earnings of workers with very low outside options. ■

**Proof of Proposition 6** We prove only point 2 of the proposition, as the proof of the first bullet is similar.

First, suppose that for all \( i \in I \) and any \( w_i^* \), \( i \) identifies \( \hat{w} \) upon the arrival of the information process. Then each worker \( i \) will successfully renegotiate her wage to \( \hat{w} \) upon arrival of the information process. Moreover, the manipulation of the objective functions of workers and the firm shown in the Proof of Proposition 1 are recovered. That is, the perfectly correlated timing of information arrival does not affect initial bargaining either.

Therefore, the proof is completed by showing that in any equilibrium satisfying A1-A3, each worker \( i \in I \) identifies \( \hat{w} \) on equilibrium path upon arrival of the information process. In any such equilibrium, a sufficient statistic for \( w_i^* \) is \( \theta_i \), that is both \( m \) and \( f \) workers with outside option \( \theta_i \) make the same initial offer. We know that \( w_i^* \) is strictly increasing in \( \theta_i \) by A3.

Let \( L : [0, 1] \rightarrow [0, 1] \) be the average wage of hired \( m \) types minus the average wage of hired \( f \) types in equilibrium as a function of \( \hat{w} \), and let \( \theta_\ell : 2^\Theta \rightarrow [0, 1] \) be the average outside option of type \( \ell \in \{m, f\} \) hired in equilibrium as a function of \( \hat{w} \). We claim that
$L(\cdot)$ is strictly increasing. To see this, take $\bar{w}' > \bar{w}$. The assumption that $\frac{\theta_{m}(x)}{\bar{g}_{f}(x)}$ is strictly increasing in $x$ implies that there are increasing differences in worker type and firm offer, that is, $\bar{\theta}_{m}(\bar{w}') - \bar{\theta}_{m}(\bar{w}) > \bar{\theta}_{f}(\bar{w}') - \bar{\theta}_{f}(\bar{w})$. By the arguments in the preceding paragraph, this completes the claim that $L(\cdot)$ is strictly increasing.

Because $L(\cdot)$ is strictly increasing, it is invertible, leading each worker $i \in I$ to identify $\bar{w}$ on equilibrium path upon arrival of the information process. □

**Proof of Proposition 7** We have already explained that workers with $2\bar{W}_{v} - \bar{W}_{V} > \theta_{i}$ will offer a wage of $\bar{W}_{v}$ and those with $\bar{W}_{V} \geq \theta_{i} \geq 2\bar{W}_{v} - \bar{W}_{V}$ will offer a wage of $\bar{W}_{V}$. Therefore, the firm maximizes:

$\left(\frac{1}{2}v + \frac{1}{2}V - \bar{W}_{v}\right) \max\{0, G(2\bar{W}_{v} - \bar{W}_{V})\} + \frac{1}{2} (V - \bar{W}_{V}) \left[G(\bar{W}_{V}) - \max\{0, G(2\bar{W}_{v} - \bar{W}_{V})\}\right]$

(32)

We solve this maximization problem under the assumption that $G(2\bar{W}_{v} - \bar{W}_{V}) > 0$ and later verify that this is true for the given solution. From Equation 6 we know that $G(x) = x^{s}$ over the region we are considering. Solving the first-order conditions for $\bar{W}_{v}$ and $\bar{W}_{V}$ simultaneously yields:

$\bar{W}_{v} = \frac{1}{2} s \left(\frac{v + V}{1 + s}\right), \quad \bar{W}_{V} = \frac{V s}{1 + s}$

(33)

We make note of three points. First, $2\bar{W}_{v} > \bar{W}_{V}$ which validates our decision to drop the “max” term from the objective function. Second, the second-derivative test can be shown to verify the above solution as a maximizer of firm surplus. Third, as we point out in the main body, for any $V$ and $s$, as $v$ becomes sufficiently small $\bar{W}_{v} > v$. □

**Proof of Proposition 8** To calculate the profit when workers cannot observe their productivity type, we plug the solutions from Equation 33 into Equation 32. From the proof of Proposition 4 we know that $\bar{w}(v) = \frac{sv}{1 + s}$. Therefore, firm profit when workers can observe their productivity types for the same draws of $V$ and $v$ is $\frac{1}{2}(v - \frac{sv}{1 + s})^{s} + \frac{1}{2}(V - \frac{sV}{1 + s})^{s}.\frac{vV}{1 + s}$. Canecling terms reveals that these two profit values are identical. Similarly, we can calculate the difference in the hiring rate between the two schemes: $(2\bar{W}_{v} - \bar{W}_{V})^{s} + \frac{1}{2}(\bar{W}_{V})^{s} - (2\bar{W}_{v} - \bar{W}_{V})^{s} - \left(\frac{sV}{1 + s}\right)^{s} - \frac{1}{2} \left(\frac{sv}{1 + s}\right)^{s} = 0$. □

**G. Theoretical Extensions**

**G.1. Multiple firms**

We embed our analysis of pay transparency into a search model by including multiple firms, and show that many of the insights of the main model carry over to this setting. For tractability, we study only the cases of full privacy ($\lambda = 0$ and $k = 0$) and full transparency ($\lambda = \infty$). Let $\mathcal{N} = \{1, 2, ..., N\}$ be the set of firms, each with a value for labor $v^{n}$ drawn iid from distribution $F$. As before, workers have outside options drawn iid from distribution $G$. Workers negotiate with firms in a predetermined order without the possibility of returning to an earlier firm. Without loss of generality, we assume that workers first meet with firm 1, then firm 2, and so on.
If a firm rejects a worker’s offer the two are ineligible to match at any point in the future, and the worker (instantly) moves to the next firm in the sequence. Although we do not do so for simplicity of exposition, it is possible to embed a search friction in this formulation without affecting the qualitative findings.\footnote{Each time a worker’s offer is rejected, we could instead make the worker unable to meet with subsequent firms with positive probability. Including such a search friction does not meaningfully change the remaining analysis.}

A worker whose offer is rejected by firm \( N \) becomes unemployed for her duration in the market and consumes her outside option. A worker whose offer is accepted by firm \( n < N \) is replaced with a worker of identical outside option who moves on to firm \( n + 1 \) as if her offer had been rejected at firm \( n \).\footnote{This “cloning” assumption is made for tractability as this, and is frequently adopted in the search literature (see, for example, Burdett and Coles (1999), Bloch and Ryder (2000), and Chade (2006)).}

Each firm \( n \) selects a maximum wage it is willing to pay for a worker \( \bar{w}_n(v_n) \in [0, 1] \), where the choice of \( \bar{w}_n \) is not immediately observed by workers. As before, each worker \( i \) bargains for wages by making wage offers \( w_{i,t,n} \) to firm \( n \) when she first arrives, or upon learning the wages of peers. Workers who at anytime offer a wage greater than \( \bar{w}_n \) to firm \( n \) are permanently unmatched with the firm. If worker \( i \) offers \( w_{i,t,n} \leq \bar{w}_n \) then \( i \) flow wage until renegotiating is \( k\bar{w}_n + (1 - k)w_{i,t,n} \). Let \( W^n_t \) denote the set of wages firm \( n \) is paying to its employed workers, where \( W^n_0 = \{ \bar{w}_n \} \).

We model transparency as a random arrival process; at time \( t \), workers matched to firm \( n \) observe \( W^n_t \) according to an independent Poisson arrival process with rate \( \lambda \in \{ 0, \infty \} \), where we take \( \lambda = \infty \) to mean that the process arrives whenever a worker first matches with a firm, and at every instant while she is employed. The timing of the stage game is as follows:

1. \( t=0, \text{ Entry:} \) A unit measure of workers enters the market. Initialize \( m = 1 \), and \( \ell_i = 1 \) for each worker \( i \).

2. \( t \geq 0, \text{ Search and Bargaining:} \)
   
   (a) Unmatched workers match to firm \( m \) if \( \ell_i = m \).
   
   (b) Each worker \( i \) matched to firm \( m \) learns \( W^m_t \) independently with arrival rate \( \lambda \).
   
   (c) Newly entering workers must bargain with the firm and any existing, matched worker \( i \) can initiate bargaining if \( i \) observes \( W^m_t \).
   
   (d) For any \( i \) such that \( w^m_{i,t} > \bar{w}^m \) increase \( \ell_i \) by 1.
   
   (e) If \( m < N \), for all \( i \) such that \( w^m_{i,t} \leq \bar{w}^m \), create a new worker \( j \) with \( \theta_j = \theta_i \) and \( \ell_j = \ell_i + 1 \), increase \( m \) by 1 and repeat Step 2.

We work backward to solve for the unique equilibrium. Workers meeting firm \( N \) face the same decision as workers in the base model: they face a firm with value \( v_N \) drawn from distribution \( F \) and are among an incoming cohort with outside options determined by distribution \( G \). Denote by \( \theta^{n,\lambda}_i \) the expected equilibrium lifetime utility (under transparency level \( \lambda \)) of a worker with outside option \( \theta_i \) immediately upon matching with firm \( n \) (before making an offer or learning wages through the transparency process), and denote by \( G^{m,\lambda} \) the distribution of \( \theta^{n,\lambda}_i \). Then, when facing firm \( N - 1 \), workers face will face the same decision.
but with \( \theta_i \) replaced with \( \theta_i^{N,\lambda} \), and firm \( N - 1 \) will face the same decision as firm \( N \) but with distribution \( G \) replaced with \( G^{N,\lambda} \). Inducting up toward the first firm, we can characterize the equilibrium actions of agents as the following for \( n \leq N \):

\[
\begin{align*}
\text{Workers} & \quad \lambda = 0, k = 0 : \quad w^n_i - \theta_i^{n+1,0} = \frac{1-f(w^n_i)}{f(w^n_i)} \\
\text{Firms} & \quad \lambda = 0, k = 0 : \quad \bar{w}^n = \bar{w}^n \\
\text{Workers} & \quad \lambda = \infty : \quad w^n_i = \bar{w}^n 1_{\{\bar{w}^n > \theta_i^{n+1,\infty}\}} \\
\text{Firms} & \quad \lambda = \infty : \quad \bar{w}^n - \bar{w}^n = \frac{G^{n+1}(w^n)}{g^{n+1}(w^n)}
\end{align*}
\] (34)

As \( \theta_i \) is constant over time, \( \theta_i^{N,\lambda} \) is a non-increasing sequence, and strictly decreasing for workers with \( \theta_i < 1 \). Therefore, \( \frac{G^{\cdot,\lambda}(x)}{g^{\cdot,\lambda}}(x) \) is non-increasing in \( n \). In words, workers’ outside options, which include the option value of bargaining with future firms, decreases as they move along the sequence of firms. Realizing this, under full transparency, earlier firms accept higher wages to incentivize workers to accept their offers rather than wait to meet future firms. We now provide results that are similar to the theorems in the main text.

**Proposition 10.** The expected average utility of workers is higher in equilibrium with \( \lambda = 0, k = 0 \) than \( \lambda = \infty \). The expected utility of firms is higher in equilibrium with \( \lambda = \infty \) than \( \lambda = 0, k = 0 \).

**Proof of Proposition 10:** We prove this result for workers, and the converse for firms is similar. As before, the expected utility of any worker who reaches firm \( N \) is higher under \( \lambda = 0, k = 0 \) than \( \lambda = \infty \). Therefore, \( \theta_i^{N,0} > \theta_i^{N,\infty} \) for all \( \theta_i \). When meeting firm \( N - 1 \), worker \( \theta_i \) is in expectation better off under full privacy, for two reasons. First, by the same logic as before, she is able to make a TIOLI offer rather than receive it. Second, her outside option is higher, i.e. \( \theta_i^{N,0} > \theta_i^{N,\infty} \), implying that for any bid that she places, she is weakly better off. By induction, worker \( i \) is better off at every firm she meets under full privacy. □

The proof of the following result is omitted, as the logic follows from our previous analysis.

**Proposition 11.** When \( \lambda = \infty \) there is no wage dispersion between workers at the same firm in equilibrium. The ex-post employment maximizing level of transparency is weakly decreasing in \( v \). The ex-post employment maximizing level of transparency is weakly decreasing in \( v \). When each firm can select \( \lambda \in \{0, \infty\} \) as a function of \( v \) there is an essentially unique equilibrium outcome. In equilibrium, each firm selects \( \lambda = \infty \) for all \( v > 0 \).

One additional consideration is whether wages are transparent to workers outside the firm. If the arrival process revealed the wages of *all* workers in the market then the results would change depending on whether or not there is a search friction, defined as a probability \( \zeta \in (0, 1) \) of a worker being unable to meet with subsequent firms after a wage-offer rejection. Suppose \( (v_1, ..., v_N) \) is known to all firms before they (simultaneously) set their maximum acceptable wages. With no search friction \( (\zeta = 0) \), firms under transparency will effectively Bertrand compete for workers. In equilibrium, all employed workers will seek out the highest value firm and receive pay \( w^* = \max\{v(2), \bar{w}(v(1))\} \)–either the value of the second highest firm, or the equilibrium wage the firm would pay if it had value \( v(1) \) in the base game. Workers with outside options higher than this value will remain unemployed. With a search friction
ζ ∈ (0, 1), firms which do not have the highest value set higher wages \( \bar{w} \) to disincentivize workers from targeting higher-value firms. In the extreme case of \( \zeta = 1 \), no worker will ever leave a profitable employment opportunity to seek out a higher wage elsewhere, and so the model collapses to the base model we study in the main body of the paper.

G.2. Superstar Firms

We expect different effects of transparency when a firm’s value is higher than outside options of all workers; due to its value, the firm optimally chooses a ceiling wage that allows it to hire all workers. Hence transparency raises the wages of low-outside option workers, rather than to push the ceiling wage for everyone down. In other words, the demand effect no longer plays a role in the bargaining outcome.

Theoretically, we investigate the effect of a move from full secrecy (\( \Lambda = 0, k = 0 \)) to full transparency (\( \Lambda = 1 \)) on a “superstar” firm with value \( v > 1 \). Workers’ outside options continue to be drawn on a distribution with support \([0, 1]\) while a superstar firm has value \( v > 1 \). Moreover, workers’ beliefs about the firm’s value are misspecified, and they continue to believe \( v \sim F[0, 1] \). As before, workers successfully renegotiate to the highest wage they observe at the firm in equilibrium. We make these assumptions on the distribution for clarity of exposition, but the qualitative results presented below will also hold for a firm with sufficiently high \( v \), when drawn from a (correctly anticipated) distribution \( F \) with full support over the positive reals, with finite mean.

In contrast to Theorem 3, transparency has a clear, non-positive effect on employment for a superstar firm. When \( \Lambda = 0 \) the firm hires all workers, but the firm may set \( \bar{w} < 1 \) when \( \Lambda = 1 \) to avoid information spillovers. From Equation 5, \( \bar{w} \) is non-decreasing in \( v \) when \( \Lambda = 1 \), so the difference in hiring between privacy and transparency is shrinking in \( v \).

**Proposition 12.** A superstar firm hires fewer workers in equilibrium when \( \Lambda = 1 \) than when \( \Lambda = 0 \). Moreover, the ex-post hiring rate is supermodular in \( v > 1 \) and \( \Lambda \).

This supermodularity stands in contrast to the submodular impact of transparency and \( v \) on hiring for a non-superstar firm (Theorem 3).

Transparency can also increase wages and decrease profits for a superstar firm, the opposite of the predictions for a firm with value \( v \leq 1 \). The supermodularity of employment in transparency and \( v > 1 \) implies that the employment effect of transparency becomes small for sufficiently large \( v \). This implies that the highest wage paid under transparency and private are approximately equal for sufficiently large \( v \). Therefore, the demand effect dominates in this case: transparency equalizes the pay of all workers to that of the highest wage worker, increasing average wages and decreasing profits.

**Proposition 13.** Profits (average wages) are submodular (supermodular) in \( v \) and \( \Lambda \) for a superstar firm. There exists \( v^* \geq 1 \) such that profits are lower and wages are higher when \( \Lambda = 1 \) than when \( \Lambda = 0 \) for all \( v > v^* \).

Consider the increase in profit for a private firm as its value increases from \( v > 1 \) to \( v + \Delta \) for some small \( \Delta > 0 \). Since \( v > 1 \), it hires all workers in both cases, so its profits increase by \( \Delta \) per worker. That is, the firm’s profit is \((v - 1)G(1) = v - 1 \). The same exercise for a transparent firm yields an increase in profit of approximately \( \Delta \cdot G(\bar{w}) \). This is because the profit is \((v - \bar{w})G(\bar{w}) \) and the derivative with respect to \( v \) is \( G(\bar{w}) \) by the envelope theorem.
FIGURE A.1: WAGE DYNAMIC EFFECT ESTIMATES, ALTERNATIVE SPECIFICATIONS

Panel A: All States 2004-2016

Panel B: Include Year-by-Division Fixed Effects

Panel C: Re-weight by Education-by-Gender

Panel D: Sun-Abraham Interaction-Weighted

Note: See Appendix Section A for details.
Figure A.2: Employment Dynamic Effect Estimates, Alternative Specifications

Panel A: All States 2004-2016

Panel B: Include Year-by-Division Fixed Effects

Panel C: Re-weight by Education-by-Gender

Panel D: Sun-Abraham Interaction-Weighted

Note: See Appendix Section A for details.
Figure A.3: Heterogeneous Effects of ROWTT on Wages

Panel A: Full Distribution Quantiles

Note: In this figure, we present estimates of the effect of ROWTT on wages at various points in the unconditional wage distribution. In Panel A, we use the two stage re-centered influence-function regression to recover these estimates separately for each quantile of interest (Firpo et al., 2009; Rios-Avila, 2020). In Panel A, we estimate the RIF for each quantile of the full distribution in our sample. In Panel B, we estimate the RIF for each quantile within occupation-industry-state-year cells. In both panels, we include all of the control variables and fixed effects from the baseline model in the second step regression. Effects at each quantile are estimated separately. The standard deviation of the state-level mean from 2000 to 2016 is 0.103 for log wage income and 0.016 for the share of full-time private sector workers.
Figure A.4: Heterogeneous Effects of ROWTT Policies on Employment: High and Low Unionization

Panel A: Union Split, Below- and Above-Median Unionization Rate

Panel B: Union Difference, Below- vs. Above-Median Unionization Rate

Note: In this figure, we present our baseline multiperiod difference-in-difference estimates. In this baseline specification, we report the results from a balanced composition of states following the enactment of the law. Thus, we estimate the dynamic post period effects for states with events through 2013 separately and report these in periods 0 to +3. See Equations 7 and 9 for more information on this specification. The standard deviation of the state-level mean from 2000 to 2016 is 0.103 for log wage income and 0.016 for the share of full-time private sector workers. We use the current population survey to estimate the share of workers covered by a union or collective bargaining agreement at the occupation level each year and split at the median occupation.
**Figure A.5: Heterogeneous Effects of ROWTT Policies on Wages, by Level of Occupational Unionization**

*Note:* In this figure, we present estimates for each quartile of occupation-level unionization coverage. We fully interact a vector of indicators for each quartile with the dynamic effect indicators, and include all controls from the baseline specification. The standard deviation of the state-level mean from 2000 to 2016 is 0.103 for log wage income and 0.016 for the share of full-time private sector workers. We use the current population survey to estimate the share of workers covered by a union or collective bargaining agreement at the occupation level each year.
**Figure A.6: Effects of ROWTT Policies on Public Sector Workers**

**Panel A: Wage Income (ln)**

**Panel B: Employment**

Note: In this figure, we present our baseline multiperiod difference-in-difference estimates. In this baseline specification, we report the results from a balanced composition of states following the enactment of the law. Thus, we estimate the dynamic post period effects for states with events through 2013 separately and report these in periods 0 to +3. See Equations 7 and 9 for more information on this specification. The standard deviation of the state-level mean from 2000 to 2016 is 0.103 for log wage income and 0.016 for the share of full-time private sector workers. We use the current population survey to estimate the share of workers covered by a union or collective bargaining agreement at the occupation level each year and split at the median occupation.

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Figure A.7: State-Level Conditions in the Year Before Implementing a ROWTT Law

Note: In this figure, we report state level means of various outcomes in the year before the event. In the first row, we regress log salary on a set of state indicators interacted with a gender indicator and report the coefficient on the interaction coefficient of male × state. In the second row, we use a regression of the re-centered influence function to estimate the difference between the 90th and 10th percentiles, following Firpo et al. (2009). In the third row, we show the statutory minimum wage for each state in the year before the ROWTT policy goes into effect, using data from Borg et al. (2021). In the fourth row, we show the share of prime age women that report having any kind of employment. Finally, in the fourth row, we take the average of the occupation-level union coverage variable for each state.
Figure A.8: Effect of ROWTT on State-Level Corporate Tax Rates

Panel A: Balanced Post-Event

Panel B: All States 2004-2016 in All Periods

Note: In this figure, we replicate our baseline multi-period difference-in-difference estimates. In Panel A, we report the results from a balanced composition of states following the enactment of the law. Thus, we estimate the dynamic post period effects for states with events through 2013 separately and report these in periods 0 to +3. In Panel B, we allow all cohorts to contribute to all relative time estimates for which data is available. We measure the state-level top corporate tax rates using data from Slattery and Zidar (2020).
<table>
<thead>
<tr>
<th>Study</th>
<th>Setting</th>
<th>Intervention</th>
<th>Union/ CBA rate</th>
<th>Men’s wage effect</th>
<th>Men’s wage SE</th>
<th>Women’s wage effect</th>
<th>Share men</th>
<th>W:M Pay Ratio (pre intervention)</th>
<th>Imputed overall wage effect</th>
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<td>Baker et al. (2019)</td>
<td>Canadian Universities (unionized)</td>
<td>Posting individual salaries</td>
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<td>Baker et al. (2019)</td>
<td>Canadian Universities (non unionized)</td>
<td>Posting individual salaries</td>
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<td>0.006</td>
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<td>Danish Private Sector</td>
<td>Disclosure of relative earnings of men and women</td>
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<td>-0.015</td>
<td>0.0037</td>
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</table>

Notes: For all studies, we report coefficient estimates from the specification with the most fixed effects. For studies that report a single treatment effect coefficient, we include that number. For studies that do not, we report the treatment effect coefficient from the final year of the analysis. Except as noted below, all numbers are drawn from each paper, respectively. Baker et al. (2019): Numbers drawn from Table 4 Col. 4 and 5, Table 2. We assume same W:M pre-intervention pay ratio in unionized and non-unionized workplaces. Bennedsen et al. (2020): Numbers drawn from Table 3 Col. 7, Table 1. Unionization share from Visser (2019). Duchini et al. (2020): Numbers drawn from Table 5 Col. 1, Table 2. Unionization number calculated as average of male and female unionization rate from Table 2. Blundell (2021): Numbers drawn from Figure 1, Table 1, Table 2 Col. 5. Union/CBA not provided, but sample of firms largely overlaps with that of Duchini et al. (2020), and therefore, the figure from Duchini et al. (2020) is used. Böheim and Gust (2021): This study reports wage effects from staggered implementation of a law which successively applies to firms above successively smaller and smaller threshold number of employees. As a result, we provide only a single estimate corresponding to the final cohort analyzed. From Table 1, we calculate the share of women and the W:M pay ratio as the average of these numbers from the set of firms above and below 150 threshold. We use these numbers and coefficient estimates from Table 4, Panel D. Row 2 to calculate the percentage change in men’s and women’s wages in each group. Union/CBA not provided, but sample of firms largely overlaps with that of Gulyas et al. (2020), and therefore, the figure from Gulyas et al. (2020) is used. Gulyas et al. (2020): Numbers drawn from Table 1, Table B2 Col. 2. Footnote 6. Unlike other papers, women are used as base category. To calculate SE of men’s wage effect, we assume 0 covariance between women’s wage effect dummy and differential effect for men and women coefficient. Mas (2017): Numbers drawn from Table 2 Col. 5 Row 3, Table 3 Col. 2 Row 3. Additional numbers and unionization rate drawn from the California municipal pay website at https://publicpay.ca.gov/Reports and Reese (2019). The author does not report the effect of transparency on men’s and women’s wages, but rather managers’ and non-managers’ wages. We abuse terminology and refer to managers as “men” and non-managers as “women.” Obloj and Zenger (2020): Numbers drawn from Table 1 Col. 6, page 5. Unionization share from Schmidt (2012b).
**Figure A.9: Effect of Transparency on the Gender Pay Gap by Individual Bargaining Power, Existing Studies**

Percentage Change in Gender Gap

Note: In this figure, we graphically present findings from related literature. In Section IV we describe the criteria for inclusion in our analysis, and provide the details of each study in Table A.1. We plot point estimates reported on the change in the gender wages gap in each study we evaluate, where the x-axis denotes the share of the workforce covered by a union/collective bargaining agreement. Since standard errors are not available for all estimates, we do not include standard errors in this figure.