How Does Wage Inequality Affect the Labor Movement?*

Barbara Biasi, Zoë Cullen, Julia Gilman, Nina Roussille

Abstract

Wage inequality among workers has increased dramatically over the past 50 years (Song et al., 2019; Hoffmann et al., 2020). As theorized by Acemoglu et al. (2001), rising inequality may weaken unions' appeal to relatively high earners. This paper provides the first empirical test of the causal impact of inequality on the labor movement, using three complementary research designs. First, we survey ∼200 U.S. union organizers, presenting incentivized hypothetical choices about how to allocate campaign resources across workplaces with varying degrees of wage dispersion. Second, we experimentally increase the salience of wage inequality by disclosing a pay report to members of the Writers Guild of America during an active strike. Third, we exploit a natural experiment in Wisconsin—a pay reform that increased wage inequality among public school teachers. Linking administrative wage data to individual union dues payments, we identify which workers respond by withdrawing support. Across all three studies, we find that rising pay inequality significantly undermines collective action. This effect is concentrated among workers who stand to benefit most from individual bargaining in unequal environments. Moreover, our organizer survey reveals that inequality shapes not only worker support but also union strategy: in more unequal settings, organizers tend to target smaller bargaining units, aiming to reduce internal conflict over wage demands.

JEL Classification: D83, D84, D91, C93, J16, J31, M12.

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1   Introduction

The negative correlation between inequality and unionization rates in the U.S. has been richly documented (Freeman, 1980; DiNardo et al., 1996; Card, 2001). Farber et al. (2021) further provide evidence of the causal effect of unions on the decrease in income inequality. The other direction of causality, namely the impact of inequality on the labor movement, has also been theorized (Hirsch, 1982; Acemoglu et al., 2001), but it has never been tested.

The rise in inequality among workers in the same occupation (Hoffmann et al., 2020) or even at the same workplace (Song et al., 2019) may challenge unions' ability to attract and retain members. As the theory goes, workers with high individual earnings potential could increasingly prefer to incur costs (e.g. re-training, switching firms) to bargain individually rather than collectively (Acemoglu et al., 2001). Even when most workers favor collective representation, pay dispersion might hinder their ability to coalesce around priorities in employer negotiations. However, the net impact of inequality on union support remains ambiguous. Inequality could potentially increase union support by galvanizing lower-income workers who stand to benefit from redistribution, while also mobilizing workers concerned with fairness or income security, regardless of their own earnings position.

The extent to which wage inequality impacts union support carries important implications for the role of labor market institutions and governments in mediating economic disparities. If wage inequality increases union support, stronger unions will naturally emerge as a buffer against widening income gaps, providing an endogenous, counterveiling force. Conversely, if wage inequality erodes union support, unions may become unsustainable in highly unequal environments, creating the potential for "inequality traps." Moreover, the dynamics of union support in high-inequality environments could alter the very objectives and strategic orientation of labor organizations. For instance, if high earners become less receptive to traditional union messaging, labor organizers might strategically pivot, e.g. recalibrating their agenda to emphasize non-wage amenities, at the expense of wage compression.

This paper proposes the first empirical test of the causal impact of inequality on union support and organizers' strategies. An ideal research design would feature exogenous variation in inequality alongside detailed documentation of the labor movement's response to

this variation. We identify three research settings that achieve this tall order and collectively shed light on the pervasive effects of inequality on union support across the US. Our studies also highlight the strategic re-orientation of labor organizations in the face of rising inequality.

Our first setting is a survey experiment with labor organizers in the U.S. and Canada. Our empirical approach is a vignette design that describes hypothetical firms operating under varying degrees of labor market inequality. Under these different scenarios, organizers are asked to make incentivized strategic decisions (e.g. how to spend organizing budgets and what to focus campaigns on) based on their predictions about union support. Our manipulation of inequality in this design mimics a technological change that would increase the market wages of some workers, and decrease that of others, similar to the shock in Acemoglu et al. (2001). We operationalize this shock by describing employers who share the same internal wage structure and average market wages, but differ in how dispersed the outside options of their employees are. To reach out to organizers, we compiled a mailing list from over 500 websites jointly spanning all the branches of the ten largest unions, we partnered with research teams in other disciplines who have worked with organizers in the past, and messaged on LinkedIn all profiles with "Union Organizer" as a current or former job title. In total, we collected the voices of nearly 200 organizers, representing 26 unions, 14 industries and 39 states and provinces. We find that organizers predict that the vote share for a union will be substantially lower in more unequal environments. As a result, most organizers state that, in a resource-constrained world, they would divert resources away from a union drive at a more unequal workplace towards the workplace they predict to be easier to win over. Should they move forward with a union drive at both workplaces, they would approach those drives differently. In line with the hypothesis that workers' cohesion strengthens union support, they would be 25.0% less likely to disclose information about the outside options of workers in an environment where those are more dispersed. We also find that inequality shapes the demands union campaigns focus on: in the unequal environment, organizers are significantly more likely to build their campaigns around non-wage amenities, at the expense of wage demands. Finally, in unequal environments, organizers would be 14.8pp (168%) more likely to aim for smaller bargaining units—that is,

separate units for workers with different earnings potential, rather than a single, firm-level union. The latter two results illustrate a clear trade-off for organizers at unequal workplaces: recreating cohesion through small units of similar workers and a focus on more unifying (non-wage) demands increases the chances of any union representation, but decreases the overall strength of the union and its ability to push for wage compression.

While the first setting allows us to explore the organizers' perspective, our second setting allows us to gather direct evidence on workers' union support under varying perceptions of inequality. To achieve this, we leverage the insight that individuals typically underestimate pay inequality (Cullen and Perez-Truglia, 2022; Hauser and Norton, 2017; Jäger et al., 2024; Stantcheva, 2024), such that varying exposure to information on pay inequality can be used to understand the impact of inequality on union support. Our empirical setting is the Hollywood writers' strike of 2023, where we test whether raising awareness about inequality during a strike affects high-stakes expressions of support for the Writers Guild of America (WGA). As we document in a baseline study with 400 WGA members, perceived inequality is more modest than reality in Hollywood. While WGA members perceive their own earnings to be, on average, only 3 percentage points away from the typical pay for their position, in reality they are 8pp away from the median pay and 12pp away from the average. To make salient pay inequality, we distribute a pay report based on our baseline data collection, and experimentally capture subject assessment of Guild support among writers. The pay report is shared with writers after 100 days of striking, a high-stakes moment as Studios were returning to the negotiating table with the Guild. We circulate information reflecting the median and mean wages, separately for men and women. We also ask respondents to report whether they believe most writers think the WGA demands at the negotiation table meet the needs of all members.[1] We randomize whether this question is asked before or after respondents saw the pay information, such that we can discern whether pay disclosure impacts their response. We find that the share of respondents who consider that the WGA demands do not meet the needs of all members was 9% among those who had not yet seen our pay report and 23% among those who had (p-value of the difference < 0.001). We next

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[1]We focus on second-order beliefs, rather than directly eliciting support, because it plausibly yields more truthful answers while remaining high-stakes and relevant for union support. See Section 4.4.2 for more details.

investigate the characteristics of individuals whose perceptions of support are most impacted by pay information and find that respondents with more writing credits to their name – our proxy for an individual's earnings potential – shift their stated support most: the share indicating demands do not meet the needs of all members before and after the report rose 7-fold (off a base of 4%) among respondents with high credits, but support remained constant among low credit members (within 15 to 16%). These heterogeneity cuts corroborate the economic channel conjectured by Acemoglu et al. (2001), whereby high potential earners will prefer to bargain individually (ie. fail to negotiate a binding pay scale floor) should the earnings of the median voter be sufficiently below theirs.

The third setting we study allows us to examine individual workers' decisions to contribute to a union in workplaces with varying degrees of pay inequality. In 2011, Wisconsin Act 10 changed the rules governing how public-sector unions operate. First, the reform prohibited collective bargaining over pay scales, which were used to set teachers' pay based on experience and education. This left districts free to adjust teacher pay on an individual basis and without union consent. This change led to a large increase in inequality among teachers in Wisconsin: the interquartile range in pay increased by 20% over three years. Importantly, the option to individually bargain impacted teachers' wages heterogeneously: some teachers experienced large wage gains, while others didn't (Biasi, 2021). What determined the heterogeneity in wage gains was, in part, the extent of individual competition for teachers in their commuting zone: the dispersion in individual pay among teachers with the same education and experience grew substantially more in school districts with a more concentrated labor market for public-school teachers, measured by the Herfindahl-Hirshman Index. Second, the reform introduced "opt in" payment of membership dues, providing us with an incentive-compatible measure of union support at the individual level, which is rarely observed in administrative data. Pre-reform (and post-reform) we can measure district-level union support by their average member dues levels, taking into account non-payment. Together, these features allow us to compare union support across districts with small and large shocks to pay inequality. We can also test the underlying mechanism, namely that teachers who gain the most from individual bargaining are less likely to pay dues that support the unions' effort to return to the pay scale when inequality is higher. We show that while dis-

tricts with above and below median competition for teachers present parallel trends in union revenue per teacher in the pre-period, districts with above median change in inequality saw a significantly larger drop in union contributions following the expiration of CBAs. Consistent with the economic channel found in our Hollywood study, we find that the relative drop in union support in districts with a higher change in inequality is driven by teachers with high earnings potential – i.e. those who saw their wages grow the most under flexible pay.

Together, these research designs validate the potential for "inequality traps" whereby collective action, viewed as the counteracting force against inequality, becomes harder as wage gaps widen. We find that organizers decide to mitigate the impact of inequality on union support through campaign choices (e.g. prioritizing more consensual topics such as non-wage amenities). However, on net, they still divert resources away from unequal workplaces, even though they expect the union would have the biggest impact on pay compression precisely in those unequal environments.

This paper builds on a longstanding literature looking at the role of unions in determining pay structures and pay disparities. Empirically, this literature has predominantly documented the existence of a union pay premium (in the range of 0.1-0.4 log points) and debated the role of unions in compressing pay (Freeman, 1980; Card, 2001; DiNardo and Lee, 2004; Lee and Mas, 2012; Biasi and Sarsons, 2022; Fortin et al., 2021; Farber et al., 2021; Baker et al., 2024; Dodini et al., 2024; Lagos, 2024; Jäger et al., 2024). The novelty of our research is to provide experimental evidence consistent with a reverse link, where increased inequality hinders collective bargaining. In this way, our analysis contributes to an understanding of the decline in union density as a dynamic process that potentially feeds on itself. Our paper further provides evidence on the mechanisms underlying the decrease in support for unions in high inequality contexts. First, we show that individuals with high earnings potential are the ones driving lower support for unions under higher inequality. This is consistent with the empirical finding that unions compress pay, such that higher earners stand to lose more when pay dispersion is higher, and with the correlational finding that support for unionism is inversely related to one's position in the intra-firm distribution (Farber and Saks, 1980). It is also consistent with the theory in Acemoglu et al. (2001), which argues that a rise in the outside options for skilled-workers (under skill-biased technical change) weakens their

incentives to join the unionized sector. Second, we show that, anticipating lower support, organizers are reluctant to invest resources to unionize high-inequality workplaces, thereby further depressing the chances of worker representation in unequal environments. These results add to a largely correlational literature looking at the characteristics of unionized workers over time and how workers' preferences shape the success of a union drive (Farber, 1989; Defreitas, 1993; Gerstel and Clawson, 2001).

This paper further builds on an interdisciplinary literature about the political economy of unions, recently surveyed in Kaplan and Naidu (2024). A large share of this literature discusses the external influence of unions on the political system, e.g. effects on voting (Feigenbaum et al., 2018; Kuziemko et al., 2023; Yan, 2024), campaign finance (Matzat and Schmeißer, 2023; Ethan Kaplan and Xu, 2023), lobbying (Johnson, 2020; Dodini et al., 2024), and intra-party bargaining (Gethin et al., 2022). But fewer papers look into the internal organization and decision-making of unions,[2] in particular when it comes to organizing strategies—how they shape unionization and bargaining outcomes as well as how they are shaped by the economic environment. The one organizing strategy extensively discussed in the economics literature is the decision of unions to strike (see Card (1991) for a review and Massenkoff and Wilmers (2024) for the most recent causal evidence of strikes on wages), but many more strategies remain unexplored. Bronfenbrenner and Juravich (1995) and Bronfenbrenner and Hickey (2004) pioneered descriptive research on a wider range of organizing strategies, e.g. explaining how tactics like rank-and-file participation increase the chances of union drive success. With the notable exception of studies from Kate Bronfenbrenner and her co-authors, we are the first to make use of the direct voices of organizers at scale. We leverage this opportunity to elicit from them how inequality shifts a broad range of strategies, such as what to campaign on, what information to circulate during organizing drives or how to allocate limited organizing resources across workplaces. Consistent with Kremer and Olken (2009), our evidence suggests that unions adapt to more unequal environments in ways that may not directly serve their members (e.g. hiding information about outside options), but ensure the sustainability of the labor movement.

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[2]One exception is Boudreau et al. (2024), which looks at the role of union leaders in influencing and mobilizing workers.

Finally, our study contributes to a large and growing literature on the labor market consequences of pay transparency (see Cullen (2024) for a review). In the second study of this paper, we propose a design that leverages differences in perceptions about inequality and a pay information experiment to proxy for what is empirically hard to implement: randomizing inequality. Several papers have found that revealing pay disparities among coworkers can have unintended consequences, such as dampen worker morale or lead to dissatisfaction with work (Breza et al., 2018; Card et al., 2012). Our paper sheds light on a novel unintended consequence: as pay transparency often increases workers' perception of the dispersion in wages, it sharpens the tradeoff between individual and collective bargaining, especially for high-earners.

2   Conceptual Framework

We minimally adapt Acemoglu, Aghion & Violante (2001) to illuminate how inequality could negatively impact the ability of unions to attract and retain members, as well as compress wages among union members. While the source of inequality in the original model is skilled-biased technical change, the source of inequality need not be limited to a technology shock. Indeed, we show how the model can reflect other sources of inequality in each of our empirical settings, and yields predictions for our empirical findings.

Consider two sectors, A and B, that differ in their production technology; critically skilled and unskilled workers are differently productive in these sectors. Skilled workers in Sector A and B produce $y_s^A = A\eta$, $y_s^B = \eta$ respectively, while unskilled workers produce $y_u^A = 0$, $y_u^B = \alpha$, $\alpha < \eta$.

[A version that maps closely to Wisconsin (and could work for organizer and Hollywood): two districts – one more concentrated than another, such that the markdown for skilled labor is larger in the district with high concentration (HHI). In the competitive district, skilled workers earn closer to their marginal product, in the uncompetitive district skilled workers face a markdown. Unskilled workers are highly substitutable in both districts and command similar wages. Thus, in the competitive district, there is more inequality in the

market wages for high and low skilled workers. However, as in any marketplace, there are information frictions and pay setting friction (eg. internal equity) that could lead some firms to be more equal than the market wages for workers (eg. organizer survey). People who know they are skilled workers will always choose the competitive market; unskilled workers randomize (note in Daron's model, unskilled always choose the concentrated market, and those who don't know their type randomize).]:

To become a skilled worker, a person needs to have both general and firm specific training. While a share of workers will invest in general skills by paying a cost κ to ensure they can become skilled with firm training, the rest will not pay this cost, and with probability $\phi < 1/2$, those workers will still become skilled after firm-specific training. Importantly, for everyone there is a cost to firm-specific training, $\overline{e} > 0$, making it costly to switch sectors.

Firms compete by offering wage contracts that take the following linear form, $w^i(y^i) = \gamma + \beta y^i$, $(i = A, B, \beta \geq 0, \gamma \geq 0)$, where γ is the fixed component paid to all workers in the firm regardless of their skill level, and β is multiplicative with productivity, and thus governs the degree of pay inequality between skilled and unskilled workers.

We assume unions are rent-seeking. As in the original model, a rent-seeking union is defined as a coalition of workers that impose a wage contract upon the firm (respecting a 0 profit condition). The wage schedule is determined by pure majority voting among all union members. Each worker votes to maximize their rents from the other type, after realizing their own skill status and that of their co-workers, and after paying the firm-specific investment cost.

To be clear about the timing of actions: workers find out their education cost κ and choose whether to obtain education. Non-unionized firms make wage contract offers as a function of worker productivity. Workers join firms in sector A or B, and incur the firm-specific cost $\overline{e}$. Then, workers decide whether to unionize or not. Those who have not obtained education find out whether they are skilled or not. If there is a union, unionized workers vote over the wage policy. Then the firm decides whether to accept the contract offer or not. If it accepts this offer, it is committed to pay the contracted wage to all workers who stay. Workers can decide to switch firms or sectors and will incur the firm-specific cost $\overline{e}$ to do so. And finally, production and consumption take place.

In the absence of unions, all workers will be paid their marginal product: $w_s^A = A\eta$, $w_s^B = \eta$, $w_u^B = \alpha$. Sector A only employs skilled workers (recall, unskilled workers would produce 0). Skilled workers in sector B will stay there as long as $A\eta - \eta \geq \bar{e}$

Indeed, in Sector A, there are only ever skilled workers and a union cannot extract any rents in such a homogenous setting.[3] Thus, in Sector A, $w_s^A = A\eta$, regardless of whether a union is possible or not.

The values for entering sector A and B for educated workers are:

$$E^A = A\eta - \bar{e}$$

$$E^B = \gamma + \beta\eta - \bar{e}$$

The values for entering sector A and B for uneducated workers takes into account the stochastic realization of skills:

$$V^A = -\bar{e} + (1 - \phi)\max\{\gamma + \beta\alpha - \bar{e}, 0\} + \phi\max\{A\eta, \gamma + \beta\eta - \bar{e}\}$$

$$V^B = -\bar{e} + (1 - \phi)(\gamma + \beta\alpha) + \phi\max\{A\eta - \bar{e}, \gamma + \beta\eta\}$$

Because $\phi < 1/2$, majority voting among union members will favor unskilled workers, and the median voter is an unskilled worker. All (ex-ante) educated workers will choose sector A. All uneducated workers prefer to enter sector B.[4] Assume all firms have to employ at least a continuum of workers of mass ϵ, so, by the law of large numbers, all firms in sector B will have a fraction ϕ of their employees skilled and the rest unskilled

A median union member will be unskilled and use his voting power to extract rents from

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[3]Workers have been granted all the bargaining power in this model, and the 0 profit condition holds, so rent-seeking is merely a matter of extracting rents from other types of workers.

[4]If not, assuming $\alpha > \bar{e}$, a worker revealed to be unskilled in sector A prefers to switch to sector B.

skilled workers. The problem of median voter is:

$$\max_{\gamma,\beta}\{\gamma + \beta\alpha\}, \ s.t. \tag{1}$$

$$\gamma + \beta\eta \geq A\eta - \bar{e} \qquad \text{No quitting of skilled workers condition} \tag{2}$$

$$\pi = -\gamma + [1 - \beta]Ey^B \geq 0 \qquad \text{Firm's non-negative profit condition} \tag{3}$$

There exists a unique equilibrium characterized by the following: in Sector A, $w^A(\eta) = A\eta$. In Sector B, there exists a threshold $\eta^* = \frac{\bar{e}}{A-1}$. For $\eta > \eta^*$, firms are not unionized and pay $w^B(\eta) = \eta, w^B(\alpha) = \alpha$. For $\eta \leq \eta^*$, firms are unionized. Union imposes the wage contract with $\beta^* = 1 - \frac{\bar{e}-(A-1)\eta}{(1-\phi)(\eta-\alpha)} \leq 1$, and $\gamma^* = (1 - \beta^*)[\phi\eta + (1 - \phi)\alpha]$. $\kappa^* = A\eta - [\phi\eta + (1 - \phi)\alpha]$. All workers with the cost of education $\kappa < \kappa^*$ acquire education and enter sector A, and the rest enter sector B and join the union. No worker quits sector A after entry. For $\eta > \eta^*$, skilled workers quit sector B ex post (no-quitting otherwise).

A rise in inequality either through a rise in productivity (A) in the education intensive sector A, or a widening of the gap between η and α leads to both ex-ante deunionization (more workers acquire schooling and enter sector A as κ^* is increasing in A and η) and ex-post deunionization. Unions continue to exist, but their size shrinks: it is more difficult to maintain the wage compression required for rent-extraction. β^* is increasing in A and η. When β^* exceeds 1, unions are unsustainable.

Deunionization amplifies inequality, across both sectors, and within the unionized sector. Without unions: there are three wages: $A\eta$ for workers in sector A, η for skilled workers in sector B, and α for unskilled workers in sector B. With unions: wages in sector B becomes $w^B(\alpha) = \alpha + \frac{\phi}{1-\phi}[\bar{e} - (A - 1)\eta]$, where unskilled workers extract $\phi[\bar{e} - (A - 1)\eta]$ total rents from skilled workers in sector B and equally distribute those rents among unskilled workers.

Consider our three settings.

Consider the Wisconsin public school sector to be the unionized sector (Sector B) in each district. Each district negotiates its own pay scale in the pre-reform period. The extent of compression in the pay scale will, in this model, reflect the strength of the outside option for skilled teachers in each district (i.e. the productivity of Sector A, $w_s^A = A\eta$) and

the gap in productivity of high and low skilled teachers and the degree of labor mobility. The median voter needs to pay skilled workers enough to prevent them from quitting the unionized sector and leaving for the non-unionized sector, since that non-unionized sector pays higher wages to more productive teachers (either because they are relative high η or have high complementarities with the technology in the non-unionized sector). The pay scale collectively negotiated will feature lower premiums for the unskilled workers ($\phi[\bar{e} - (A-1)\eta]$) when A or η is larger, or labor is more mobile (low $\bar{e}$). After the reform, the pay scale is prohibited, and wages negotiated individually will (in our model) reflect the marginal productivity of individual teachers ($w_s^B = \eta, w_u^B = \alpha$). This yields the following predictions. *First*, the districts with more dispersed productivity (α vs. η) or dispersed outside options (0 versus $A\eta$ earnings in the non-unionized sector), or high labor mobility (low $\bar{e}$), will exhibit less compressed pay in the pre-reform period. Second, under an individual bargain regime, the gap in earnings will reflect the gap in α and η. Thus, the pre-reform compression is correlated with the post-reform compression in wages when stemming from dispersion in performance. Third, as young workers in the union sector realize their abilities, they are more likely to prefer the non-unionized individual bargaining scheme as a skilled worker (and less likely to prefer the individual bargaining scheme as an unskilled worker) as the gap between η and α grows. Thus, it is an empirical question as to whether greater dispersion in skill strengthens or weakens support for the pay scale. Note $\eta^* = \frac{\bar{e}}{A-1}$. For $\eta > \eta^*$, skilled workers leave.

When we turn to our setting of unionized Hollywood writers, we design our information treatment to shock perceptions about the distance between the productivity of skilled and unskilled workers, α and η. We do this by revealing the individually negotiated contracts (at a time when collectively negotiated wage floors were not especially binding following an inflationary period between collective bargaining agreements). We take advantage of the fact that workers anchor their perceptions of others on themselves. Consider the two types of workers in our model: unskilled workers with productivity α may think skilled workers' productivity and competitive wage negotiations are closer to α than the truth, and hence underestimate the other types productivity and earnings; and skilled workers with productivity η may think unskilled workers are earning closer to η than the truth, overestimating

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their productivity and earnings. Our model has opposing predictions for the reaction of each worker type to learning the truth about competitive wages. The unskilled workers raise their expectation about the rents their union would (optimally) demand and redistribute to them, the skilled workers raise their expectations about the rents their union would (optimally) demand *from* them to redistribute to the unskilled workers. Hence, we predict the skilled workers reduce support for the union demands, and unskilled workers increase their support for the union demands. Economic forces operate in the same direction if the pay distribution shifts perceptions about the likelihood the median voter is the same productivity type as oneself (under the presumption of ex-ante anchoring on own type).

Our organizer survey, without specifying the production technology driving wages in the non-unionized sector, can be interpreted as a shock to A in the non-unionized sector. Higher inequality in outside options of workers weakens the union through incentives for workers to move into the non-unionized sector, and stricter constraint on the union demands in order to keep skilled workers from quitting. We detect this by documenting organizer perception about wage demands of worker types.

3   Study I: Organizer Survey

Our goal is to understand, from the organizers' standpoint, whether inequality hampers union support and, if so, whether organizers devise strategies to mediate this relationship. To make sure there are no confounding factors, we run a lab-like experiment where organizers are presented with vignettes of hypothetical workplaces. These workplaces differ in the dispersion of workers' outside options. In this section, we describe our sampling procedure, the research design, and findings.

3.1   Survey Sampling

We collected the contact information of 2,380 union organizers in the U.S. and Canada in Summer 2024. Our contact collection effort leveraged three channels. First, we collected the emails of 1,680 organizers publicly listed on over 500 websites of national and local

organizations jointly spanning all the branches of the ten U.S. largest unions. Second, we received help from Professor Kate Bronfenbrenner, the Director of Labor Education Research at Cornell University's School of Industrial and Labor Relations, who shared with us a list of 433 publicly available emails she collected for the organizers of 32 unions. After merging both lists and removing duplicates, we obtained a final list of 2,113 emails, from 41 different national-level unions. Additionally, in Fall 2024, we used LinkedIn messaging to contact 267 organizers by searching for profiles with "Union Organizer" as a current or former job title. We collected responses from both email and LinkedIn through January 2025. We offered an incentive to participate to the survey in the form of a $30 gift card.

Our sample contains 182 respondents who reported a valid email during the survey.[5] 49% of these responses are from organizers whose contact information we collected online, 34% from organizers whose contact information we received from Professor Bronfenbrenner, and the remaining 17% are from organizers contacted via LinkedIn. These respondents come from a wide array of backgrounds, representing 26 unions, 14 industries, 36 U.S. states and 3 Canadian provinces (96% of respondents are based in the U.S.). The majority of them are also key players in their unions and have worked on many campaigns in the past: 66% of them are lead organizers and they have a median of 7 years of organizing experience.

3.2   Survey Design

Methodology   Our goal is to capture, in a controlled setting, the effects of a change in inequality on union support, as well as the strategies organizers devise to mediate these effects. We conduct a vignette experiment where experienced organizers are presented with hypothetical workplaces that differ only in the dispersion of their workers' outside options, eliminating potential confounding factors. The thought experiment here is to mimic a technological shock (à la Acemoglu et al. (2001)) that would increase the market wages of some workers, and decrease that of others, and then test how this shock would impact union support and organizers strategies. From a methodological standpoint, our results in the next section mainly rely on the experimental vignette design, i.e. the comparison of responses

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[5]We show our results with the unrestricted sample of respondents (N=221), including those who did not leave a valid email at the end of survey, in Appendix A.1 and find all results replicate.

between the environment with uniform outside options and the environment with dispersed ones. We view these as evidence on how union organizers react to an increase in how unequal a society becomes.[6]

Vignette Design   We present each organizer with two hypothetical organizing scenarios (vignettes), randomizing which one they see first. The scenarios, described as Factory A and Factory B, are displayed in Figure 1. These scenarios share several features. First, both of them describe three worker assignments: Quality Control, Metal Worker, and Pipefitter. We select these assignments because they require similar levels of general human capital but are sufficiently specialized that workers cannot easily switch between them. Second, to anchor organizers on a typical workplace, both vignettes specify that some workers expressed interest in a union at the worksite, but the firm is known to be hostile to unions. Third, we specify that hours at both firms are unpredictable (non-wage amenity) and, fourth, both firms share the same internal wage structure: $40/hour for all three worker groups. Where the scenarios differ is in the market wages for Factory A and B. In particular, market wages for Factory A are identical for all three worker assignments, at $48/hour. In contrast, scenario B introduces dispersion in outside options between the workers, akin to a market demand shock that advantages one group (Pipefitters) and disadvantages another (Quality Control). To minimize differences across scenarios, beyond the dispersion of outside options, we keep the average markdown between internal and external wages constant. Randomizing the order of the scenarios ensures that we do not systematically have responses of one scenario preceding responses to the other one.[7] For the rest of the paper, we term Factory A the *equal environment* and Factory B the *unequal environment*. We also term Pipefitters *high earnings potential* workers, Quality Control workers *medium earnings potential* workers, and Metal Workers *low earnings potential* workers.[8] We include the full survey tool in Appendix

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[6]We also ask questions to organizers about the strategies adopted in their latest campaign. However, we report the findings specific to their union without re-weighting our sample to be representative of the union landscape in the U.S.. Hence, one cannot infer from these responses about campaigns in-the-field the underlying prevalence of certain union strategies among U.S. organizers.

[7]We show that our results are robust to looking separately at responses of organizers separately by which scenario they saw first, see Appendix A.2.

[8]While we use direct language about outside options and earnings potential to describe the scenarios in this paper, our subjects did not see these terms at any point during the study.

Section E.3.

Union Support: Outcomes We elicit organizers' predictions about workers' union support in each setting. Given that the median organizer in our survey has 7 years of organizing experience, we consider responses to our survey to be educated by meaningful experience in the field, often spanning organizing campaigns at several unions over the years. We ask organizers to predict the share of workers that would vote to ratify a union contract in each scenario, asking in each scenario: "Please share your best guess: After all the details are hammered out, what percent of workers at Factory A/B would you expect to pro-actively vote yes to ratify a contract?" Then we unpack the reasons for their answer. First, we ask them about the wage demands each group would make: "What hourly wage increase would each of the following groups demand for themselves in order to ratify the CBA?" Second, importantly, we ask how easy it would be to get workers in each assignment group to agree to the other groups' demands: "How easy would it be for all workers to agree on pay scale demands? This means Pipefitters agree with the demands Quality Controllers make, and vice versa."

Union Strategies: Outcomes We next ask organizers about a set of strategies they would take in each setting, including what pay information to disclose during the campaign, the issue of focus in the campaign, and size of bargaining unit. We select these strategies because we think they have important implications for the strength of unions and the representation of workers. First, many workers turn to unions for greater pay transparency, such that organizers' decision to disclose market pay can directly confer bargaining power to workers (Jäger et al. (2024), Roussille (2024)).[9] Second, organizers' decision to make a topic (e.g. wage vs. non-wage amenities) the focal issue of the campaign sets expectations about what the first contract will accomplish. Bronfenbrenner and Juravich (1995) explain that the success of organizing campaigns depends not only on which issues organizers choose to focus on but also how well organizers plan ahead for the first contract before certification. Indeed, it is natural to assume that if the campaign's focus is on pay then workers will

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[9]For example, both the New York Times Tech Guild and the American Federation of Teachers emphasize pay transparency as a union benefit.

expect wage demands to be more front and center in contract negotiations than if the union focused on non-wage amenities during their union drive at the firm, and vice-versa. This is exemplified by organizing guidelines published by the Communications Workers of America, which coach organizers that bargaining proposals for a first contract should be primarily centered around the issues that motivated the organizing campaign. Therefore, we think of the topics the campaign focuses on as good proxies for what the union would most negotiate on, if it were to be elected. And finally, the size of bargaining units contributes to union strength: the threat to withhold labor is as powerful as the value of its members' collective work. For instance, Mishel (1986) finds unions have more bargaining power when they have higher coverage (i.e., include a larger set of jobs) and are less fragmented.

To measure each of these strategies, we ask the follow questions. First, on pay transparency, we describe "In the absence of more information, workers generally think that everyone earns what they do for similar work. You have the option to share the pay data you collected with workers. Would you share this pay information with workers?" The respondents were given three options: publish the pay information during the union campaign, publish the pay information after the union campaign, or never publish the pay information. Second, on bargaining unit size, we ask "Would you advise separate bargaining units for these three groups of workers?" Last, we elicit issue priorities. After showing the data on market wages, we inform organizers that, at both factories, hours are unpredictable and that the employer refuses to sign an Open to All business pledge: a commitment to maintaining a welcoming and safe environment for people. We ask: "To maximize support for the union, which of the following issues would be better to focus on during the campaign? Raising Pay, Predictable Hours, "Open to All" pledge."

3.3 Results: Inequality and Perceived Union Support

The first aim of this survey is to cleanly identify how organizers across different unions and industries conceive of the directional relationship between labor market inequality and union support. We find that the median predicted share voting yes to ratify a contract in the equal environment is 9pp (13%, p-value<0.001) higher than in the unequal environment. In other words, the equal environment is predicted to be an easier win for the union.

We now dive into what motivated the responses of organizers. First, we ask about the hourly wage increase each group of workers would demand. Figure 3 shows the mean response of organizers for each group in the equal environment under the y-axis headers, relative to market wages. The demands in the equal environment are all close to market wages (all ratios of demands to market wages are close to 1). The plotted regression coefficients show the effect of moving to the unequal environment on outcomes. Wage demands in the unequal environment are compressed relative to their market wages but far from equal: high earnings potential workers' expected demands relative to average market wages are 12.5pp higher in the unequal environment compared to the equal environment, reaching $55.1. The demands of medium earnings potential workers are about the same as average market wages in both environments. Finally, the demands of low earnings potential workers relative to average market wages are 9.0pp lower than in the equal environment, at $44.4. Additionally, even though average market wages across all workers are the same in the equal and unequal environments, the total average raise in wages demanded by workers to ratify the CBA in the unequal environment are higher by 6%.

Next, we ask how inequality in the labor market impacts the ability of union members to agree on a pay scale. Implicitly, this measures whether workers believe higher outside options for their peers justify higher demands, and vice versa. While 37% of survey takers would find it difficult to get alignment in the equal environment, a whopping 84% said it would be difficult to get alignment on a pay scale in the unequal environment.

3.4   Results: Inequality and Organizing Strategies

Organizing Strategies Within Firm   We next turn to understanding how the degree of labor market inequality shapes the way organizers approach a union drive at a given firm. We consider three key strategies: what pay information to disclose, whether to make pay focal in the campaign, and whether to divide workers into distinct bargaining units. First, we ask whether organizers would share the research on market wages. The top panel of Figure 4 shows the responses of organizers to these questions. In particular, under the y-axis headers are the distributions of responses to each question in the equal environment,

while the regression coefficient shows the change in responses when moving to the unequal environment. We find that in the equal environment, most respondents (94.5%) would publish the information during the campaign. In contrast, organizers are 23.6 percentage points less likely to publish the market wage data during the campaign. Instead, in the unequal environment, 12.6% of respondents opt to publish the data only after the campaign (vs 2.2% in Factory A) and 16.5% of respondents opt to never publish the data (vs 3.3% in the equal environment). Bearing in mind that, in the unequal context, workers with high earnings potential stand to learn that their market wage is 65% higher than their current pay, and the medium earnings potential group stands to learn that their market wage is 20% higher, the choice of the union to withhold this information, while arguably increasing the chances of success for the union drive, may be costly to some workers. Consistent with Kremer and Olken (2009), our evidence suggests that unions adapt to more unequal environments in ways that may not directly serve their members (e.g. hiding information about outside options), but are meant to ensure the sustainability of the labor movement.

In addition to asking organizers about the vignettes, we also gather evidence about the collection and dissemination of pay information in their most recent organizing campaign.[10] 86% of organizers report collecting relevant pay information, but only 35% of those who collected report that they published that pay data. In open-text format, we ask both how organizers accessed pay data. Answers reveal that organizers use a combination of accessing pay stubs, directly asking workers, and looking at pay scales or contracts from other comparable unions. We also ask what information they communicated. Organizers most commonly report sharing market rates or rates at other unions if anything, while some share average establishment wages by group or position. Aligned with our vignette experiment results, organizers running campaigns at workplaces in more unequal industries are 14pp (p-value=0.065) less likely to report that pay was the most important campaign issue.[11]

Second, we ask if organizers recommend separate bargaining units for each group of workers and find that, in the unequal environment, organizers are 14.8 percentage points

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[10]58% of most recent campaigns focused on organizing a new union, while the remainder were within an existing union.

[11]To classify industries as more or less unequal, we classify more unequal industries (2-digit NAICS) as those with above median national industry-level p90/p50 ratio from the OEWS in 2023.

(168%) more likely to recommend smaller bargaining units. This means that, even within one factory, Quality Control workers would bargain separately from Pipefitters. Smaller bargaining units in the unequal environment may improve the likelihood of a union forming in that environment at the expense of firm-level union strength, since the size of a bargaining unit is commonly associated with the bargaining power of the union.

Last, we ask what issues would organizers focus on during the organizing campaign. On these campaign priorities, the second panel of Figure 4 shows that organizers are 10.4pp less likely to focus on raising pay and 9.9pp more likely to focus on guaranteeing predictable hours. This suggests that in a context where outside options are more dispersed, such that pay would be a more divisive topic, organizers are more likely to focus their campaigns on non-wage amenities. Since campaigns are a good signal of what unions demand from employers if they succeed in their organizing drive, this result indicates that wage inequality could make it more difficult for unions to negotiate on pay and to generate compression. We also ask about worker and campaign priorities in organizers' most recent campaigns and find evidence consistent with organizers at times focusing on non-wage amenities, despite worker priorities. 96% of organizers declare that pay was among the top 3 priorities of workers but only 72% say pay was among the top three issues in their last campaign.

Resources Allocation Across Firms   Ultimately, we care about how inequality affects the efficacy of organizing. We want to know, after organizers have considered their strategies to maximize union support across both settings, which setting would they choose to allocate scarce resources. We ask organizers "With limited resources, which factory would you attempt to organize?". We ensure truthful responses by adopting the following incentive compatible language: "We will direct a significant donation to an organization (not participating in this survey) focused on organizing a workplace closest to Factory A or Factory B, based on the answers we receive." We also follow up with an open answer question about why they made their selection.

For organizers who opted to organize Factory A, common explanations included: "3 groups dealing with same pay and scheduling issues makes alignment on goals easier", "Easier to achieve and maintain solidarity among workers", "There is less chance for infighting in

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such a scenario." For organizers who opt to organize Factory B, their reasoning was: "2/3 are paid well below market rate and low wages could be a point of agitation", "Pipefitters are severely underpaid and we could build a campaign out of activists from that group", "It might be the harder of the two, but ultimately probably more worthwhile."

These quotes are only anecdotal but the aggregation of responses provides a clear picture: 67% say they would attempt to organize the equal over the unequal environment (Figure 2). In other words, about two thirds of organizers would focus their organizing efforts in the more equal environment. The fact that most organizers want to focus their resources on the more equal environment is consistent with their perception that workers there are more supportive of the union than workers in the unequal environment and, in aggregate, this trumps the expression from some that combating inequality could be "more worthwhile." This result contributes to our understanding of the decline in union density as a dynamic process that potentially feeds on itself: the more inequality there is, the less likely labor organizers are to spend their resources unionizing a workplace, yet the resulting lower union representation has been shown to lead to higher inequality (Farber et al., 2021).

The organizer survey speaks to the pervasiveness of the negative effects of inequality on union support, from the perspective of labor organizers. To complement this analysis, we next turn to two settings where we can assess whether workers themselves decrease their union support in response to heightened inequality.

4   Study II: Experimental Evidence on the Impact of Occupational Inequality in Union Support

4.1   Research Setting

We ask whether workers change their support for collective bargaining as information about pay inequality becomes experimentally salient. This question requires a setting where providing pay information can alter the salience of inequality and where we can measure high-stakes choices about supporting the union.

Hollywood writers, during the union contract renegotiations of 2023, fits these criteria.

Historically, pay information released or leaked in the entertainment industry resulted in news coverage about the unexpected degree of inequality (Copeland, 2014; Robb, 2021). Our survey measures corroborate that writers anchor their belief about the typical wage in their occupation on their own paycheck. As a result, this is a setting where providing truthful pay information increases perceived inequality for the vast majority of subjects, a phenomenon studied in several other contexts (Cullen and Perez-Truglia, 2022; Hauser and Norton, 2017; Jäger et al., 2024; Stantcheva, 2024). In addition, the terms of the union contract renegotiations were well-known and largely publicized, even to the general public.[12] As a result, writers had informed views about their union and its role in their labor market. Finally, the Writers Guild of America (the writers' union) made public statements alerting writers that any information they communicated to reporters or surveyors could affect sensitive matters at the negotiating table. Indeed, one of the key negotiation tactics of the Hollywood Guilds with Studios was to present a unified expression of support for its demands from writers, through official channels (e.g. the press).[13] Understanding that winning the heart of the public increased their bargaining power, the union leveraged individual writers' voices to promote strike goals on social media and in the news (Rice, 2023; Fitzgerald, 2023; Nierman, 2023). In this context, expressing a negative opinion about the union demands to a team of researchers at highly visible institutions could reasonably be expected to carry real costs for the union.

Of course, the advantages of a high-stakes strike setting also introduces limitations. First and foremost, as researchers, we did not want our study to intervene in the strike outcome. Second, we understood our subjects to be well organized and able to share information effectively with each other. Thus, we set out to administer an information treatment to a limited number of writers over a very brief window of time. This explains why our survey instrument containing the pay report was administered through private links, took approximately two

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[12]In addition to receiving extensive coverage from industry publications like *Deadline* (Patten and Robb, 2023), updates on the strike, negotiations, and deal were reported on by national media, including but not limited to the *New York Times* (Barnes and Koblin, 2023) and *NPR* (del Barco, 2023). A U.S. consumer survey in July 2023 found that 60% of respondents reported being aware of issues in the WGA and concurrent SAG-AFTRA (Actors) strikes (Rottenberg, 2023).

[13]In August 2023, following polling results that showed high public support for unions, the AFL-CIO put out a press release expressing that "with this unprecedented level of support, working people in unions are prepared to organize like never before" (AFL-CIO, 2023).

minutes to complete, asked one question, and was live for only a few days.

4.2 Institutional Background

Similar to industry-wide workers' unions, the West and East Writers Guilds of America (WGA) are two guilds to which film, television, and radio writers belong. For the remainder of the paper, we refer to both guilds as the WGA. The WGA is governed by elected members and its primary function is to negotiate contracts between Guild members and the Alliance of Motion Picture and Television Producers, which we refer to as the Studios. As such, the Guild has significant influence in the wage-setting process. For example, the WGA negotiates the Minimum Basic Agreement (MBA), which sets a pay floor, guaranteeing that Guild members earn at least the Minimum for their work. Over 11,500 writers in Hollywood are represented by the Guild (Koblin and Barnes, 2023).

The Directors Guild of America represents 19,000 directors and members of the directorial team working in media such as film, television, news, and commercials (Sakoui, 2023). Like the WGA, elected members serve the role of negotiating a Basic Agreement that sets the minimum amount members can be paid.

At the time of this study, the WGA's and the DGA's multi-year contracts with the Studios had just ended (respectively in May and June of 2023), and terms for the subsequent three years were expected to be negotiated. The DGA reached a tentative agreement on June 3 that members ratified on June 23 (DGA, 2023a). The WGA went on strike for 148 days, starting May 2, 2023 and ending September 27, 2023, over a dispute between the WGA and the Alliance of Motion Picture and Television Producers (AMPTP). WGA members ratified the new contract on October 9, 2023. A central goal of the strike was the renegotiation of minimums. They also negotiated over residuals (i.e. the component of compensation tied to project sales or ratings), employment duration guarantees, and the use of artificial intelligence. We fielded our baseline survey June 15-30 2023, when WGA members were in their 6th and 7th weeks of a strike, while the DGA had just ratified their own contract.

4.3 Baseline Hollywood Survey

4.3.1 Baseline Survey: Recruitment

We recruited current Hollywood writers and directors, targeting all members of the East and West Writers Guilds of America (WGA), as well as the Directors Guild of America (DGA), and non-members in writer or director positions with active IMDb profiles. To do so, we collected email addresses through public listings of WGA and DGA members (WGA, 2023; DGA, 2023b). Our contact list contained 19,916 writers and/or directors (our "contacts") whom we emailed to participate in our study between June 15, 2023 and June 23, 2023. We officially closed responses to our survey on June 30, 2023. At that time, we had received 1,048 complete responses, or 5.3% of all contacts, as well as 400 complete responses from WGA members, or 7.6% of WGA contacts.[14]

From here on, we focus on responses from WGA members due to the fact that they were subject to incentive compatible questioning in the context of their high stakes strike. However, key findings from the baseline survey replicate with the sample of all 1,048 writers and directors (Appendix B.1). We use individual data from IMDb to examine the characteristics of WGA members who we contacted and who responded to the survey. Columns (1)-(2) of Table 1 compares the characteristics of the 4,373 WGA contacts we could link to an IMDb profile (83% of our final list of 5,244 WGA contacts), with the characteristics of the 334 survey respondents we could link to an IMDb profile (84% of the 400 writers who completed the survey) (IMDb, 2023). Our respondents look comparable to the pool of contacts we drew from: for both groups, 64% are male[15] and they have approximately 80% writing credits. Both groups are similarly experienced in terms of total credits (∼39), while respondents are slightly less experienced in terms of earliest average credit year.[16]

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[14]9.0% complete some fraction of the survey and 5.3% complete all questions. This response rate is similar to studies in related contexts (see e.g., Cortés et al. (2023); Bursztyn et al. (2021); Cullen et al. (2023))

[15]Respondents self-report their gender at the end of the survey. However, to classify contacts (and later, follow-up respondents), we use data from the U.S. Social Security Administration which reports gender distributions of first names following Adukia et al. (2023). We analyze first names given to individuals born between 1920 and 2010, classifying a name as female if women comprise more than 50% of all people with that name during this period. We are able to classify the first names of 97% of contacts.

[16]In the creative arts, credits are an acknowledgment of those who participated in the production. They are often shown at the end of movies. This Wikipedia entry provides details on the WGA screenwriting credit system.

4.3.2 Baseline Survey: Design

Our baseline survey tests whether writers underestimate pay dispersion, such that information can meaningfully alter their perceptions of inequality. We also elicit whether subjects value pay information and face frictions trying to access it themselves, indicating whether a pay report will be appreciated and alter perceptions of inequality. Finally, we collect salary and detailed work information from individuals, which will be used to create the pay report we experimentally share in the follow-up survey.

To tailor survey questions (e.g. beliefs about pay) to the respondent's current career, we first ask detailed questions that allow us to determine their narrowly defined position title (below referred to as [Own Position Title]). To establish the exhaustive set of possible position titles for our respondents, we leverage the fact that CBAs list all position titles and their corresponding minimum (e.g. the minimum for Staff writers in film differs from the minimum for Staff writers in television, and the pay of Staff writers is not the same as that of Producers). For writers, we first ask if they work primarily in television or film. If they primarily work in television, we ask which of seven titles (e.g. "Staff Writer", "Co-executive Producer") is most relevant for their income. If they primarily work in film, we ask if writing low or high budget films is a more important source of income, because this is the primary category for determining film minimums. Finally, directors answer similar questions, choosing from a list of seven titles (e.g. "Associate Director", "Unit Production Manager"). We additionally ask each writer or director which type of studio, either "streaming services" or "traditional studios", provide a more important source of income. We refer to the main studio type below as [Own Type of Studio].[17]

We collect from respondents information about their compensation in language tailored to the industry: we ask what they earn as a percentage above the union minimum. Specifically, we ask them: "What percent above the MBA minimum do you typically earn as a [Own Position Title] at [Own Type of Studio]?". Respondents were presented with a drop down where they could report making less than the minimum, at the minimum, or above the

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[17]For those who reported working in both writing and directing, they only saw survey questions for either one of these positions. We prioritized writing or directing for a given respondent based on the source of their contact information (e.g. if the contact source suggested they are a writer, and they indicate they are both a writer and director, they saw questions about writing).

minimum in 1% increments up to 100% more. We ask pay in relation to one's relevant minimum because it enables pay comparisons across contract types (e.g. weekly vs. episodic television) and across position titles. Minimums may apply to weekly employment in a writers room or to discrete parts of the writing process (e.g. screenplay first draft vs. re-write). Additionally, minimums are well-known objects for writers; minimums are a focal point of the MBA and contract negotiations (WGA, 2023) and the Guild publishes a detailed "Schedule of Minimums" in order to communicate them to members (WGA, 2023).

We next measure whether subjects anchor their beliefs about others' compensation on their own, a phenomenon that leads to systematically underestimating inequality (Hauser and Norton, 2017; Jäger et al., 2024; Cullen and Perez-Truglia, 2022). We ask respondents to state the compensation of the typical writer in the Guild in their same position, using the parallel phrasing, "What percent above the MBA minimum do you think a typical [Own Position] in the Guild earns from one week in the writers room at a [Own Type of Studio] in the first half of 2023?" We then ask about their confidence in their answer.[18]

Next, we assess demand for a pay report. After filling out the position title information, we show respondents an example of what a pay report describing the aggregate pay distribution for other individuals in the same position as the respondent could look like. (Appendix Figure B1 Panel A).[19] We then ask a series of questions designed to measure their interest in each type of report. We consider that a respondent values the report if their answer to "Do you think we should create such report" (Question 8 in our survey instrument in Appendix E) is either "Yes, I would value it significantly" or "Yes, I would be interested to see it". We also measure willingness to pay (WTP) for the report following the incentive-compatible BDM procedure (Becker et al., 1964) whereby we create a menu of binary options between a pay report or a financial reward, and communicate that we will randomly select an option to execute for 10 participants.

After eliciting interest in the reports, we asked respondents how they would use the

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[18]Confidence is measured by asking "How confident are you in your knowledge of what the typical [Own Position Title] in the Guild earns?"

[19]We focus here on results for aggregate pay report, but we display two types of such "fake" reports: one showing aggregate pay distributions and one showing pay distributions split by gender. We show the split report in Appendix Figure B1 Panel B. We randomize which example respondents were shown first. See Appendix Figure B3 for our main results using only responses from those who see the aggregate pay report first and Appendix Figure B4 for results using the split pay report.

reports if they were published: "How would you use the report if it were published? Select all that apply." This question is intended to investigate how pay information might impact subject actions. We present five potential uses (e.g., contract negotiation, labor organizing), and allow for write-in reasons.

Finally, we seek to understand why pay information is not readily accessible to writers. In particular, we test whether respondents perceive that union organizers either promote or inhibit pay inequality information. We present respondents with a scenario, informing them that we are considering sending a petition to their Guild to ask for pay data that would help us produce pay reports. We ask respondents if we can include their expressed demand in our petition (specifically, their answer to a previous question about how much they would value the pay report along with their name). For half the subjects we named the recipient of the petition as their Studio (rather than Guild) to offer a benchmark willingness to request pay information from a third, arguably adversarial, party.[20] This question is incentive-compatible and truthful as we considered petitioning for the pay report using their reported demand.

4.3.3   Baseline Survey: Results

The median reported earnings of WGA members is 6.5% percent above the minimum, while the mean is 20.8% above. The average perceived distance between what a writer negotiates for him/herself ("percent above scale," i.e. relative to the minimum in the CBA), and the "typical" writer in their same position, is 3 percentage points. In reality, the gap between what a writer earns and the typical writer in their position is almost three times as large. The median absolute distance from their own earnings is 8 percentage points to the median earner in their position, 5 percentage points to the modal earner and 12 percentage points to the average earner.[21] In essence, members anchor on their own compensation and underestimate the pay gap between themselves and others.[22] In addition, only 13% of respondents report

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[20]See Questions 12 and 18 in our survey instrument in Appendix E.

[21]The true gap between a writer's own pay and the typical writer is similarly large if we instead compare to the typical writer across all positions, rather than within-position. In this case, the median absolute distance from own earnings is 6.5 percentage points to the median earner, 20.8 percentage points to the average earner, and 6.5 percentage to the modal earner.

[22]While they underestimate the gap, they do not necessarily under- or overestimate earnings systematically: just as many writers report a guess of typical earnings above what the median writer in our data earns (47%), as below (53%), with a median error of -1.5 percentage points (Wilcoxon signed-rank test p-value $= 0.012$).

being confident in their answer about typical pay.

Next, we validate that writers are interested in a pay report. Figure 5 Panel A shows demand for the pay report. The left side of the panel shows the share of respondents that would value the proposed pay report while the right side shows average WTP for the reports. There is high demand for pay transparency: 87% of respondents privately value the production of a pay report with a median WTP of $937. Results are similar among all writers and directors we survey: 83% value the report, with a median WTP of $1,008 (Appendix Figure B5). We next consider why respondents value pay information, by asking how they would use our proposed report. Figure 5 Panel B shows how respondents declare they would use the pay report. After informational reasons (80% of respondents plan to use the pay report "to know where they stand in the pay distribution"), the second most frequent intended use is contract negotiation: 70% of respondents declare they would use the report to negotiate their future contracts (and 22% mention they would use it to renegotiate their current contract), and 33% would use it for labor organizing. These responses reiterate that there is demand from writers to learn about relative income and use the information, especially regarding their individual earnings potential.

Given high demand for greater pay transparency, we seek to understand some of the frictions to accessing pay information. In particular, we document the reluctance of writers to ask for this information from the Guild and Studios.[23] Figure 5 shows that interest in the overall pay report (Panel A) far from translates into willingness to petition for the report (Panel C): While 87% of respondents privately indicate they would value such a report, only 34% are willing to make their request public to the Guild and 38% to the Studios.[24] This points to one plausible information friction: the Guild or Studios are not making pay statistics readily available[25] and writers are reluctant to ask this data from them. This

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[23]Both the Studios and Guilds have access to detailed pay data. Indeed, in the process of collecting dues, which are computed as a percentage of earnings, the Guilds require members to report all gross earnings, including base salary, overtime, residuals, deferments, percentage compensation, completion of assignment, vacation and holiday pay, profit participation and fees of all kinds in any Guild category. Studios collect this information directly since they are the contractors. Yet, neither the Studios nor the Guild publishes pay reports going beyond aggregate data.

[24]We consider that a respondent is willing to petition if they are first interested in the report, and later agrees to make their request public.

[25]Several pieces of evidence suggest this is the case. First, as discussed above, 80% would use a pay report to know where they stand in the distribution–suggesting that writers feel they have incomplete information

is consistent with the fact that members say they would use the reports to individually negotiate their contracts, potentially raising costs for Studios and detracting from collective negotiations.

4.4 Follow-up Hollywood Survey

Our results so far show that WGA members over-anchor their beliefs about the pay of others on their own pay, underestimating the gap between their pay rate and the typical pay rate. Writers also value and would use pay information but face frictions accessing it from worker- or employer-led organizations. This generates an opportunity for our team to make pay differences between themselves and others salient with writers and test how it changes their report about union support. We are able to do so in a context—the writers' strike of Summer 2023—where workers are making a high-stakes decision about what to report to researchers at prestigious institutions regarding union support, knowing that the researchers are predisposed to circulating aggregated reports.

4.4.1 Follow-up Survey: Recruitment

On August 11, approximately 100 days into the strike and six weeks after sending the initial survey, we sent a follow-up survey. Contacts were limited to writers for whom we could identify their WGA or non-WGA affiliation, either because they disclose it in our baseline survey or because that information is public (i.e we collected their email from the WGA website so we know they are a member). In total, we contacted 5,177 writers; 4,785 of them identified as WGA members, which represents about 40% of WGA membership. As in the baseline, we focus our analysis on WGA members. Our recruitment message stated that the survey would include a summary of our results from the baseline survey and ask only one question (see Appendix Section B.2 for full text). Two important considerations influenced our recruitment strategy: first, we did not want the impact of the pay report included in the survey tool to meaningfully interfere with the on-going strike and negotiations. Second, we

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in the status quo. Second, we directly ask if the WGA is forthcoming with information of value, and 35% of WGA member responses say either "No" or "Not sure." Third, as of the start of 2025, the aggregate pay statistics the Guild posts publicly on their website were from 2021, before the re-negotiation of the prevailing MBA (WGA, 2021).

did not want to sacrifice internal validity by allowing respondents time to share information before answering our union support question. Our constrained solution entailed drawing a cross-section of writers, targeting a sample of 3% of all members over a 48 hour weekend period.

Our final analysis sample contains 310 respondents who completed the survey, are WGA members, and responded within 48 hours after the survey launched. The response rate among WGA members was 6.5%. Thus, our sample includes approximately 2.7% of all WGA members. Columns (3)-(4) of Table 1 report the IMDb characteristics of our follow-up survey contacts and respondents in our final analysis sample. Contacts and respondents are similar across a wide range of characteristics; respondents are slightly less male and less experienced, measured either by earliest credit year or total credits.

4.4.2 Follow-up Survey: Design

The second survey tool is designed to measure a high stakes response about union support as a function of the level of salience of pay dispersion among members.

We designed this survey tool under two constraints: first, we wanted to collect individual identities to examine how writers with high- and low- earnings potential differentially responded to salient pay gaps; for this we did not want to reply on self-reports, but rather verifiable credit histories. Second, conditional on collecting identities, we did not want to generate a dataset linking individuals to personal support for the union during a strike, as such a dataset would be exceptionally sensitive.

We accomplished this by having an extremely short survey (1 question)and asking writers about second-order beliefs rather than first order beliefs about union demands. Given the circumstances, a willingness to report negative second-order beliefs about union demands to researchers circulating aggregated reports amounts to negative first-order beliefs *with plausible deniability*, under some assumptions which we discuss below.

The survey's question about union support is randomized to appear either before or after a pay report. Appendix Figure **??** provides a summary of the survey design.

The pay information we disclose is computed using (self-declared) pay rate information

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from our baseline survey respondents who are WGA union members.[26] As detailed in Figure ??, we show them the median, mean, and maximum percent above the minimum separately for men (+10% for the median and +25% for the mean) and women (+3% and +14%, respectively), along with standard errors around the mean of 2.2% for men and 2.0% for women.

We also ask respondents about their second-order beliefs about union support. Specifically, the question we ask is: "Do most writers think the WGA demands will meet the needs of all WGA members?" This question references a common refrain of the WGA that "no segment of the membership would be left behind"[27]. Second-order beliefs are likely to be more truthful (less sensitive in a context where identities are collected) and relevant in this setting as second-order beliefs directly impact first-order decisions—e.g., Guild members decision to continue striking depends on whether they think others will continue striking.

Under a few assumptions, responses to this question about second-order beliefs can be interpreted as personal support for the union.[28] Those assumptions are (1) the respondent understood that the same researchers who circulated the responses to the baseline survey in this follow-up survey are capable of using responses to the follow-up in a similar way (publishing aggregated results) and (2) that a poll published by researchers at MIT, Harvard and Yale showing positive or negative second-order beliefs, i.e. respondents think most writers do, or *do not*, think the WGA demands will meet the needs of all writers (their union's stated goal), would directly benefit or harm the WGAs negotiating position. In other words, if our respondents understood the real stakes implied by the potential for poll results to be published, then their answers should reflect their own preferences over the impact of that poll, either positive or negative for the bargaining position of the union during a critical moment in the strike.[29]

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[26] To compute the report, we only use pay information from respondents who completed the writer arm of the survey and reported being WGA members.

[27] A quote from Chief WGA Negotiator Ellen Stutzman,

[28] With the key advantage of giving any one individual plausible deniability should their answer and identity be revealed

[29] Writers had been on strike for over 100 days, the Studios had just re-engaged the Guild to continue negotiations at the time our survey reached writers. All parties were highly aware that a respected third-party publication could impact the credibility of the Guild's statement at the negotiating table that their demands were designed to meet the needs of all writers.

By randomizing whether we ask this union support question before (control) or after (treatment) respondents see the pay information, we can discern whether pay disclosure impacts union support.

We also took additional steps to ensure our study would not interact with the strike. We contacted the WGA leadership to inform them of the study before distributing the follow-up survey, proposing to collaborate if they preferred to do that (they did not). We waited until after the success of the strike before any of the results of the poll could be accessed publicly.

4.4.3 Follow-up Survey: Results

Figure 7 compares union support by treatment status (whether asked before or after seeing the pay report). The percent of respondents who answered negatively, that the WGA demands will either "Not at all" or "Mostly not" meet the needs of all members was 9% among those who had not yet seen our descriptive statistics and 23% among those who had, a 156% increase.

Figure 8 splits the experimental comparisons of treatment and control based on the number of writing credits an individual has. We use the number of writing credits as a proxy for individual earnings potential. High earnings potential respondents shift their support away from the union upon seeing the pay distribution result: The belief that the Guild does not represent the interests of all members increased by 543% (from 4.3% to 27.9%) among high earnings potential respondents and by 11% (from 14.8% to 16.4%) among low earnings potential respondents (DiD p-value = 0.006).

In sum, when we introduce pay information about the true pay distribution, we find that it erodes the perception that the Guild demands will meet member needs in the ongoing contract negotiation, particularly among high-earnings-potential individuals.

Our preferred interpretation is that the most salient information in the pay report was the larger-than-expected gap between own-pay and the pay of others (median and mean). Our report emphasized relative gaps in pay by framing all compensation with respect to the negotiated minimums ("scale"). Our baseline survey about beliefs about typical pay suggests that subjects, on average, underestimate this gap by 2x (distance to median) or 3x (distance to mean). Consistent with Acemoglu et al.'s (2001) theory, high individual earners

would be especially concerned with the redistribution demanded by the median voter, and redistribution required to meet the WGA minimums demanded.

Hollywood is an important setting to answer our research question: we were able to experimentally vary the salience of inequality, in the high-stakes context of a strike, and measure the consequences of salary information on perceived union support. While uniquely suited to our research question, Hollywood unions have some unique features. For instance, the way the Guild bargains with studios on behalf of workers is closer to the industry-level bargaining that happens in Europe, than the U.S. firm-level bargaining. Additionally, the data we collected was constrained by the caution we wanted to take around the strike. To complement this Hollywood case study, we turn to another empirical settings: the education sector. In particular, Section 5 relates individual level decisions to adhere to teachers' union (pay union dues) to quasi-exogenous changes to pay dispersion.

5 Study III: Wisconsin's Act 10

5.1 Research Design

We turn to a setting, public sector teachers in Wisconsin, that features a quasi-exogenous staggered shock in pay inequality within teaching positions.[30] This shock was the result of a 2011 state-level reform, known as Act 10, which marked the end of bargaining over pay scales and introduced individual bargaining when each districts' CBA expired (more details in Section 5.2). Within this setting, we have the rare chance of observing teachers' earnings both under the fixed compressed pay scale negotiated with the union and under the individual bargaining regime, at a time when union organizers lost the power to compress wages. Additionally, we can measure an economically critical expression of union support: the decision of workers to be dues-paying members of the teacher's union (post-reform) when unions are seeking a return of the pay scale. Combining individual-level, administrative data on dues payment decisions and individual earnings, we can track teachers' union support as a function of individual bargaining power and district level union inequality.

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[30]Defined empirically as 5-year experience-by-education cells, across school districts.

One empirical challenge is the potential for contemporaneous changes from Act 10 to concurrently impact union support at the same time as the shock to pay inequality. Individual bargaining comes into effect for each district at a unique time, when their CBA expires. However, another aspect of Act 10 also takes effect at that time: dues collections switch from being opt-out to opt-in.

We isolate the role of pay inequality from other features of Act 10 by comparing the evolution of union support for districts that would eventually experience a large versus small shock to pay inequality. Importantly, we show that the shock to inequality happens for reasons orthogonal to union activity. Indeed, the concentration of public school employers within the commuting zone of a teacher (measured pre-reform) determines the degree to which teachers can take advantage of their new individual bargaining power by being able to negotiate individually with other competitive options.[31] As a result, dispersion in pay rises more in commuting zones with more competition.[32] Additionally, because pre-reform pay is set by the scale, we are not concerned that teachers select into different districts based on their propensity to leverage their individual outside options at public schools in their commuting zone. Districts with high and low concentration of public schools trend similarly along our outcomes measures before the reform takes effect.

5.2 Institutional Background

Before Act 10 Until 2011, public-sector teachers in Wisconsin enjoyed considerable collective bargaining power, but almost no individual bargaining power. Unions were automatically certified to bargain on behalf of all teachers without the need to recertify. They could automatically collect membership dues from employees' paychecks. They had also been very successful in securing generous benefits for their members, such as pensions and health care and a fixed salary schedule that determined pay simply as a function of experience and education and guaranteed steady pay progression over time, with no individual adjustments possible (Biasi, 2021; Biasi and Sarsons, 2022). The use of a salary schedule implied that,

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[31]We discuss why this is our preferred measure of outside options for our subjects in the following data construction section.
[32]We show this empirically in Section XX.

for a given teacher position, the pay distribution was quite compressed (with a standard deviation of $7,519 in 2011).[33]

After Act 10 The landscape changed abruptly in March 2011, when governor Scott Walker signed Act 10 into law. The Act, officially a budget repair bill aimed at cutting spending on public employment by $3.6B, changed the conditions under which public-sector unions operate. In practice, the reform had the greatest impact on public-school teachers, as large organizations such as the police force and firefighter unions were exempt. The reform included three key components: first, teachers had to recertify the union every year by gathering an absolute majority of favorable votes from members of the bargaining unit in local elections. Second, Act 10 introduced opt in, in lieu of out-out, payment of membership dues. Lastly, the reform prohibited collective negotiations over the salary schedule. As a result, teachers were permitted to negotiate their pay as individuals. This change led to a sharp rise in pay inequality, with a within-position standard deviation in pay (conditional on education and experience) rising 10% by the 2015-2016 school year.

5.3   Data

To implement our research design we combine personnel records of all public-school teachers in Wisconsin with their political contributions, which we use to determine union membership. We also bring in data on union revenues, the expiration dates of districts' collective bargaining agreements to mark the date individual bargaining becomes effective, and the outside options of public school teachers determining the extent to which they could take advantage of individual-level bargaining.

Personnel data We use information from the PI 1202 All Staff Files for the years 2010 to 2017, made available by the Wisconsin Department of Public Instruction (WDPI). These files list all employees of the WDPI and its school district, including all public-school teachers. Information recorded includes employee names, gender, year of birth, years of experience within Wisconsin Public Schools, district and school assignment, total salary, and full-time

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[33]To calculate this measure, we residualize wages using indicators for 5-year experience intervals interacted with an indicator for having a Master's.

equivalency (FTE) units. The files are structured so that each row corresponds to a job position, with 2% of all people holding more than one position in each year. We restrict attention to teachers and collapse the dataset at the person-year level, retaining information on the position with the highest FTE for each person and year.[34] Our final teacher dataset, described in panel (a) of Table 2 (column 1), contains a total of 109,032 teachers observed between 2009 and 2017, with 44,062 teachers observed in 2011 and 43,888 each year on average. In 2011, immediately prior to Act 10, the average teacher earned $54,125, with a standard deviation of $11,529. In 2016, average pay is $54,543 with a standard deviation of $12,335.

Union revenues We draw information about union finances from tax forms submitted by unions to the Internal Revenue Service (IRS) of the United States. As tax exempt organizations, all public-sector unions are required by the IRS to fill Form 990 (the "Return of Organization Exempt From Income Tax" form). The form reports the organization's revenues, expenses, assets, and liabilities. We accessed a database of digitized Form 990s through the National Center for Charitable Statistics (NCCS) of the Urban Institute (2016). To restrict attention to Wisconsin teacher unions, we first compiled a list of teacher unions from the records of the Wisconsin Employment Relation Commission. Then, we searched for the union names among the Form 990 records. We were able to link 99 districts to the records of 52 unions. We calculate revenues per member, defined as total revenues (primarily coming from membership dues and reported on the forms) divided by the total number of teachers in each union's represented districts (as listed in the staff files) as a measure of per member revenues.

Individual union membership To track which teachers contributed member dues to their union in each year, we follow the procedure proposed by Foy (2024). Starting from 2016, the state chapter of the National Educator Association began to automatically deduct $19.99 from each member's annual dues, routing the funds to its PAC. In a similar way, the 13 regional chapters of the state union (each with its own PAC) automatically receive

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[34]We exclude records with a salary equal to $0 or missing FTE.

$5 from member dues. This feature makes it possible to discern which teachers were union members since 2016 by searching for teachers' names, as reported in the Staff files, among the list of political contributors to the NEA state and regional PACs. We therefore link staff teacher records to those of the Wisconsin Campaign Finance Information System, which tracks political donations to PACs, using a fuzzy matching based on names.[35] Following Foy (2024), we assume that if a teacher appears in the contribution data, they are a union member. This decision is supported by two facts: i) The majority of contributions in the WCFIS data are bunched at the $19.99 and $5.00 marks, which are the values that unions automatically redirect from member dues to their PACs (Appendix Figure C1); and ii) it is uncommon for non-union members to donate to union-affiliated PACs. According to this definition, 47% of teachers contributed money to a union in 2016 (Table 2). This data provides us with direct, individual-level, "vote with your feet" measures of union support.

Collective bargaining agreements We classify districts according to their expiration date of districts' collective bargaining agreements pre-dating Act 10, which mark the point in time at which each district (and its union) became subject to the changes introduced by the law. We use the dataset first compiled by Biasi (2021), assembled combining information from multiple sources, including union contracts, districts' employee handbooks, school board meetings minutes, and local news sources.[36] The dataset contains information on 247 of the 428 districts in the state, employing approximately 70% of all teachers in the state. Out of 247 districts for which CBA expiration dates are known, 198 had CBAs that expired in 2011, 20 in 2012, and 7 in 2013. Considering extensions, 109 CBAs ended in 2011, 97 in 2012, 36 in 2013, 3 in 2014, and 2 in 2016 (Appendix Figure C2; Biasi, 2021; Biasi and Sarsons, 2022; Biasi and Sandholtz, 2024).

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[35]The WCFIS website can be accessed at https://cfis.wi.gov/Public/Registration.aspx?page=ReceiptList. Before performing the match, we clean the names to account for inconsistencies (such as variations in middle initials) to insure that each name is assumed to uniquely identify an individual within a filing period.

[36]Union contracts generally report the date of the expiration of the agreement. Post-Act 10 school board minutes typically mention whether a contract was set to expire in 2011. The presence of an early version of district employee handbooks is also useful to establish when the post-CBA pay regime was introduced (which typically coincides with the date of the earliest handbook at the latest). When available, the dataset prioritizes information from union contracts, school board minutes, and handbooks. In cases where these documents are unavailable, the records are complemented with information from online local news sources.

Herfindahl-Hirschman Index   To measure the relevant concentration in the labor market for public school teachers, we use the Herfindahl-Hirschman Index (HHI), measured prior to the reform and calculated based on public teacher employment across school districts within their commuting zone (CZ). We consider concentration across public school districts, rather than across schools or across the public and private sectors or across the education and non-education sectors, for the following reasons: (i) teacher contracts are stipulated with each school district, not with a school, making the district the employer; (ii) private and charter schools tend to pay lower salaries than public schools (Taie and Goldring, 2019) and mobility between sectors is limited due to a host of other factors (eg. differences in amenities, non-transferability of benefits); (iii) most teachers have degrees in education, which are most useful within the education sector. Naturally, the HHI is higher in rural areas in the North-East of the state. However, significant differences exist also between urban areas, such as those of Milwaukee (HHI of 1,083) and Madison (HHI of 990). Table 3 shows that the HHI strongly predicts the change in within-position wage dispersion pre- and post-reform, but is weakly and insignificantly correlated with wage dispersion pre-reform, wage levels pre-reform, or change in wage levels pre- and post-reform.

5.4   Empirical Strategy and Results

Central to our research design is the comparison between districts that are ex-ante headed toward a large shock to pay inequality when individual bargaining commences (at the time their CBA expires) and those headed towards a modest shock to pay inequality. We divide districts by above- and below-median HHI for the purpose of this comparison. Districts with above-median HHI experience strong growth in their position-level wage dispersion (IQR) while districts with below-median HHI experience modest growth in their position-level wage dispersion: A 1,000 increase in the HHI is associated with a \$270 increase in the IQR between 2011 and 2016, equal to 5% of the 2011 IQR (Figure C5, panel (b), and Table 3, column 2). The average HHI for districts classified as above-median is 1,404, and by contrast, below-median HHI is 805. Along other dimensions of importance, high and low HHI districts are comparable and evolve in parallel: Table 3 shows weak and insignificant correlations with pre-reform dispersion, wage levels, change in wage levels over time, and

Figure 9 shows parallel evolution of per-member union dues pre-reform.

We compare the evolution of union support for districts that would eventually experience a large versus small shock to pay inequality at the time Act 10 becomes effective in their district by estimating the following staggered differences-in-differences equation via OLS, separately for districts in the top and bottom half of the distribution of HHI 2011 (we refer to these as "high inequality" and "low inequality" districts, respectively):

$$r_{jt} = \sum_{k=-5}^{5} \beta_k 1(t - E_{d(j)} = k) + \theta_j + \tau_t + \varepsilon_{jk} \tag{4}$$

where r_{jt} are revenues from membership dues per member in school district j and year t and E_d is the year of expiration of district d's CBA. The vectors θ_j and τ_t contain district and year fixed effects, respectively. Normalizing $\beta_0 = 0$, the parameters β_k estimate the change in revenues from membership dues per member k years since a CBA expiration, relative to the year of the expiration. We cluster standard errors at the district level.

As illustrated in Figure 9, estimates of β_k for $k < 0$ are indistinguishable from zero both in high-inequality and low-inequality districts, verifying that revenues per member followed parallel trends in the years leading to a CBA expiration. After an expiration (i.e., for $k > 0$) estimates become negative, large and statistically significant in high-inequality districts, indicating a drop in revenues of 64% (p-value < 0.001) and 67% (p-value = 0.001) per member two and three years after an expiration, respectively (with estimates equal to -1.021 and -1.120, respectively). The decrease is much smaller in low-inequality districts, at 16% (p-value = 0.01) and 9% (p-value = 0.69) two and three years after an expiration. The difference in union revenue between high-inequality and low-inequality districts was 29% (p-value = 0.02) by year 3. Estimates are robust to additionally controlling for the distribution of teacher experience in each district (Appendix Figure C4). These results indicate that the support for teacher unions, as measured by the membership dues collected by each union per teacher in the bargaining unit, fell significantly more in places with higher inequality. Since the gap in pay dispersion between above and below median HHI districts grew by $270 (or 53%, p-value = 0.05) by year three post reform, and the difference in union revenue grew by 29% (p-value = 0.02), we estimate an elasticity of a 0.55% decline in union revenue for a

1% increase in pay inequality IQR in our setting.

Union support and earnings potential Next, we study how individual-level union support after Act 10 varies with a teacher's earnings potential: what they earn under the collective pay scale negotiated versus what they earn when they can individually negotiate. We capture earnings potential with the increase in wages experienced by each teacher between 2011 (i.e., immediately prior to Act 10's implementation) and 2016 (i.e., when virtually all districts had become exposed to the consequences of the reform). Earnings potential varies substantially across teachers, with a mean of $4,402, a 25th percentile of $2,749, and a 75th percentile of $6,555 (Appendix Figure C6).

We estimate the effect of being in districts with above- versus below-median HHI (our pre-reform predictor of post-reform inequality shocks) on individual-level union membership in 2016 (the first year it is available), separately for workers with earnings potential above and below the median in each group of districts, equal to $5,088 in low-inequality districts and $5,780 in high-inequality districts. Out of an abundance of precaution that other demographic characteristics, namely gender or tenure in the union, may be differentially correlated with union attachment in high versus low HHI districts, and correlated with earnings potential, we control for these demographic characteristics and also display their differential effects on the same figure.

The top panel of Figure 10 indicates that union support is 13.1 percentage points lower in high-inequality districts compared with low inequality-ones (or 28% compared with the average membership rate of 47% for workers with high earnings potential. In contrast, union support is only 8.7 percentage points lower for workers with earnings potential below the median (diff p-value < 0.001). For comparison, we also estimate the effect of high inequality separately for workers with tenure in the union above and below the median (central panel) and for men and women (bottom panel). We do not observe the same differences in the effects of pay inequality across these groups. For example, pay inequality decreases union support by 10.7 and 10.9 percentage points for workers with tenure in the union above and below the median, respectively, and these estimates are statistically indistinguishable from each other (diff p-value = 0.864). Similarly, it decreases union support by 11.1 and 10.7

percentage points for men and women, respectively, also statistically indistinguishable from each other (diff p-value = 0.713). Taken together, these results corroborate our findings from Study 1 that increased pay inequality reduces union support, particularly among workers with high pay potential, corroborating the economic channel highlighted in Acemoglu et al. (2001).

6   Discussion

Our findings have implications for cross-sectional relationships between union density, the union pay premium, and inequality. If inequality undermines union efficacy, we would expect to find more broadly that unions are smaller and less effective when operating in highly unequal industries. Indeed, in a cross-section of U.S. industries over the past two decades, we document that unions operating in more unequal industries have lower member density, are less likely to negotiate rigid pay rules, and their members earn a smaller wage premium over non-union workers.

    We categorize the rigidity of pay scales for approximately 400 private-sector contracts spanning 2002-2022 from the Office of Labor-Management Standards (OLMS) Online Public Disclosure Room. As Panel A of Figure 11 shows, unions in more unequal labor markets (measured by p90-p50 wage ratios within each industry X region X 3-year cell) are less likely to include fix pay scales in their contracts. In addition, Panel B documents a clear negative correlation between the union wage premium (measured in the CPS over non-union wages in the same industry X region X 3-year cell after adjusting for a rich set of worker-level controls) and wage inequality. Panel C shows a similar pattern between union membership and wage inequality. To obtain more precise estimates of wage ratios, we draw on OEWS (state-industry level estimates are available after 2012) or ACS (to get pre-2012 estimates for panel A) data, which do not distinguish between union and non-union workers. In Figure D1, we show these relationships are robust to estimating wage ratios among non-union workers from the CPS, despite its smaller sample size and top coding limitations. In related work, Jäger et al. (2024) also consider selection into union membership and spillovers to non-union workers in survey data. They find that, given the low unionization rates observed in the

U.S. ($\sim 10\%$), unions effects on overall wage inequality are limited. Further, if such union wage effects were present, they would reduce the p90/p50 wage ratio. This implies that accounting for union wage effects would only make our observed relationships stronger.

In sum, the patterns we observe more broadly in the U.S. economy suggest that the economic relationship between inequality and union support we are able to document in three unique settings might extend well beyond these settings.

7   Conclusion

This paper provides the first causal evidence on how wage inequality affects the labor movement, using three complementary research designs: a survey experiment with union organizers, an information intervention during the 2023 Writers Guild of America strike, and a natural experiment following Wisconsin's Act 10 reform that increased wage inequality among public school teachers.

Our findings consistently demonstrate that rising wage inequality significantly undermines collective action, creating potential "inequality traps" where the traditional counterforce to inequality—unionization—becomes less effective as inequality rises. Specifically, we find that increased wage dispersion reduces union support through three key mechanisms: First, workers with high earnings potential withdraw support disproportionately in unequal environments, preferring individual to collective bargaining. Second, organizers strategically respond to inequality by shifting campaign focus away from wage demands toward non-wage amenities and by advocating for smaller bargaining units, potentially sacrificing broader union strength. Third, organizers allocate fewer resources to workplaces with high inequality, despite recognizing that these are precisely the environments where unions could have the greatest impact on pay compression.

The Wisconsin study provides particularly compelling evidence of these dynamics in action. Teachers with higher earnings potential were significantly more likely to stop paying union dues in districts experiencing larger increases in wage inequality following Act 10. We estimate that a 1% increase in pay inequality (measured by interquartile range) leads to a 0.55% decline in union revenue in those districts.

Our Hollywood study further illuminates the mechanism: when information about pay disparities becomes salient, high-potential earners significantly reduce their perceived support for union demands. Specifically, the willingness to report (during a strike) that union demands would not meet the needs of all members rose from 4% to 28% among high earnings potential writers after viewing pay information, but remained flat among those with lower earnings potential.

These findings have important implications for labor economics and policy. The negative impact of inequality on unionization suggests a self-reinforcing cycle: as wage gaps widen, collective action becomes harder to sustain, further enabling inequality to grow. This dynamic could be contributing to both the historical correlation between rising inequality and declining unionization rates in the U.S. and the patterns we document across industries today, where unions in more unequal sectors have lower density, less rigid pay scales, and smaller wage premiums.

Our results also reveal strategic dilemmas facing labor organizers in increasingly unequal workplaces. When faced with diverse earnings potential among workers, organizers must choose between pursuing broader, firm-wide representation that may struggle to gain support from high earners, or targeting smaller, more homogeneous bargaining units that might succeed but with less power to compress wages. These strategic responses represent rational adaptations to inequality but may undermine unions' traditional role in reducing wage disparities.

For policymakers concerned with both inequality and labor rights, our findings suggest that addressing wage dispersion directly might be necessary to create conditions where collective bargaining can thrive. Conversely, policies that strengthen unions' ability to compress wages could create virtuous cycles that make further organizing more viable. Future research could explore whether alternative union structures or bargaining approaches might better withstand the centrifugal forces of inequality, and whether policy interventions that directly address earnings disparities might indirectly strengthen the labor movement.

In conclusion, by documenting the causal impact of inequality on union support and organizing strategies, this paper advances our understanding of the complex relationship between wage structures and collective action. The "inequality trap" we identify represents a

significant challenge to addressing economic disparities through traditional labor institutions alone.

Figures and Tables

Figure 1: Market Wages

PANEL A: Equal Environment (Factory A)   PANEL B: Unequal Environment (Factory B)

Assignments	Hourly Wage	Research on Market Wage
Quality control (1/3rd)	$40	$48
Metal Worker (1/3rd)	$40	$48
Pipefitter (1/3rd)	$40	$48

Assignments	Hourly Wage	Research on Market Wage
Quality Control (1/3rd)	$40	$30
Metal Worker (1/3rd)	$40	$48
Pipefitter (1/3rd)	$40	$66

Notes: This figure shows what information we conveyed about internal wages and market wages at each factory in the organizer survey vignettes. Organizers saw the factories in a random order. Based on Panel B, we refer to Quality Control workers as "Low Earnings Potential", Metal Workers as "Medium Earnings Potential", and Pipefitters as "High Earnings Potential." For the full text of the vignette, see Appendix Section E.3.

Figure 2: Allocation of Organizing Resources
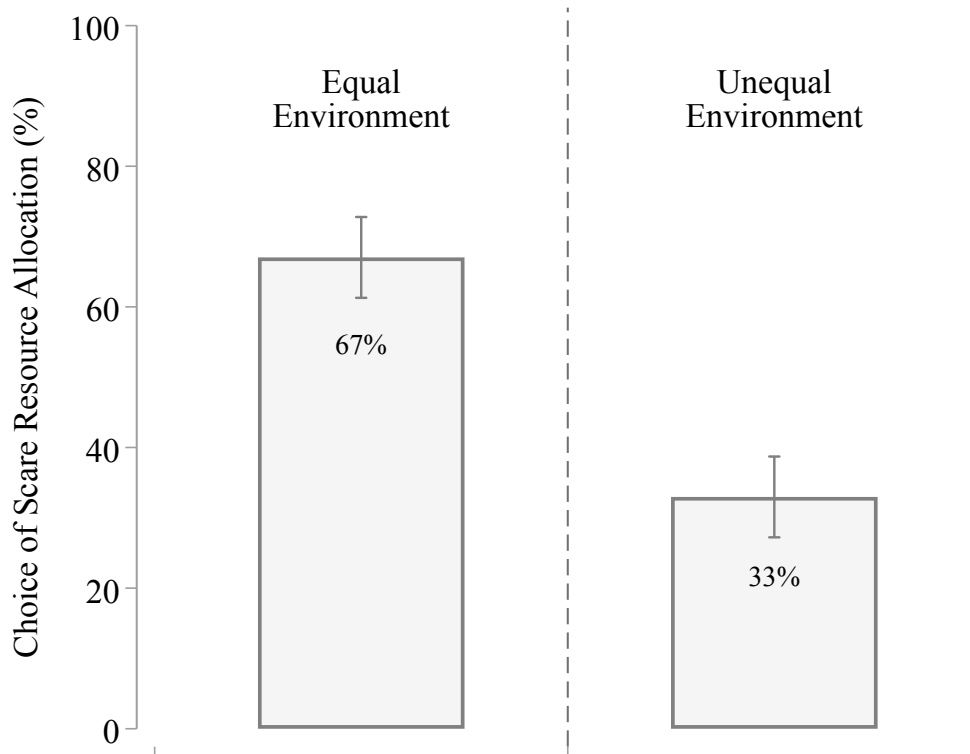
Notes: N=182. 90% confidence intervals using robust standard errors. The left bar shows the share of respondents choosing to allocate resources to the equal environment, while the right bar shows the share of respondents choosing to allocate resources to the unequal environment.

Figure 3: Worker Wage Demands
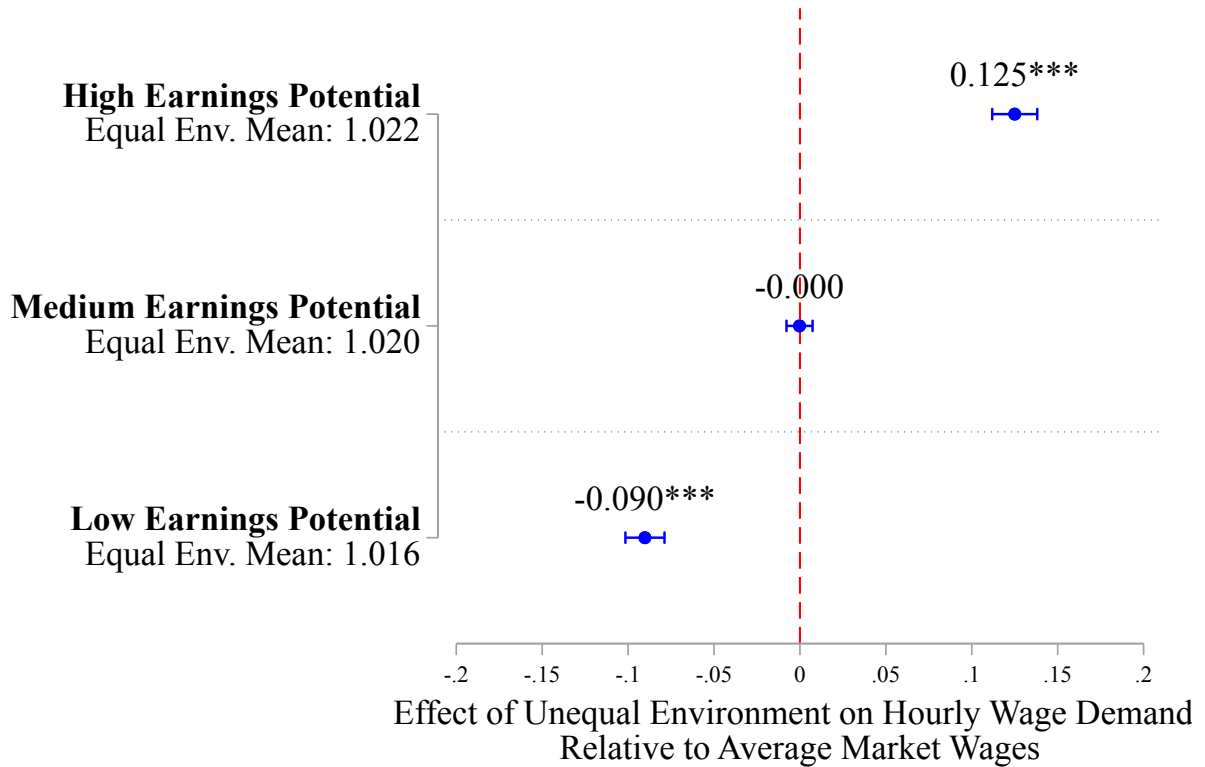
High Earnings Potential
Equal Env. Mean: 1.022

Medium Earnings Potential
Equal Env. Mean: 1.020

Low Earnings Potential
Equal Env. Mean: 1.016

0.125***

-0.000

-0.090***

Effect of Unequal Environment on Hourly Wage Demand
Relative to Average Market Wages

Notes: N=182. Point estimates with 90% confidence intervals, using standard errors clustered at the organizer level. *Equal Environment Means* show wage demands by position in the equal environment relative to average market wages across positions (always $48). Estimates show the effect of moving from the equal environment to the unequal environment on workers' hourly wage demands by earnings potential. Specifically, organizers were asked "What hourly wage increase (in the first year of the new contract) would each of the following groups demand for themselves in order to ratify the CBA?" for each of the 3 worker assignments at each factory.

Figure 4: Organizing Strategies
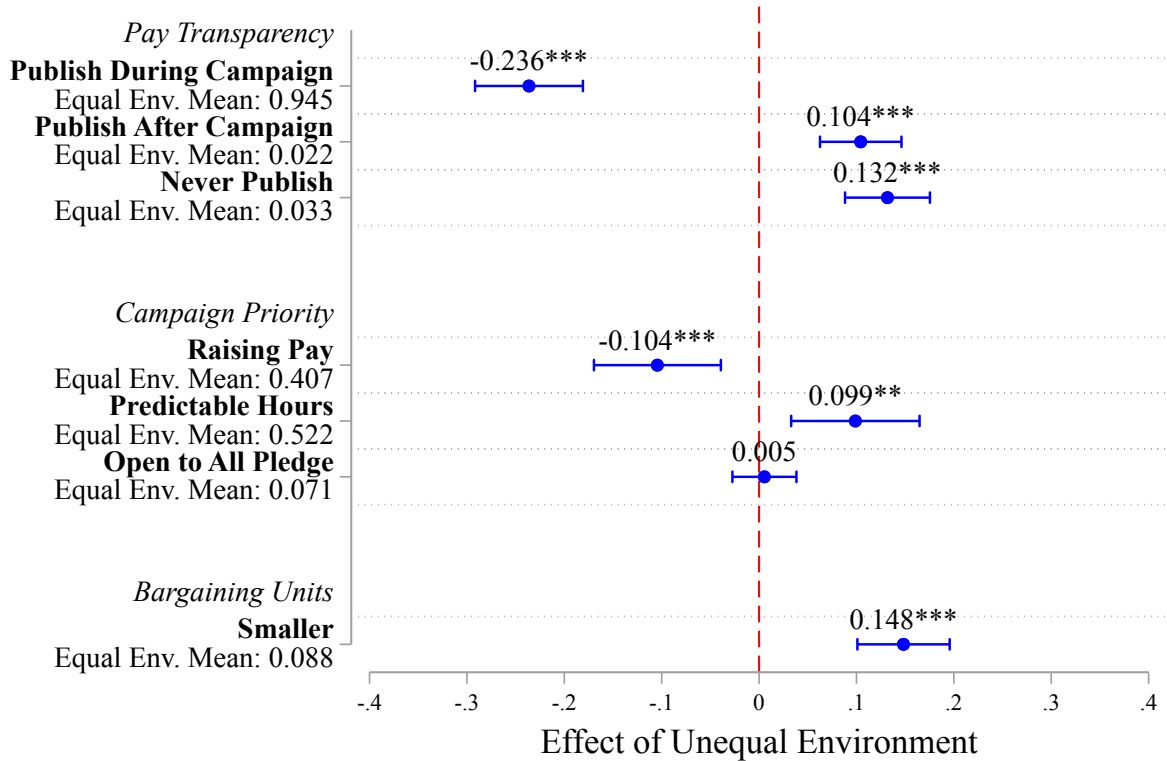
Notes: N=182. Point estimates with 90% confidence intervals, using standard errors clustered at the organizer level. Estimates show the effect of moving from the equal environment to the unequal environment on outcomes. Coefficients under *Pay Transparency* report whether the organizer would publish the market wages from Figure 1 during the union campaign, after the union campaign, or never. Coefficients under *Campaign Priority* report which of the three issues the organizer thought would be best to focus on during the campign. Finally, the coefficient under *Bargaining Units* reports whether the organizer would advise separate bargaining units for the different worker assignments.

Figure 5: Baseline Hollywood Survey: Interest in a Pay Report

PANEL A: Demand

PANEL B: Uses

PANEL C: Willingness to Petition
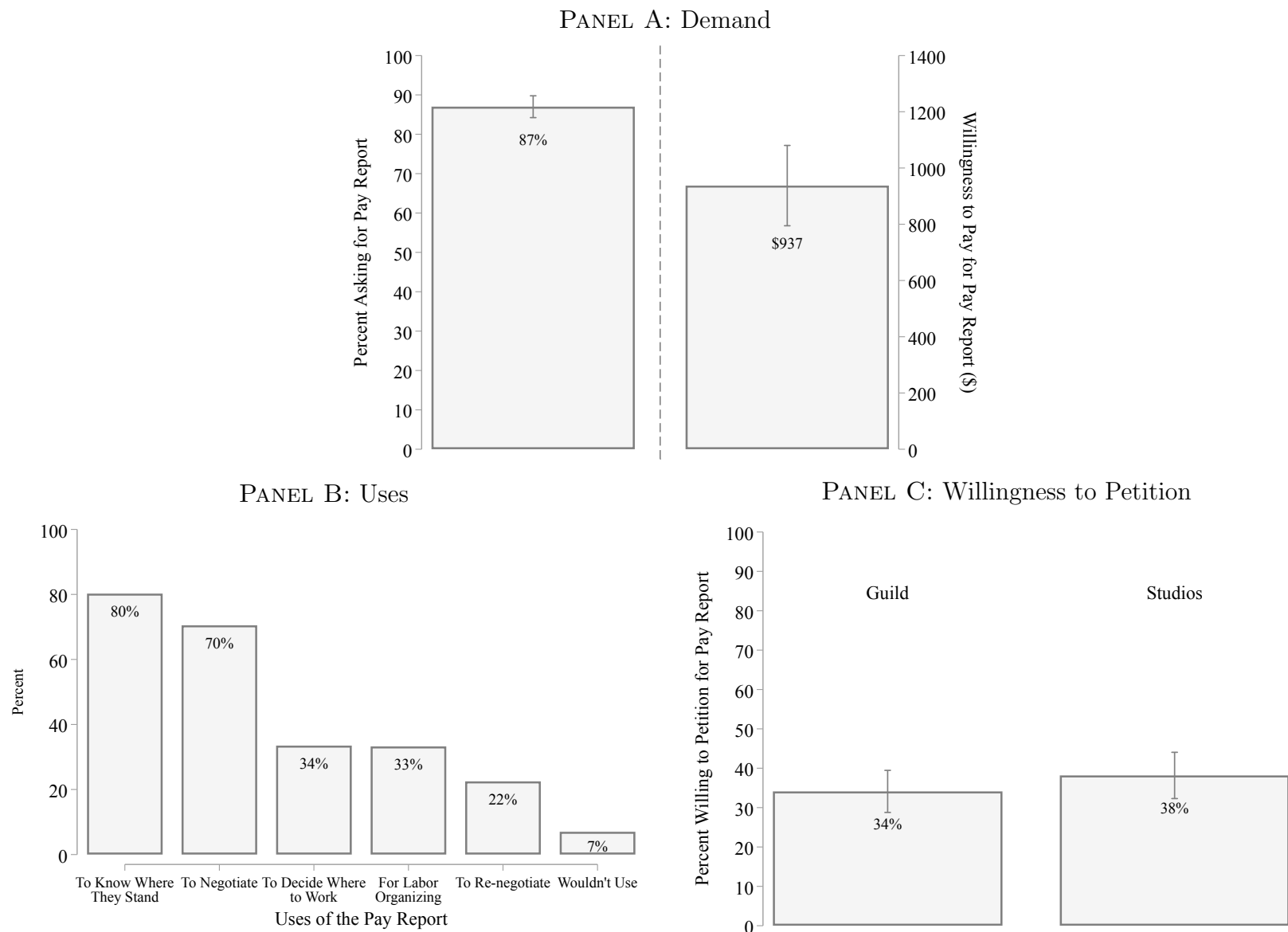
Note: N=400 WGA members. 90% confidence intervals in brackets. In panel A, we show the percent of respondents who ask for the pay report and respondents' willingness to pay. We ask how much respondents value the report using a 5-point scale, converted here to a binary measure. WTP was elicited using the incentive-compatible BDM procedure (Becker et al., 1964), where respondents were given a menu of binary options between a pay report or a financial reward. In panel B, we show how respondents would use a pay report. Respondents were asked to select all uses that apply. In panel C, we show the percent of respondents willing to petition for pay information either from their profession's Guild or the Studios. The percent willing to petition from either institution is 39%.

Figure 7: Perception of WGA Demands
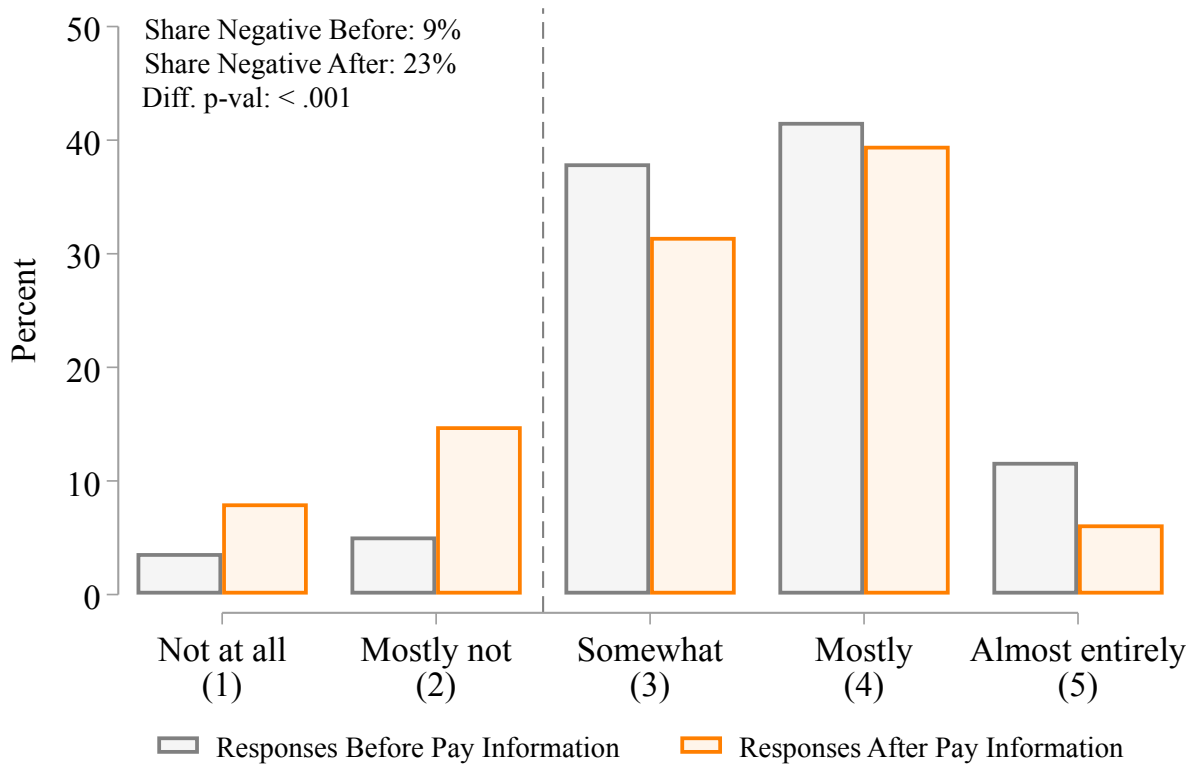
Notes: N=299. Responses from the follow-up survey to the question "Do most writers think the WGA demands will meet the needs of all WGA members?" Respondents were asked this question either before (in gray) or after (in orange) they saw the pay report in Figure **??**. Negative responses (top left corner) are "Mostly not" or "Not at all." 3.6% of total respondents (N=310) reported that they do not know the WGA demands and are excluded from the graph. The sample is restricted from all follow-up survey respondents to WGA members who answered within 48 hours of initial distribution, to address spillovers between respondents.

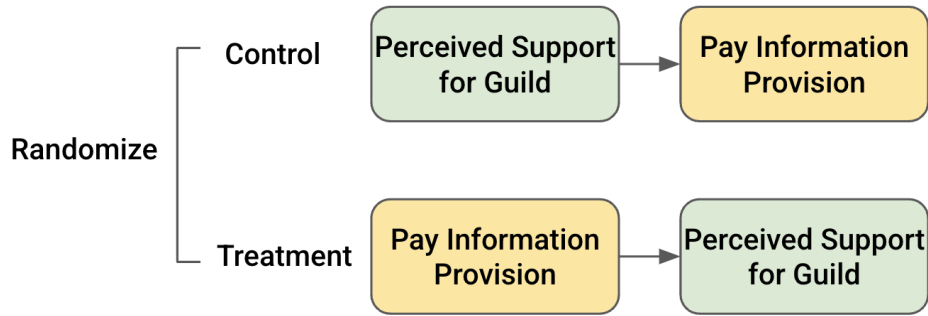Figure 6: Follow-up Survey Pay Report and Design

PANEL A: Pay Report

At present, our responses suggest the following compensation among WGA writers:

	Male	Female
Median	Scale + 10%	Scale + 3%
Mean	Scale + 25%	Scale + 14%
Maximum	Scale + 100+%	Scale + 100+%

Note: Standard errors on means are 2.2% for men and 2.0% for women.

We expect to add position-level statistics soon.

PANEL B: Research Design

Notes: Panel A shows the pay report we showed respondents in the follow-up. Pay statistics were computed based on self-reported pay in the baseline among WGA members. Panel B conveys our research design in which randomize the order of displaying the pay report and eliciting perceived support for the Guild.

Figure 8: Heterogeneity in Perception of WGA Demands
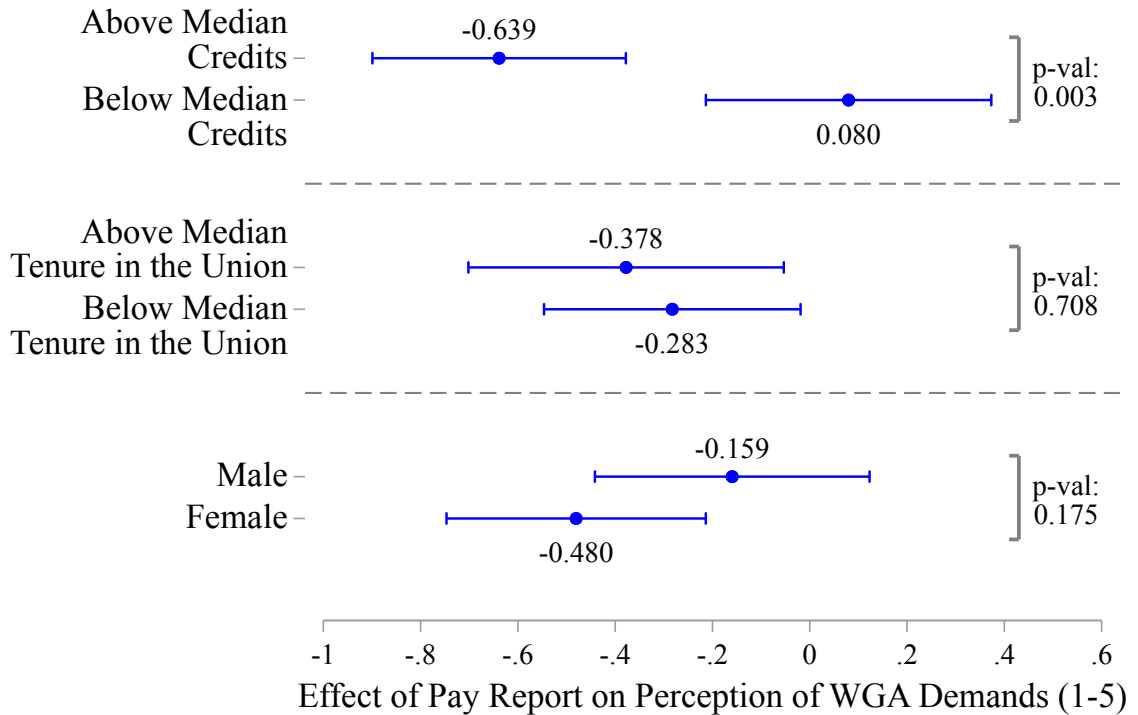
Notes: N=256. Point estimates with 90% confidence intervals, using robust standard errors. This figure shows heterogeneity in the results in Figure 7, using the sub-sample of respondents with available credit, experience, and gender data. Coefficients show the effect of having seen the pay report on answers to the question "Do most writers think the WGA demands will meet the needs of all WGA members?", reported on the 1-5 scale shown in Figure 7 (Not at all, Mostly not, Somewhat, Mostly, Almost entirely). Respondents are split into *Above Median Credits* (N=137) and *Below Median Credits* (N=119) using the median credits in IMDB among those with the same most recent credit title (e.g. "Story Editor"). Respondents are split into *Above Median Tenure in the Union* (N=102) and *Below Tenure in the Union* (N=154) using the median years since first credit in IMDB among those with the same most recent credit title. Finally, respondents are split into *Male* (N=138) and *Female* (N=118). We use self-reported gender if reported in the baseline, and otherwise impute gender based on first name as described in Section 4.3. Each regression controls for the two characteristics that are not characteristic being tested (among credits, years experience, and gender). P-values show the difference-in-difference p-value using these controls.

Figure 9: Wage Inequality and Union Revenues
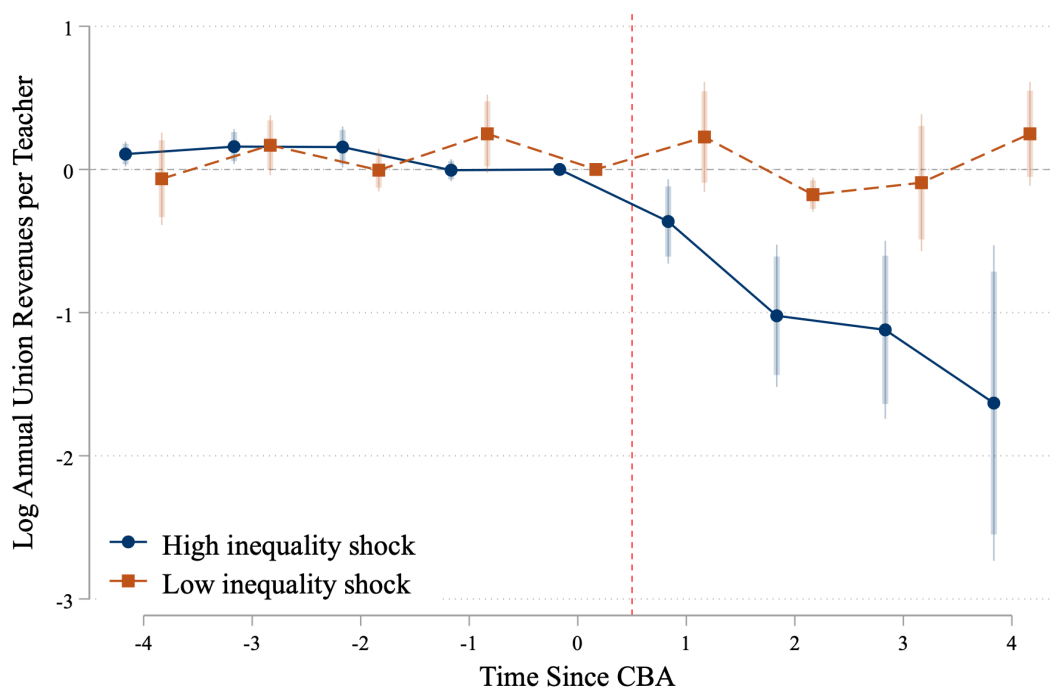
Notes: Estimates and 90% confidence intervals of the parameters β_k in equation (4), obtained separately on the sample of districts with a low inequality shock (i.e., a 2011 HHI below the state median,orange series) and a high inequality shock (HHI above the state median, blue series). Standard errors are clustered at the district level.

Figure 10: Wage Inequality and Union Membership: Earnings Potential vs Other Demographics
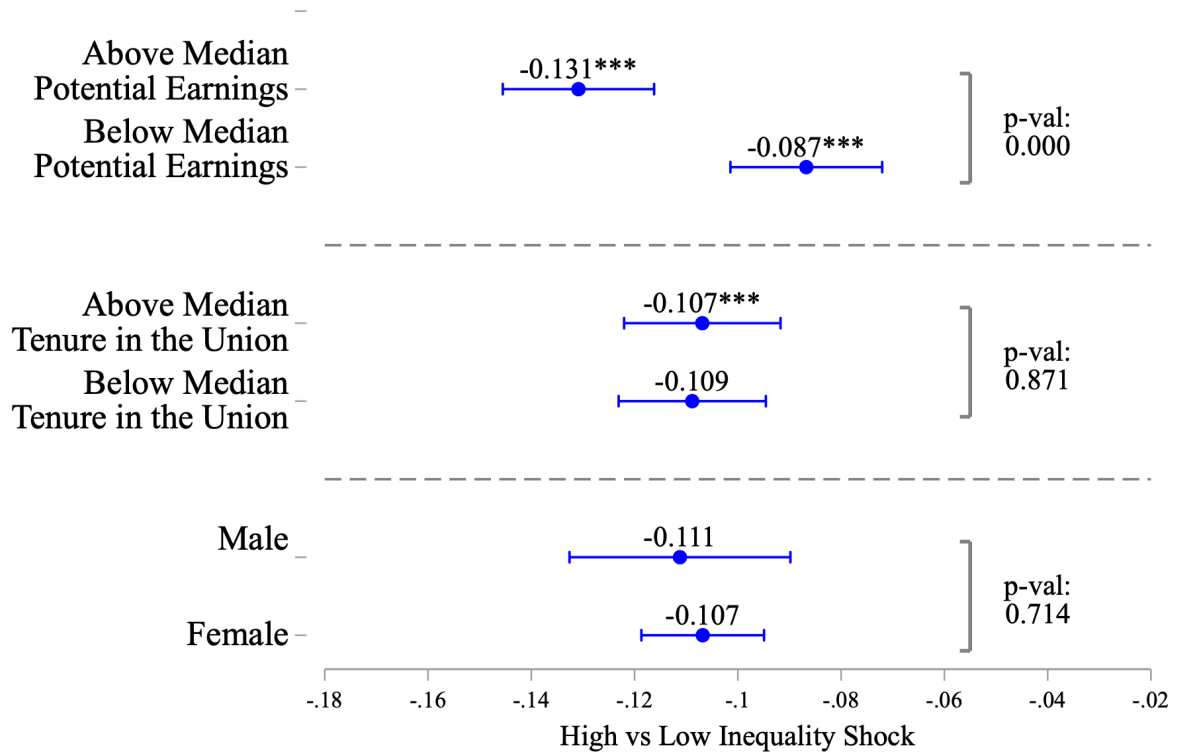

Notes: Estimates and 90% confidence intervals, using robust standard errors. Coefficients show the effect of working in districts with high inequality shocks, as predicted by a HHI above the median, relative to districts with low inequality shocks. Respondents are split into those with pay potential (defined as the increase in wages between 2011 and 2016) above and below the state median. Respondents are split into those with experience (*Tenure in the Union*) above and below the state median of 19 years. Finally, respondents are split into males and females. Each regression controls for the two characteristics that are not being tested and for an indicator for the school districts of Milwaukee and Madison.

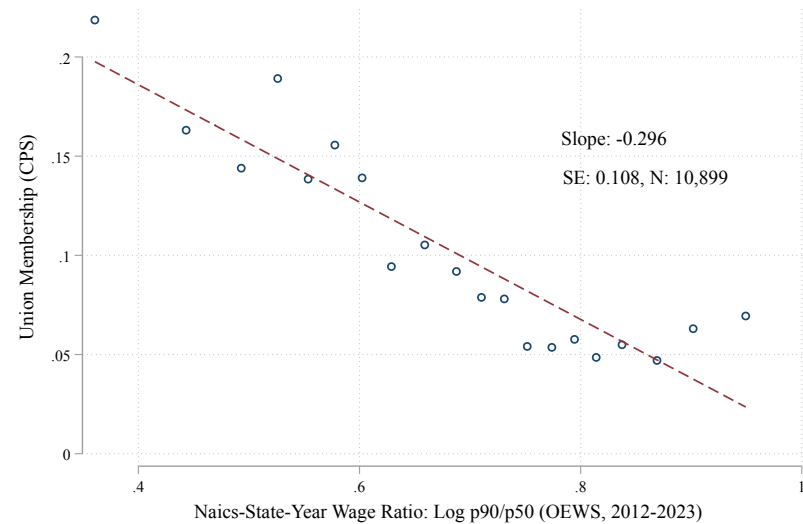**Figure 11: Cross-sectional Relationships between Industry-Region Inequality and Union Outcomes**

PANEL A: Share of Contracts with Pay Scales
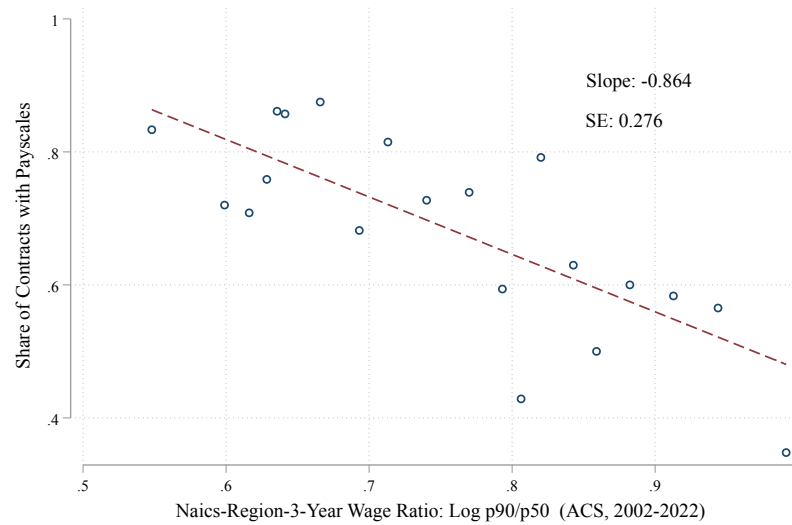
PANEL B: Union Premia
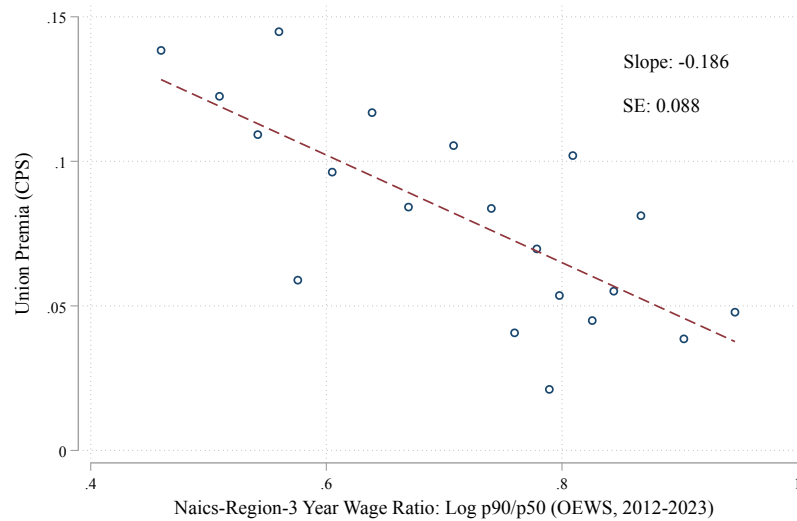
PANEL C: Union Membership

Note: Each panel is a binscatter plot of a union outcome against industry-state-year p90-p50 wage ratios. Panel A shows the pay scale status of 475 contracts between 2002-2022 (from the Office of Labor-Management Standards (OLMS) Online Public Disclosure Room); we use ACS wage ratios to obtain pre-2012 estimates and aggregate at the BEA region X 3 year level. Panel B shows union wage premium estimated from the CPS, separately for each cell and after controlling for a rich set of worker-level controls; cells are aggregated at the BEA region X 3 year level due to sample size. Panel C shows union membership rates estimated from the CPS. Panels B and C use wage ratios from OEWS and contain post-2012 numbers only. Figure D1 replicates this analysis using non-union wage ratios from the CPS.

Table 1: Contact and Respondent Characteristics

	Baseline Survey		Follow-up Survey	
	(1)	(2)	(3)	(4)
	Contacts	Respondents	Contacts	Respondents
% Male	64.3	64.1	63.6	57.5
	(0.7)	(2.6)	(0.8)	(3.1)
Earliest Credit Year	2005	2007	2005	2007
	(0.2)	(0.6)	(0.2)	(0.7)
Total Credits	38.8	39.5	40.1	38.9
	(1.3)	(7.0)	(1.4)	(6.9)
Credit Type				
% Writing	79.8	83.2	80.4	80.0
	(0.5)	(1.5)	(0.5)	(1.9)
% Directing	12.0	9.0	11.5	12.5
	(0.4)	(1.2)	(0.4)	(1.6)
% Producing	8.2	7.8	8.1	7.5
	(0.3)	(1.0)	(0.3)	(1.1)
Credit Medium				
% TV	80.6	83.5	82.7	82.5
	(0.5)	(1.6)	(0.5)	(1.8)
% Movie	11.5	7.6	10.0	7.5
	(0.4)	(1.0)	(0.3)	(1.1)
Credit Genre				
% Drama	50.8	53.3	51.8	52.4
	(0.6)	(2.2)	(0.6)	(2.5)
% Comedy	45.5	44.5	46.3	46.8
	(0.6)	(2.3)	(0.7)	(2.6)
Total Individuals	5,244	400	4,785	310
Individuals with Credit Data	4,373	334	3,980	261

Notes: Data from IMDb (IMDb, 2023). Columns 1-2 describe the baseline survey and columns 3-4 describe the follow-up. *Contacts* columns include all WGA members to whom we sent our survey, while *Respondents* columns include WGA members in the main analysis sample for that survey. Statistics shown are limited to individuals who merge to the IMDB data. *Total Individuals* represents the total count of individuals in each group. *Individuals with Credit Data* shows how many of these individuals meet three criteria: they can be matched to IMDB data, have complete IMDB information, and have first names that allow gender classification using Social Security Administration data. Guild and Non-Guild classifications are defined by contact list source. To obtain *% Male*, we classify first names from the contact list by gender. *Credit Type* breaks down the types of credits, which are not mutually exclusive on a given project. *Credit Medium* shows what percent of credits are in television and film, which together compose 87% of all projects in the data. *Credit Genre* shows what percent of credits are in the two most common genres: drama and comedy.

Table 2: Wisconsin Teachers and Districts: Summary Statistics

	Full sample	HHI in 2011:	
		below median	above median
Panel a): Teachers			
Salary (2011)	54125	52326	55643
	(11529)	(10628)	(11850)
Salary (2016)	54543	52318	56461
	(12335)	(11186)	(12824)
Salary increase (2011-16)	4795	4154	5324
	(4617)	(4323)	(4731)
Experience (yrs, 2011)	14.86	15.81	14.32
	(9.53)	(9.50)	(9.49)
Share w/Master's (2011)	0.56	0.57	0.56
	(0.50)	(0.50)	(0.50)
Share female (2011)	0.76	0.76	0.77
	(0.42)	(0.43)	(0.42)
N (2011)	44062	17737	25641
Panel b): Districts			
HHI (2011)	1122	805	1404
	(622	(178)	(731)
Salary interquartile range (2011)	5977	5395	6493
	(2395)	(1717)	(2776)
Salary interquartile range (2016)	5942	5224	6591
	(2511)	(1962)	(2766)
Salary increase (2011-16)	4188	3800	4497
	(3271)	(1719)	(3953)
N	452	198	222

Notes: Means and standard deviations (in parentheses) of characteristics of Wisconsin teachers (panel a) and districts (panel b), used in Study II.

Table 3: Wages, Wage Inequality, and Labor Market Concentration

	Salary (2011)	IQR (2011)	Change in salary, 2011-2016	
	(1)	(2)	(3)	(4)
HHI (1,000)	105.140	-165.483	-733.297	269.683**
	(344.434)	(137.087)	(715.677)	(135.228)
Mean dep. var. control	50708	5975	5312	-29
N (districts)	420	420	424	420
R-squared	0.00	0.00	0.02	0.01

Notes: OLS estimates; the dependent variable are wage residuals within 5-year of experience-by-education cells in 2011 (column 1), the 2011 district interquartile range in these residuals (column 2), the 2011-2016 change in wage residuals (column 3), and the 2011-2016 change in the interquartile range (column 4). The explanatory variable *HHI (1,000)* is the within-CZ HHI, measured in 2011 and expressed in 1,000. The mean dependent variable shown in column 1 refers to raw salaries. Robust standard errors in parentheses.

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