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ABSTRACT

License to Fire? Unemployment Insurance and the Moral Cost of Layoffs*

Expanding unemployment insurance (UI) not only reduces the burden for the unemployed but also the moral cost of layoffs to firms and their managers. Using staggered expansions of UI across US states, we show that expanding UI leads to larger layoffs in firms experiencing negative economic shocks. The effects are stronger in weakly governed and financially unconstrained firms, where managers have greater discretion to avoid moral cost. This study presents moral cost as a novel microeconomic channel through which UI affects layoff decisions, which can compromise its effectiveness as a social insurance program and an automatic stabilizer.

JEL Classification: D04, D91, J65
Keywords: unemployment insurance, layoffs, managers, prosocial behavior

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Unemployment insurance programs (UI) are designed to help laid-off workers. The involuntary loss of a job not only affects workers profoundly in terms of lost income but also imposes psychological and physical costs, such as reduced food expenditure (Gruber, 1997; Bloemen and Stancanelli, 2005) and increased risk of suicide (Wanberg, 2012). Most previous research investigates how UI affects the unemployed in terms of their life satisfaction (Winkelman and Winkelman, 1998; Aghion et al., 2016) or tendency to look for a new job based on the premise that extended UI decreases the economic and psychological burden of an unemployment spell for the laid-off (for a review of the literature, see Schmieder and Von Wachter, 2016).

This study examines how expanding UI benefits affects the decision of managers and firms to lay off workers in the first place. Prior research suggests that the expansion of UI benefits, as an experience-rated tax on firing, could reduce layoffs (Feldstein, 1976; Baily, 1977; Brechling, 1981). However, by reducing the burden for the unemployed, more generous UI could reduce the moral cost of layoffs to managers. An extensive body of research shows that people have other-regarding or prosocial preferences (for surveys, see Fehr and Schmidt, 2003; Meier, 2007), and a small but growing number of studies indicate that managers are no different (e.g., Fehr and List, 2004; Di Giuli and Kostovetsky, 2014).[1] When at-risk workers have a more generous social program cushion to fall back on, managers may become morally licensed to lay off more workers. As a case in point, the Wall Street Journal recently reported that executives felt that layoffs in response to the COVID-19 pandemic were made "more palatable" by the increased generosity of unemployment benefits.[2]

In our empirical analysis, we examine expansions in unemployment insurance benefits by state governments between 1976 and 2007 (following Agrawal and Matsa, 2013; Hsu, Matsa, and Melzer, 2018). UI benefits are determined by several economic and political factors, such as party preferences and logrolling within state legislatures, and states differ substantially in the timing and magnitude of their expansions over time. We combine staggered UI expansions with negative economic shocks that require firms to lay off workers. In our baseline specification, we find that firms with below-industry performance lay off 4.3 percent of their workforce. A ten percent increase in UI benefits increases the layoff by 18.1 percent (or 0.78 percentage points). This result suggests that increased UI benefits and the reduced hardship for the unemployed license managers to lay off more workers, and we provide several additional

[1] There is growing literature examining decision-making of executives that documents how they show similar preferences and decision-making biases as student samples or the general public (e.g., Adams and Funk, 2012; Malmendier and Tate, 2015; Huffmann, Raymond, and Shvets, 2019).

[2] https://www.wsj.com/articles/companies-cite-new-government-benefits-in-cutting-workers-11586264075.

pieces of evidence in line with the moral cost to layoffs below.

A key challenge to our empirical approach is that UI expansions may be driven by state-level economic conditions that decrease both firm performance and the demand for labor (Chodorow-Reich, Coglianese, and Karabarbounis, 2019). However, firms operating in the same state differ in their industry affiliations, performance, and their need for layoffs over time, and we can include firm, state-by-year, and industry-by-year fixed effects to flexibly and robustly control for state- and industry-level trends. In addition, we obtain consistent results using plausibly exogenous shocks to firms' demand for labor, including industry-specific exposure to Chinese import competition (following Acemoglu et al., 2016), which are unlikely to be correlated with the state-wide economic conditions of individual states. In contrast, we find a null effect of UI expansions on firm capital investment that does not pose any prosocial concerns. The falsification test helps to rule out the mismeasurement of investment opportunities as driving our results.

We next conduct a series of cross-sectional tests to get closer to the underlying mechanism. We investigate whether the increased layoffs stem from the reduction in managers' moral cost or reflect a strategic response to pressures from external stakeholders. First, we test whether capital market pressure and low financial slack, by constraining managers' discretion to act on their prosocial concerns, affect layoff decisions in response to UI expansions. Second, we analyze whether firms that face greater scrutiny from external stakeholders, such as activists or customers, react differently to UI expansions.

We expect moral costs to have the strongest effect on the layoff decisions of marginally productive workers while having a limited effect on highly productive or unproductive workers. To identify firms whose managers can retain a larger number of marginal workers, we conduct two tests. First, we leverage the staggered adoptions of antitakeover laws that protect managers from disciplinary pressures of the capital market. In line with the "quiet life" hypothesis (Bertrand and Mullainathan, 2003), we find that managers in protected firms shirk from costly efforts at restructuring and lay off fewer workers in response to low firm performance. However, UI expansions lead to a more aggressive restructuring in protected firms compared to non-protected firms, with a ten percent increase in UI benefits increasing the layoffs by an additional 1.56 percentage points. This result suggests that insulation against the pressures of the capital market not only allows managers to pursue a quiet life but also to avoid moral costs against shareholder interests. Second, we investigate low financial slack as an alternative check on managerial discretion and find that UI expansions have a limited effect on layoffs in financially constrained firms

while increasing layoffs in unconstrained firms.

Lastly, we investigate whether the increased layoffs in response to UI expansion may reflect a strategic response to the moral calculations of external stakeholders rather than the prosocial concerns of managers. UI expansion may reduce negative reactions to layoffs from activists, customers, and even laid-off workers, and justify more aggressive layoffs. We test whether the effects are stronger in firms for which such stakeholder pressure is more intense, including those that have higher social responsibility scores, are in B2C rather than B2B markets, and those that spend more on marketing (Fisman, Heal, and Nair, 2006; Lev, Petrovits, and Radhakrishnan, 2008; Servaes and Tamayo, 2013; Flammer and Luo, 2017). However, UI expansions affect these firms similarly. In contrast to the limited differences based on external stakeholder pressures, we find significant differences based on the personal political preferences of CEOs: consistent with prior research that finds stronger prosocial concerns among Democratic managers (Di Giuli and Kostovetsky, 2014), UI expansions have a limited effect on Republican CEOs who make more aggressive layoffs in response to low performance but license more layoffs by Democratic CEOs who dismiss fewer workers in response to low performance. We find a similar pattern from comparing internally promoted CEOs who are expected to incur larger moral costs from layoffs to externally hired CEOs.

Our study contributes to the literature on prosocial preferences and unemployment insurance program. It highlights moral cost as a novel channel through which UI affects layoff decisions and labor market dynamics and presents three new competing considerations for expanding UI and social insurance programs in general. First, expanding social insurance programs runs a significant risk of substituting and crowding out private prosocial behaviors.[3] UI as an antecedent to firing decisions also raises an important caution; evaluating how expanding UI helps the unemployed likely overestimates its benefits, as UI contributes to the job loss in the first place.[4] Second, the private-to-public transference of social burden allows managers to make more aggressive and efficient adjustments to the workforce, especially in weakly governed firms. Third, moral cost works as a constraint that reduces the performance sensitivity of firing decisions; their moderation through social insurance programs can undermine their effectiveness as a countercyclical automatic stabilizer, as firms make deeper cuts to their workforce in response to adverse shocks.

[3] Research in public finance shows that government grants crowd out fundraising efforts by charitable organizations (Kingma, 1989; Andreoni and Payne, 2003, 2014; Manzoor and Straub, 2005). While related, our study differs in its focus on for-profit firms; UI expansions also do not provide any direct benefits to the firm but just affect the moral costs of firing.

[4] Our focus on firing can be viewed as a counterpart to Hagedorn, Karahan, Manovskii, and Mitman (2015) that examine how UI affects a firm's *hiring* decisions.

The paper proceeds as follows: Section I describes the data and our empirical approach, Section II presents the main results, and Section III discusses mechanisms. Section IV discusses the implications of our findings and concludes. The appendix provides additional empirical results, robustness checks, and dataset details.

I. Data and Methods

The unemployment insurance program provides short-term cash provisions to workers who have become involuntarily unemployed, for example, due to plant closures or declining demand. As a joint program between the federal and state governments, the federal government mandates the broad program features and ensures consistency across states, while individual states are responsible for setting three key policy parameters: eligibility, benefit duration, and weekly benefit amount.

Weekly benefit amounts are set to make up for approximately half of the full-time weekly wage, subject to minimum and maximum bounds. We obtain information on the maximum weekly benefit and duration for each state from the United States Department of Labor's publication "Significant Provisions of State UI Laws." We focus on changes in the maximum potential benefits, calculated as the product of the maximum benefit amount and the maximum duration (Agrawal and Matsa, 2013; Hsu, Matsa, and Melzer, 2018). For our baseline sample, we start with the universe of public firms in the Compustat database between 1976 and 2007.[5] To reduce extreme values of employment changes, we require that firms employ at least 500 workers for two consecutive years, a cutoff line to qualify for small business firms. We restrict the sample window to 2007 because the Federal Emergency Unemployment Compensation (EUC) program in response to the 2008 financial crisis extended the maximum duration of benefits to 99 weeks for some states and prevents meaningful comparison with prior periods.

Most states set the regular maximum duration to 26 weeks, and changes in UI benefits are driven by increases to the maximum weekly benefit amount. States, on average, expand unemployment insurance by 4.5 percent per year but differ significantly in the frequency and magnitude of their expansions. For example, between 1976 and 2007, Massachusetts made 26 increases that average $24.8 to its maximum weekly amount, while Alabama made ten increases that average $15.5. In 2002, California made its first increase in a decade, raising the amount by $100. In 2007, the maximum weekly benefits varied from $133 in Mississippi to

[5] We verify the robustness of our results to state-level employment patterns.

$862 in Massachusetts. UI programs are funded by federal and state UI payroll taxes that typically range between 0.6 to 6.0 percent, with a higher rate applied to firms that laid off more workers in recent years. Such prorating (or experience rating) effectively makes UI payroll taxes a tax on firing (Feldstein, 1976; Baily, 1977; Brechling, 1981) and should work against our argument by increasing the marginal cost of layoffs.

UI expansions are thought to be influenced by local economic and political conditions, including the unemployment rate, incumbent officials' reelection prospects, and Republican control of state legislatures. The potential influence of a state's poor economic conditions, such as high unemployment rate, raises concerns of omitted variable bias, as they likely reduce the demand for labor, especially among firms experiencing low performance. However, prior studies that rely on UI expansions for causal identification conduct a battery of tests and find a weak and statistically insignificant relation between UI benefits and various state macroeconomic variables, UI payroll taxes, and other government transfer programs (Agrawal and Matsa, 2013; Hsu, Matsa, and Melzer, 2018). We further explore this concern below.

To test whether UI expansions lead to more layoffs, we estimate the following OLS regression.

$$\Delta Emp_{ist} = \alpha_i + \alpha_t + \beta_1 \Delta UI_{st} + \beta_2 Negative\ Shock_{it} + \beta_3 \Delta UI_{st} \times Negative\ shock_{it} + X_{ist} + \varepsilon_{ist}, \quad (1)$$

where i indexes firm, s indexes state of firm's primary operation, and t indexes year. ΔUI_{st} captures UI expansion in a firm's primary state of operation s at year t.[6] ΔEmp is the employment growth rate measured as $\frac{emp_t - emp_{t-1}}{0.5 \times emp_t + 0.5 \times emp_{t-1}}$, and our sample firms, on average, increase their workforce by 4.2 percent per year.[7] α_i and α_t are firm and year fixed effects; $\boldsymbol{X}$ is a vector of firm, state, industry control variables; and ε is an idiosyncratic error. The vector $\boldsymbol{X}$ includes an extensive set of firm- and industry-level control variables that influence the demand for labor, including industry revenue growth, calculated as the mean growth rate of all public firms in the same 4-digit SIC code, Tobin's Q as a proxy for firm-specific growth opportunities reflected in a firm's stock price, firm size (log of total assets), and industry concentration (the Herfindahl index and its square) based on revenue of Compustat firms. Agrawal and Matsa (2013) show that unemployment benefits increase firm leverage. Because low financial slack might reduce firms' ability to retain marginal workers, we include four

[6] To identify the effective UI expansions, we assign firms to their state of firm headquarters, as reported in Compustat. To the extent that firms maintain employment across multiple states, ΔUI is measured with noise, likely resulting in a downward bias. Indeed, we find a much stronger positive relation between UI expansions and layoffs in firms that have a higher share of operations in the state of their headquarters (see Appendix Table C.2).

[7] Our results are robust to calculating employment changes as a year-to-year log difference.

proxies of a firm's financial resources: leverage based on its debt ratio, current ratio, working capital-to-sales ratio, and Altman's Z-score. We also control for industry-level trends using SIC3-by-year fixed effects and, in some specifications, for state-level trends using state-by-year fixed effects. Refer to Appendix A for sample statistics.

We expect the reduction in moral cost from UI expansions to affect firms that require layoffs due to negative shocks while having a limited effect on firms that are actively expanding, analogous to prior studies that examine how UI benefits affect household consumption during unemployment spells.[8] As a primary measure of a negative shock that requires layoffs, we use low firm performance based on return on assets (ROA). *Low Performance* is a binary variable set to one if a firm performance falls below the industry benchmark, calculated as the median ROA of a firm's primary four-digit SIC industry for each fiscal year. The blunt binary measure is intuitive and also insensitive to potential noise or functional forms of a firm's need for layoffs.[9] The share of firms with below-industry performance is distributed evenly across states, as shown in Appendix B, which mitigates the concern that state governments systematically undertake UI expansions in efforts to bail out employees of particular firms or industries.[10]

Our main variable of interest is the coefficient for the interaction term $\Delta UI \times Negative\ shock$ (β_3), which estimates whether the intensity of layoffs in response to negative shocks varies with UI expansions. Identifying layoffs is complicated by the fact that changes in firm employment consist of three components (Hagedorn et al., 2015): involuntary layoffs, voluntary exits, and new hires. However, β_3 captures the decrease in firm employment driven by negative shocks and expansions in UI benefits, which are limited to the involuntary loss of a job. This joint requirement minimizes the two other components and helps to isolate involuntary layoffs.

Because of the incongruence in state and industry boundaries, there are variations in *Low Performance* among firms operating in the same state and industry, which permits estimating β_3 while controlling for industry-by-year and state-by-year fixed effects. We predict β_3 to be negative because UI expansions reduce the moral cost to managers and license laying

[8] The increased layoffs of marginal workers in response to negative economic shocks also align well with firm dynamics literature which theorizes that recessions have a "cleansing" effect and force the lowest productivity firms to exit (Hopenhayn, 1992).

[9] All of our results are robust to using 45th, 55th, or 60th percentile as the threshold for *Low performance*. We exclude firms with ROA less than 100 percent and greater than -100 percent. All of the results are unaffected by their inclusion.

[10] Prior studies already conduct a battery of tests showing insignificant association between UI expansion and state-level economic conditions (Agrawal and Matsa, 2013; Hsu, Matsa, and Melzer, 2018), and we verify in Appendix B that there is no significant association between UI expansions and the negative economic shocks used: firm performance, Chinese important competition, and declining industry demand.

off marginal workers who would have been retained in the absence of UI expansion. All standard errors are double-clustered at the firm and state level and corrected for heteroscedasticity.

II. Results: UI Expansion and Layoffs

We present the results in three steps: first, we show that UI expansions lead to more layoffs in firms with low performance. Second, we use Chinese import competition and other industry-level shocks as alternatives to low firm performance that require layoffs. Third, we discuss robustness tests.

C. *UI Expansion and Layoffs*

We begin by estimating a version of equation (1) that only includes ΔUI in column 1 of Table 1. Firms lay off 0.27 percent of their workforce in response to a ten percent increase in UI benefits ($p<0.05$). This average effect, however, obscures the contingent effect of UI expansions on layoffs, which should primarily affect firms when they need to lay off workers. In column 2, which only includes *Low Performance*, firms reduce their workforce by 4.3 percent when their performance falls below the industry benchmark. Including ΔUI and *Low Performance* simultaneously makes little difference to the respective coefficients in column 3. However, in column 4, which includes their interaction, ΔUI no longer increases layoffs independently but through its interaction with *Low Performance*. The coefficient for $\Delta UI \times$*Low Performance* is -0.083 ($p<0.01$), suggesting that a ten percent increase in UI increases layoffs by 0.83 percentage points. In marginal terms, firms increase layoffs by 21.3 percent compared to years when UI benefits remain flat. Column 5 replaces industry-by-year fixed effects with state-by-year fixed effects, and ΔUI is subsumed and dropped from the estimation. There is little change in the statistical and economic significance of *Low Performance* and $\Delta UI \times$*Low Performance.* Column 6 includes both industry-by-year and state-by-year fixed effects, and we again find a consistent pattern where UI expansion increases layoffs in response to low performance. The insensitivity of the coefficients of $\Delta UI \times$*Low Performance* to these additional fixed effects is consistent with the low correlation between UI expansions and individual firm performance.

In columns 7 and 8, as a falsification test, we examine whether UI expansions affect firm capital investment intensity (capital investment normalized by total assets with a one-year lag) that do not pose prosocial concerns. As expected, firms reduce capital investment in response to low performance, but the coefficients for both ΔUI and $\Delta UI \times$*Low Performance* are small and insignificant. The null result helps to rule out mismeasurement of investment opportunity that may be correlated with low firm performance or UI expansions as driving our

results on layoffs. If that were the case, then the coefficient for $\Delta UI \times Low\ Performance$ should be negative and significant also with respect to capital investment.

---------- Insert Table 1 about here ----------

B. Alternative Negative Performance Shocks

In the previous analysis, we used firm-level low performance to identify the need for layoffs. In this section, we use alternative measures of negative economic shocks. A growing body of empirical evidence documents that import competition from China is responsible for a significant share of the decline in US manufacturing employment. We expect the layoffs from increased import competition to be greater in state-years that provide expansions in UI benefits. In Table 2, we follow Acemoglu et al. (2016) and calculate Chinese import competition (ΔIP) for each four-digit SIC code as below but do it for each year rather than for 5-year intervals. $\Delta Chinese\ import_{it}$ is the change in imports from China from the previous year, and the denominator is initial absorption measured as the sum of US industry shipments and Chinese imports minus US exports.

$$\Delta IP_{it} = \frac{\Delta Chinese\ import_{it}}{Y_{it} + Chinese\ import_{it} - Export_{it}} \qquad (2)$$

While reducing endogeneity concerns related to state-level trends, one important limitation to using industry-level shocks is that we are unable to include industry-by-year fixed effects. The import competition data is available from 1991, and our sample period covers 1991 to 2007. In column 1, we find that a ten percent increase in important penetration reduces firm employment by 0.24 points ($p<0.01$), replicating Acemoglu et al. (2016)'s industry-level result at the firm-level. In column 2, the coefficient of $\Delta IP \times \Delta UI$ is negative and significant, indicating that firms undertake larger layoffs in response to increasing Chinese import competition when states expand UI benefits. The inclusion of state-by-year fixed effects in column 3 yields consistent results.

In columns 4 through 6, we next use slowing industry growth as an alternative proxy for a negative shock. Industry growth is calculated as the mean revenue growth rate of public firms in Compustat for each four-digit SIC code.[11] *Negative shock* is set to one if the year-to-year revenue growth is lower than the year before. In columns 7 through 9, we use changes in total value-added from the NBER-CES Manufacturing Industry Database as another proxy for industry growth and set *Negative shock* to one if total value-added declines relative to the

[11] We require that the industry has at least ten active firms.

previous year for each four-digit SIC code. Across both proxies, a slowing growth results in larger layoffs in state-years with expansions in UI benefits.

---------- Insert Table 2 about here ----------

C. Robustness Tests

In Appendix C, we verify that our results are robust to (1) varied approaches to capturing low firm performance, including replacing the binary *Low performance* with a continuous variable using a linear spline, (2) an alternative operationalization of UI expansions based only on increases in weekly maximum amounts, and (3) sample periods that include more recent years (2008–2015) and/or earlier years (1970–1975). The effect on layoffs becomes stronger when we exclude firms that operate across multiple states, for which the effective UI expansions are measured with errors. To mitigate the concern that our results may be driven by hiring freezes rather than layoffs, we verify that our results continue to hold in industries with low rates of employee turnover, where hiring plays a smaller role. We also verify that increased layoffs are driven only by contemporaneous UI expansions and not by past or future expansions. Lastly, we confirm that our firm-level results hold at the more aggregate state-level of analysis using the Country Business Pattern (CBP) database from the Census Bureau that includes employment by private firms

III. Mechanism: Moral Cost or Stakeholder Concerns

In this section, we investigate the potential mechanism by which UI expansion leads to more layoffs. We present the results in three steps: first, we look at the effect of weaker corporate governance which provides managers more discretion to avoid moral costs. Second, we look at a firm's financial constraints as another check on managerial discretion. Third, we examine whether the effects are more pronounced in firms and industries that are more receptive to stakeholder pressures.

A. *Corporate Governance*

Moral cost should have a limited effect on the employment decisions of highly productive or unproductive workers while having the strongest effect on marginally productive workers. If the increased layoffs from UI expansion stem from reducing the moral cost to managers, we expect the effects to be greater in firms that maintain a larger number of marginal workers.

To test the prediction, we leverage the staggered adoption of antitakeover laws that insulate managers from activist investors and performance pressures of the market for

corporate control. Since the pioneering study by Bertrand and Mullainathan (2003), a vast body of empirical research documents that antitakeover laws allow managers to shirk from costly efforts at restructuring and enjoy a quiet life. Among the multiple types of antitakeover laws, we follow Bertrand and Mullainathan (2003) and focus on the adoption of Business Combination laws. *Weak governance*$_{gt}$ is a binary variable set to one if a Business Combination law was adopted in a firm's state of incorporation *g* by year *t* and sets up a standard difference-in-difference estimation. Because a firm's state of incorporation, which dictates corporate governance laws (indexed with *g*), differs from a firm's state of primary operation (indexed with *s*), we can estimate the effects of weak governance while controlling for state of operation-by-year fixed effects.[12] Approximately sixty percent of public firms are incorporated in Delaware to take advantage of its advanced corporate laws, but less than three percent of firms maintain their primary operations there.

In column 1 of Table 3, *Weak governance* does not independently increase layoffs. However, in column 2, the positive and significant coefficient for the interaction term *Weak governance* ×*Low performance* indicates that poorly performing firms engage in layoffs, but to a lesser extent, when they are protected against takeover pressures; *Weak governance* reduces the intensity of layoffs by 12.8 percent in response to low performance. Column 3 examines the interaction between *Weak governance* and UI expansions. The negative coefficient for *Weak gov.* ×Δ*UI* indicates that UI expansions indeed have a larger effect on weakly governed firms that maintain a larger number of marginal workers. To further examine the dynamics, column 4 includes the three-way interaction between *Weak governance*, Δ*UI*, and *Low performance* in what amounts to a quadruple-differences estimation. The negative and significant coefficient of the interaction term *Weak gov.* ×Δ*UI* ×*Low* performance (p<0.05) indicates that protected managers make larger layoffs in response to UI expansions, despite being insulated against takeover pressures; a ten percent increase in UI benefits is sufficient to fully moderate the smaller layoffs from weak governance.[13] With respect to capital investment in columns 6 and 7, we again do not observe any significant effect from Δ*UI* and its interactions with *Low performance* and *Weak governance*.

The results provide support for our argument as well as deeper insight into the behavioral underpinnings of the pursuit of the quiet life. Bertrand and Mullainathan (2003)

[12] We use the period of 1976 to 2008, but limiting the sample to 1983-2000, as recommended by Karpoff and Wittry (2018), yields consistent results.
[13] Refer to Appendix D for a dynamic specification that includes forward and backward lags of the adoption of Business Combination laws.

suggest that weak governance allows managers to shirk from "cognitively difficult activities" (p.1067), in particular, firing and restructuring activities. Our results suggest that the reduced firing also stems from avoiding morally costly activities.

---------- Insert Table 3 about here ----------

In Appendix E, we find that the additional layoffs of marginal employees translate to higher revenue per employee and profitability. These positive performance effects are stronger for weakly governed firms.

B. *Financial Constraint*

In Table 4, we examine how financial slack affects layoffs in response to UI expansions. Agency research provides robust evidence that by reducing the fear of bankruptcy financial slack allows managers to deprioritize efficiency and pursue other personal goals (Giroud and Mueller, 2010; Gormley and Matsa, 2016). As a result, we expect the reduction in moral cost from UI expansions to have a larger effect on financially unconstrained firms where managers have greater discretion to act on their prosocial concerns and retain marginal workers. We divide our sample into high and low financial constraint firms based on a firm's overall debt ratio (total debt divided by total asset) in columns 1 and 2. The negative coefficient for the interaction term $\Delta UI \times Low\ performance$ is two-times larger for low financial constraint firms, and the difference is significant at 10% based on *z*-statistics. We obtain consistent results using alternative measures of firms' financial constraints based on KZ Index (Kaplan and Zingales, 1997), WW Index (Whited and Wu, 2006), and SA Index (Hadlock and Pierce, 2010).

In columns 3 and 4, we divide firms based on the ratio of short-term debt relative to the industry median. We expect that short-term debt that must be repaid within a year limits managers' ability to retain marginal workers, leaving little room for moral costs and UI expansions to affect layoff decisions. Next, because a firm's capital structure is endogenous to firm performance, demand for labor, and also UI (Agrawal and Matsa, 2013), we isolate the fraction of short-term debt that comes from currently maturing long-term debt. Almeida et al. (2012) find that long-term borrowing decisions made several years earlier are plausibly exogenous to a firm's performance and industry conditions in the year in which such debt matures. Columns 5 and 6 divide firms into high and low constraint firms based on the amount of long-term maturing debt but restrict the sample to firms with a total debt ratio above the median (i.e., firms in column 1) to capture firms with meaningful shares of such debt.

The negative coefficient for the interaction term $\Delta UI \times Low\ performance$ is again larger for low financial constraint firms. In columns 3 and 4, a ten percent increase in UI increases

firms' layoffs by 1.22 percentage points in the low short-debt condition (p=0.017) but only by 0.33 percentage points in the high short-debt condition (p=0.441). In columns 5 and 6, a ten percent increase in UI increases layoffs by 1.02 percent in low debt firms but does not affect high debt firms. Additionally controlling for state-by-year fixed effects yields consistent results.

Together with the previous results on corporate governance, these results present a more negative view of firms' prosocial behaviors (Di Giuli and Kostovetsky, 2014); they stem from managers taking advantage of their discretion and avoiding necessary but morally costly activities at shareholders' costs, in this case, firing.

---------- Insert Table 4 about here ----------

C. *Reaction to Stakeholder Concerns*

We next consider the possibility that the increased layoffs from UI expansions are a rational response to reduced legal and reputational risks. Firms may retain marginal workers to maintain a positive image among activists, customers, and workers that might contribute to a firm's long-term performance. With more generous social safety nets in place, external stakeholders may be less likely to punish firms for dismissing workers. As a result, UI expansions could reduce the value of "doing good" for the sake of "doing well," and managers may exploit UI expansions as a strategic opportunity to layoff marginal workers.

To investigate this potential mechanism, we divide our sample into firms that depend more or less on positive external evaluation. Columns 1 and 2 divide our sample into business-to-business and business-to-consumer (B2C) industries, where purchasing decisions depend on customers' positive perception of a firm's image (Lev, Petrovits, and Radhakrishnan, 2008). The coefficient for $\Delta UI \times Low\ Performance$ shows little difference. Columns 3 and 4 divide the sample based on the Kinder, Lydenberg, and Domini (KLD) index of labor relations based on the intuition that higher-rated firms would be more constrained to take opportunistic advantage of UI expansions (Flammer and Luo, 2017). Higher-rated firms indeed show lower performance sensitivity of firing and lay off fewer workers despite below-industry performance (0.06 percent *versus* 2.7 percent). However, UI expansions increase layoffs similarly across both samples; a ten percent increase in UI benefits increases layoffs by 2.68 percent and 2.54 percent for high and low KLD scores, respectively. Columns 5 and 6 divide the sample based on a firm's marketing spend with the expectation that positive external evaluation is more important for firms that heavily invest in marketing (Fisman, Heal, and Nair, 2006), and we find the coefficient for $\Delta UI \times Low\ Performance$ to be similar. The differences in the coefficients of $\Delta UI \times Low\ Performance$ fail to reject the null across all three subsamples at 10% significance

based on *z*-statistics, indicating that external image concerns at the least do not dominate the moral considerations.

Lastly, we examine whether managers' personal preferences affect firm response to UI expansions. In columns 7 and 8, we divide our sample based on whether the CEO made personal political donations to Republican Senate, House, and presidential candidates (Hutton, Jiang, and Kumar, 2014). Prior research documents that Democratic managers tend to be more prosocial, on average spending an additional 10 percent of the firm's net income on CSR activities despite limited evidence of their financial benefits (Di Giuli and Kostovetsky, 2014). Consistent with having stronger prosocial preferences, Democratic CEOs lay off fewer workers in response to low performance but make larger layoffs in response to UI expansions. Columns 9 and 10 divide the sample based on whether the CEO was promoted internally or hired externally. In line with the expectation that internal CEOs would incur greater moral cost from layoffs, UI expansions have a larger effect on internal CEOs who lay off fewer workers despite low performance (see Appendix A.2 for data sources and variable definitions for subsample analyses).[14]

---------- Insert Table 5 about here ----------

IV. Conclusion and Discussion

This study presents evidence consistent with the presence of moral costs to managers' layoff decisions. We take advantage of staggered expansions in state UI benefits and show that UI expansions license larger layoffs in firms experiencing negative economic shocks, such as low firm performance or increased Chinese import competition. Moral cost has a highly heterogeneous effect, decreasing in importance in well-governed or financially-constrained firms that provide little room for managers to act on their prosocial concerns against efficiency goals. As such, our paper extends the literature in experimental and behavioral economics on individual prosocial behavior to firms and managers operating under market and stakeholder pressures.

Our findings have important implications for designing UI and social insurance programs in general. For example, Walmart has received intense criticism for paying low wages that force its employees to rely on the Supplemental Nutrition Assistance Program (SNAP, formerly Food Stamp).[15] Our findings suggest potential reverse causation; SNAP

[14] We interpret the results with caution because appointing a Republican or external CEO may be endogenous to the need for layoffs. However, the exogenous expansions in UI benefits (ΔUI) help to mitigate this concern.

[15] https://www.forbes.com/sites/clareoconnor/2014/04/15/report-walmart-workers-cost-taxpayers-6-2-billion-in-public-assistance/#31bdb96c720b

reduces the risk that workers and their families will starve and licenses Walmart to set wages below the poverty line. Instead of being countercyclical, UI expansion may also increase labor market and macroeconomic volatility by increasing the sensitivity of firing decisions to adverse economic shocks. Moreover, the positive relation between prosocial behaviors and weak governance or financial slack depicts a more culpable view of CSR activities; some prosocial activities may be the result of agency conflict where managers abuse their discretion to avoid necessary yet morally costly tasks to the detriment of shareholders, in this case, firing.

This is the first step of a broader research project that incorporates the role of managerial prosocial concerns in the evaluation of social insurance programs. We expect the crowding out of prosocial concerns to extend beyond UI to other government programs that reduce the costs of unemployment, such as universal basic income and Medicare-for-all. By allowing firms to make a more efficient adjustment to the workforce, UI may also improve firm productivity and create new employment opportunities, especially among poorly governed firms. These and other extensions of incorporating moral costs when evaluating public policy and firm adjustment are left for future research.

Table 1. UI Expansion and Layoffs in Response to Low Performance

	ΔEmployment$_t$						Capital investment$_t$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ΔUI_t	-0.027**		-0.029**	0.004			-0.002	
	[0.012]		[0.012]	[0.013]			[0.003]	
Low performance$_t$ (=1)		-0.043***	-0.043***	-0.039***	-0.038***	-0.040***	-0.008***	-0.008***
		[0.004]	[0.004]	[0.004]	[0.003]	[0.004]	[0.001]	[0.001]
$\Delta UI_t \times$ Low performance$_t$				-0.083***	-0.078***	-0.090***	0.005	0.005
				[0.023]	[0.020]	[0.024]	[0.004]	[0.005]
Adj. R2	0.176	0.182	0.182	0.183	0.159	0.181	0.577	0.579
Obs.	69,039	69,039	69,039	69,039	69,913	68,912	68,484	68,357
Controls	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Firm FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
SIC3×Year FE	*yes*	*yes*	*yes*	*yes*	*no*	*yes*	*yes*	*yes*
State×Year FE	*no*	*no*	*no*	*no*	*yes*	*yes*	*no*	*yes*

Notes: OLS estimates of Equation (1). The sample includes all public firms recorded in Compustat with non-missing variables between 1972 and 2007. Standard errors are clustered at the firm and state level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 2. UI Expansion and Alternative Negative Economic Shocks

IV:	ΔEmployment$_t$								
	Chinese import competition			Industry revenue growth			Value added		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Negative shock$_t$	-0.024***	-0.023***	-0.020***	-0.022***	-0.020***	-0.019***	-0.023***	-0.020***	-0.017***
	[0.005]	[0.005]	[0.006]	[0.002]	[0.002]	[0.002]	[0.004]	[0.004]	[0.004]
ΔUI$_t$		-0.080***			0.000			-0.030**	
		[0.025]			[0.018]			[0.015]	
ΔUI$_t$ × Negative shock$_t$		-0.012***	-0.014**		-0.057***	-0.058**		-0.060	-0.088*
		[0.003]	[0.006]		[0.020]	[0.023]		[0.046]	[0.046]
Adj. R2	0.157	0.157	0.157	0.144	0.144	0.146	0.155	0.155	0.159
Obs.	10,746	10,746	10,621	59,174	59,174	59,042	21,879	21,879	21,663
Controls	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Firm FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Year	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
State×Year FE	*no*	*no*	*yes*	*no*	*no*	*yes*	*no*	*no*	*yes*

Notes: OLS estimates of Equation (1). Standard errors are clustered at the firm and state level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 3. Corporate Governance and Layoffs in Response to UI Expansion

DV:	ΔEmployment$_t$					Capital investment$_t$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Weak gov$_t$ (=1)	0.004	0.001	0.006	0.000	0.003	0.003	0.006***
	[0.006]	[0.005]	[0.006]	[0.006]	[0.005]	[0.002]	[0.002]
Low performance$_t$		-0.047***		-0.046***	-0.047***	-0.010***	-0.010***
		[0.003]		[0.004]	[0.004]	[0.001]	[0.001]
Weak gov$_t$ × Low performance$_t$		0.006*		0.012***	0.013***	0.001	0.001
		[0.004]		[0.004]	[0.004]	[0.001]	[0.001]
ΔUI$_t$			-0.004	0.000		-0.002	
			[0.011]	[0.017]		[0.005]	
Weak gov$_t$ ×ΔUI$_t$			-0.055***	0.004	-0.069	0.003	-0.023
			[0.019]	[0.025]	[0.067]	[0.010]	[0.016]
ΔUI$_t$ × Low performance$_t$				-0.013	-0.016	0.002	0.002
				[0.028]	[0.029]	[0.007]	[0.007]
Weak gov$_t$ ×ΔUI$_t$ × Low performance$_t$				-0.156**	-0.165**	0.002	0.001
				[0.071]	[0.068]	[0.013]	[0.013]
Adj. R2	0.176	0.182	0.176	0.183	0.181	0.567	0.57
Obs.	69,039	69,039	69,039	69,039	68,912	73,351	73,239
Controls	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Firm FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
SIC3×Year FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
State×Year FE	*no*	*no*	*no*	*no*	*yes*	*no*	*yes*

Notes: Standard errors are clustered at the firm and state level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 4. Financial Constraints and Layoffs in Response to UI Expansion

DV:	ΔEmployment$_t$					
	Debt		Short-term debt		Maturing long-term debt	
	High	Low	High	Low	High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
ΔUI$_t$	0.000	0.007	-0.054*	0.020	-0.077	0.019
	[0.025]	[0.016]	[0.031]	[0.021]	[0.051]	[0.035]
Low performace$_t$ (=1)	-0.034***	-0.042***	-0.037***	-0.037***	-0.038***	-0.020***
	[0.004]	[0.004]	[0.005]	[0.004]	[0.006]	[0.006]
ΔUI$_t$ × Low performance$_t$	-0.077**	-0.158**	-0.033	-0.122**	0.010	-0.102**
	[0.037]	[0.061]	[0.042]	[0.049]	[0.063]	[0.039]
Adj. R2	0.171	0.226	0.174	0.211	0.171	0.157
Obs.	36,566	28,996	29,087	35,843	14,362	17,313
Controls	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Firm FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Year FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
SIC3×Year FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
State×Year FE	*no*	*no*	*no*	*no*	*no*	*no*

Notes: Standard errors are clustered at the firm and state level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5. Stakeholder Pressures and Layoffs in Response to UI Expansion

	ΔEmployment$_t$									
	B2C	B2B	High KLD	Low KLD	High Marketing	Low Marketing	Republican CEO	Non-Rep. CEO	External CEO	Internal CEO
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ΔUI$_t$	0.023	-0.011	0.015	0.02	0.012	-0.008	-0.101	0.058	-0.127	0.010
	[0.018]	[0.017]	[0.033]	[0.058]	[0.020]	[0.020]	[0.068]	[0.041]	[0.081]	[0.045]
Low performance$_t$ (=1)	-0.046***	-0.034***	-0.006	-0.027***	-0.045***	-0.039***	-0.039***	-0.019**	-0.033**	-0.007
	[0.004]	[0.005]	[0.006]	[0.006]	[0.005]	[0.004]	[0.012]	[0.009]	[0.013]	[0.011]
ΔUI$_t$ × Low performance$_t$	-0.085**	-0.080***	-0.268***	-0.254**	-0.075*	-0.088**	0.015	-0.216***	-0.103	-0.350***
	[0.032]	[0.029]	[0.091]	[0.121]	[0.039]	[0.033]	[0.079]	[0.065]	[0.067]	[0.087]
Adj. R2	0.169	0.197	0.173	0.189	0.176	0.20	0.204	0.20	0.23	0.224
Obs.	33,334	35,705	10,557	11,149	31,924	35,226	5,162	8,195	2,149	4,670
Controls	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Firm FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
SIC3×Year FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
State×Year FE	*no*	*no*	*no*	*no*	*no*	*no*	*no*	*no*	*no*	*no*

Notes: Standard errors are clustered at the firm and state level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

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Online Appendix for
"License to Fire? Unemployment Insurance and the Moral Cost of Layoffs"

By Daniel Keum and Stephan Meier

Appendix A. Sample Statistics

Variables	N	Mean	SD	Min	Max
Panel A. State-level characteristics (1976-2007)					
1. ΔUI_t	1,664	0.045	0.066	-0.52	0.70
2. Maximum Weekly Benefit	1,664	233.5	107.8	55	862
3. Maximum Regular Duration (Week)	1,664	26.3	1.5	20	39
4. Max UI Benefit amount	1,664	6147.1	2923.4	1,200	25,860
Panel B. Firm-level characteristics (1976-2007)					
1. ΔUI_t	69,039	0.047	0.066	-0.52	0.70
2. Employee growth$_{t+1}$	69,039	0.042	0.213	-1.83	1.91
3. Capital investment intensity$_{t+1}$	68,524	0.072	0.061	0.00	0.48
4. Low performance$_t$ (=1)	69,039	0.384	0.486	0.00	1.00
5. Tobin's Q	69,039	1.530	1.474	0.20	203.47
6. Industry revenue growth$_t$	69,039	0.117	0.144	-1.96	2.78
7. Debt ratio$_t$	69,039	0.269	0.214	0.00	8.15
8. Current ratio$_t$	69,039	2.175	1.464	0.00	57.83
9. Working capital to sales ratio$_t$	69,039	0.261	13.353	-69.25	3453.39
10. Distance to bankcruptcy$_t$	69,039	3.947	3.988	-80.40	190.96
11. Total asset$_t$ (log)	69,039	5.863	1.703	0.62	12.53
12. Industry concentration$_t$	69,039	0.227	0.171	0.01	1.00
13. Industry concentration$^2{}_t$	69,039	0.080	0.132	0.00	1.00
14. Hoberg and Phillips: Industry concentration$_t$	53,688	0.063	0.024	0.03	0.25

Notes. This table presents sample statistics for the variables. The sample includes all Compustat firm-year observations from 1976–2007 with non-missing variables and at least 500 workers for years t+0 and t-1. ΔUI is the year-to-year change in maximum UI benefits, calculated as the product of the maximum benefit amount and the maximum duration. Information on the maximum weekly benefit amount and duration for each state is obtained from the Department of Labor's publication "Significant Provisions of State UI Laws." *Low Performance* is a binary variable set to one if firm performance falls below the industry benchmark, calculated as the median ROA of a firm's primary four-digit SIC industry for each fiscal year.

Appendix A.2 Data Sources and Definitions for Subsample Analyses

Table 3: Corporate Governance and Layoffs in Response to UI Expansion

Business Combination Laws: we use the adoption years from Karpoff and Wittry (2018: Table II). We use the state of incorporation data from Compustat. The sample covers 1976-2007.

Table 5. Stakeholder Pressures and Layoffs in Response to UI Expansion

B2B vs. B2C firms: We adopt the classification of B2C industries from Lev et al. (2010: 188). The sample covers 1976-2007.

High KLD vs. Low KLD firms: we use the employee-related strength score (*emp_str_num*) that ranges from 0 to 9 from Kinder, Lydenberg, and Domini (KLD) index of labor relations. Its coverage starts from 1991 with unbalanced starting dates for firms, and we use the maximum value. The sample covers 1991-2007.

High marketing vs. Low marketing firms: we estimate the average industry marketing intensity for each four-digit SIC code as the mean value of firm marketing intensity (Compustat variable *xad* divided by *revt*). The sample covers 1976-2007.

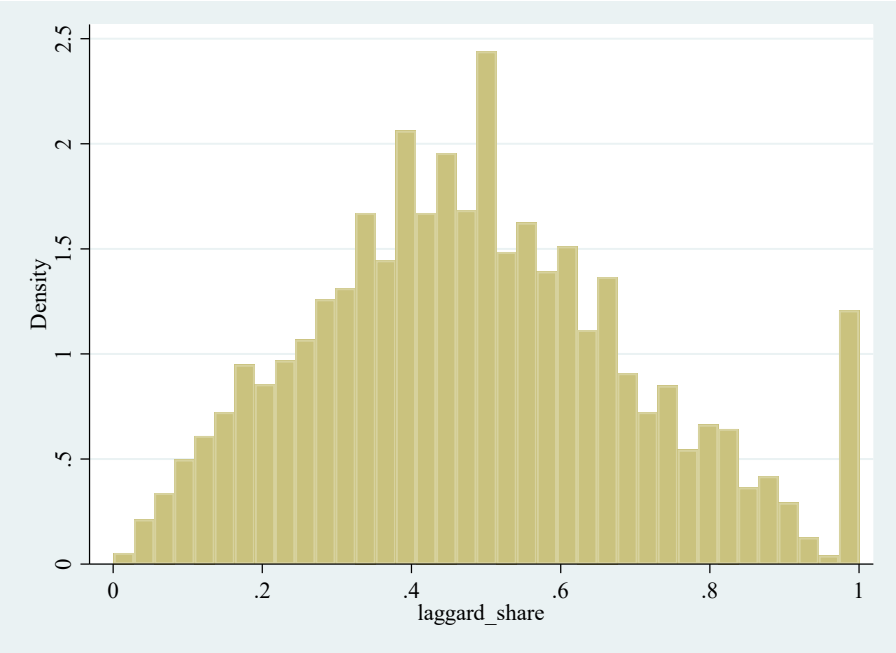
Republican CEO vs. Non-Republican CEOs: we use data from Hutton, Jiang, and Kumar (2014) who collect political donation data from the Federal Election Commission (FEC) Web site from 1993 to 2007.

External CEO vs. Internal CEO firms: we obtain CEO related information from the Execucomp database. An external CEO is identified as a CEO whose first year as a CEO is the year the executive joined the firm. Internal CEOs are non-external CEOs. The sample covers 1993-2007.

Appendix B. Exogeneity of UI Expansions

Prior studies that leverage the states' staggered UI expansions conduct a battery of tests and find a weak and null association between UI expansions and various state-level economic indicators, UI payroll taxes, and other government transfer programs (Agrawal and Matsa, 2013; Hsu, Matsa, and Melzer, 2018). Most closely related to our tests, Agrawal and Matsa (2013: Table 6) do not detect any significant association between UI expansions and firms' profits or operating performance. Given our focus on the interaction between UI expansions and negative economic shocks, Table B.1 presents evidence that state-level UI expansions are not systematically correlated with the four negative economic shocks we use: (1) below-industry performance, (2) Chinese import penetration, (3) slowing industry-level growth of Compustat firms, and (4) decreases in the year-to-year industry value-add from the NBER-CES Manufacturing Industry Database.

Figure B. State-Year Distribution of Firms with Below-industry Performance



x-axis (*Laggard_share*) indicates the percentage of firm-year observations with ROA below the industry benchmark for each state-year between 1976 and 2007.

Table B.1 Relation Between UI Expansions and Negative Economic Shocks

	Low performance$_t$ (=1)		ROA$_t$		Chinese import competition$_t$		Industry rev. growth$_t$		Value added$_t$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ΔUI_t	-0.043	-0.055	-0.003	0.008	0.186	0.176	0.006	-0.005	-0.010	-0.004
	[0.037]	[0.035]	[0.007]	[0.007]	[0.225]	[0.146]	[0.016]	[0.013]	[0.017]	[0.020]
Adj. R2	0.016	0.277	0.19	0.422	0.02	0.527	0.091	0.232	0.173	0.190
Obs.	75,157	73,981	74,572	73,460	11,615	11,398	76,087	74,939	23,270	22,960
Firm controls	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
SIC3×Year FE	*yes*	*yes*	*yes*	*yes*	*no*	*no*	*no*	*no*	*no*	*no*
Year FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Firm FE	*no*	*yes*	*no*	*yes*	*no*	*yes*	*no*	*yes*	*no*	*yes*

Notes: The unit of observation is firm-year. For industry-level shocks in columns 5-10, an alternative and arguably more appropriate unit of analysis is at the industry-year level. Switching the unit of analysis to industry-year also shows that the relation between UI expansions and industry-level negative shocks is insignificant. Standard errors are clustered at the firm and state level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix C. Robustness Checks

In Appendix C, we verify the robustness of our results to (1) an alternative operationalization of UI expansions and sample years, (2) subsampling based on geographic concentration, (3) dynamic specification with multiple lags of UI expansions, and (4) shifting the level of analysis from firm-level to state-level employment.

Table C.1 Alternative Operationalization of UI Expansions and Sample Periods

In columns 1 and 2, we operationalize ΔUI using only the changes in maximum weekly benefit amounts and disregard changes in maximum duration. While the magnitude of layoffs in response to low performance remains similar, we find a consistent and moderately larger effect of ΔUI in columns 1 and 2. Alternative sample windows yield highly similar results in columns 3-6.

DV:	ΔEmployment$_t$					
	ΔMax. payment only		Sample year: 1970-2007		Sample year: 1970-2018	
	(1)	(2)	(3)	(4)	(5)	(6)
ΔUI_t	0.003		-0.011		-0.002	
	[0.013]		[0.011]		[0.010]	
Low performance$_t$ (=1)	-0.039***	-0.039***	-0.041***	-0.041***	-0.037***	-0.036***
	[0.004]	[0.004]	[0.004]	[0.004]	[0.003]	[0.003]
$\Delta UI_t \times$ Low performance$_t$	-0.087***	-0.095***	-0.039**	-0.041**	-0.051***	-0.054***
	[0.024]	[0.024]	[0.015]	[0.016]	[0.014]	[0.016]
Adj. R2	0.183	0.181	0.185	0.183	0.177	0.175
Obs.	69,039	68,912	79,740	79,599	98,989	98,791
Controls	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Firm FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
SIC3×Year FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
State×Year FE	*no*	*yes*	*no*	*yes*	*no*	*yes*

Notes: Standard errors are clustered at the firm and state level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table C.2 High- and Low- Share of Operations in the State of HQ

We use the firm's state of headquarters, as reported in Compustat, to identify the effective UI expansions. However, some firms are geographically dispersed and maintain operations and employment across multiple states. UI expansions are measured with significant error for these "multi-state" firms (Agrawal and Matsa, 2013; Flammer and Luo, 2017). As a partial redress, we obtain data on the state-level operations from Garcia and Norli (2012), who conduct a textual analysis of the 10-k filings to estimate the percentage of a firm's operations for each state. The sample window is limited to 1993-2007.

Column 1 is the full sample with information on the percentage of a firm's operations. Columns 2 and 3 divide the sample into high- and low-dispersion firms based on the median share of operations in the state of headquarters. We indeed find a much stronger positive relationship between UI expansions and layoffs in the low-dispersion sample. f

	ΔEmployment$_t$		
	All	Dispersion	
		Low	High
ΔUI$_t$	0.006	0.036	-0.07
	[0.026]	[0.036]	[0.048]
Low performance$_t$ (=1)	-0.026***	-0.029***	-0.022***
	[0.004]	[0.006]	[0.006]
ΔUI$_t$ × Low performance$_t$	-0.196**	-0.264***	-0.074
	[0.075]	[0.076]	[0.102]
Adj. R2	0.183	0.200	0.166
Obs.	27,141	12,786	12,494
Controls	*yes*	*yes*	*yes*
Firm FE	*yes*	*yes*	*yes*
SIC3×Year FE	*yes*	*yes*	*yes*
State×Year FE	*no*	*no*	*no*

Notes: Standard errors are clustered at the firm and state level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table C.3 UI Expansion and Layoffs: Dynamic Specification

DV:	ΔEmployment$_t$			
	n=0	n=1	n=2	n=3
	(1)	(2)	(3)	(4)
Low performance$_t$ (=1)	-0.040***	-0.043***	-0.042***	-0.044***
	[0.004]	[0.004]	[0.005]	[0.005]
ΔUI$_{t-n}$ × Low peformance$_t$	-0.090***	-0.007	-0.023	0.009
	[0.024]	[0.022]	[0.031]	[0.032]
Adj. R2	0.181	0.180	0.173	0.167
Obs.	68,912	68,176	66,628	64,508
Controls	*yes*	*yes*	*yes*	*yes*
Firm FE	*yes*	*yes*	*yes*	*yes*
SIC3×Year FE	*yes*	*yes*	*yes*	*yes*
State×Year FE	*yes*	*yes*	*yes*	*yes*

Notes: Standard errors are clustered at the firm and state level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table C.4 UI Expansion and Layoffs in Response to Positive and Negative Performance

Table C.3 revises the binary *Low Performance* and form linear splines of firm performance relative to the industry performance benchmark, yielding two continuous variables covering the top and bottom half of a firm's annual performance: *Positive Performance* and *Negative Performance*. *Negative Performance* takes negative values by construction, and we take their absolute values for the ease of interpretation. Across columns 4, 5, and 6, the coefficient for $\Delta UI \times Negative\ shock$ is consistently negative and significant. In columns 4 and 6, the coefficient for $\Delta UI \times Positive\ shock$ is positive with economic significance similar to the coefficient for $\Delta UI \times Negative\ shock$. The positive interaction between ΔUI and *Positive shock* is consistent with making up for laying off marginal workers. The overall effect is that UI expansions increase the performance sensitivity of both hiring and firing. In columns 7 and 8, we again do not observe any significant effects on firm capital investment.

DV:	ΔEmployment$_t$						Capital investment	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ΔUI_t	-0.027**		-0.028**	-0.027*			-0.002	
	[0.012]		[0.011]	[0.014]			[0.003]	
Positive Perforance$_t$		-0.004	-0.004	-0.016	-0.074***	-0.016	0.022***	0.022***
		[0.031]	[0.031]	[0.030]	[0.024]	[0.030]	[0.008]	[0.008]
Negative Perforance$_t$		-0.554***	-0.554***	-0.533***	-0.556***	-0.535***	-0.035***	-0.035***
		[0.022]	[0.022]	[0.023]	[0.023]	[0.023]	[0.005]	[0.005]
$\Delta UI_t \times$ Positive Performance$_t$				0.310*	0.088	0.446**	0.044	0.037
				[0.179]	[0.208]	[0.193]	[0.028]	[0.032]
$\Delta UI_t \times$ Negative Performance$_t$				-0.477**	-0.469**	-0.431**	0.014	0.014
				[0.201]	[0.229]	[0.205]	[0.037]	[0.042]
Adj. R2	0.176	0.201	0.201	0.201	0.181	0.200	0.577	0.580
Obs.	69,039	68,793	68,793	68,793	69,671	68,665	68,238	68,110
Controls	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Firm FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
SIC3×Year FE	*yes*	*yes*	*yes*	*yes*	*no*	*yes*	*no*	*yes*
State×Year FE	*no*	*no*	*no*	*no*	*yes*	*yes*	*yes*	*yes*

Notes: Standard errors are clustered at the firm and state level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix C.5
UI Expansion and Layoffs: A State-level Analysis

We examine whether our firm-level results hold at a more aggregate level of analysis. Table C.5 uses the Country Business Pattern (CBP) database from the Census Bureau that tracks the annual number of employees and establishments for each state by industry.[16] Its employment data includes private establishments, and the total reported number of employees is two to three times larger than the Compustat database that only includes employment by public firms. Our CBP sample starts from 1970 and ends at 1997, the last year in which data is available in SIC classification. The sample window prevents the earlier analysis from Table 2 using Chinese import competition, which is available only from 1991. As a closely related alternative negative shock, we use yearly, industry-level trading cost data from Bernard et al. (2006) which is available from 1974 to 1999. *Negative shock* is a binary variable set to one if there is more than a three percent decline in trading costs (equivalent to top five percentile changes in trading costs), calculated as the sum of freight costs and import tariffs, relative to prior year. We estimate equation (1) in a panel that tracks annual employment changes for each state-industry. We examine how increased import penetration drives within-state changes in employment based on UI expansions.

Consistent with earlier firm-level findings from Table 2 on Chinese import competition, UI expansions increase layoffs in industries with increased competition in column 3. Including state-by-year fixed effects in column 4 yields consistent results. As a falsification test, we verify in columns 5 and 6 that UI expansions have an insignificant effect on the number of establishments. UI expansions affect the layoff of marginal workers and should not directly affect entry and exit decisions.

Table C.5 State-level of analysis using Country Business Pattern (CBP) Data

DV:	ΔEmployment$_t$				Establishment	
	(1)	(2)	(3)	(4)	(5)	(6)
ΔUI_t	-0.061	-0.061	-0.047		0.020	
	[0.043]	[0.043]	[0.046]		[0.014]	
Negative shock$_t$		0.006	0.018	0.02	-0.003	-0.002
		[0.012]	[0.014]	[0.015]	[0.004]	[0.004]
$\Delta UI_t \times$ Negative shock$_t$			-0.262**	-0.293**	-0.089	-0.106
			[0.118]	[0.137]	[0.076]	[0.087]
Adj. R2	0.181	0.181	0.181	0.187	0.072	0.077
Obs.	100,838	100,838	100,838	100,835	100,838	100,835
Year FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
State×SIC FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
State×Year FE	*no*	*no*	*no*	*yes*	*no*	*yes*

Standard errors are clustered at the state-industry (SIC4) and year level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

[16] We exclude state-year observations with the bottom one percent of non-zero employment (sixteen employees). Trimming at 499 employees, analogous to our firm-level analysis, yields sharper results.

Table C.6 Hiring Freezes *versus* Increased Layoffs

To further mitigate the concern that our results may be driven by hiring freezes rather than layoffs, here we divide our sample into high- and low- turnover industries. We expect hiring freezes to have a smaller effect in low-turnover industries. We approximate the average rate of turnover using the layoff separation rate, measured as the ratio of workers affected by extended mass layoffs to total industry employment. The average industry separation rate is measured at the two-digit North American Industry Classification System level and obtained from Agrawal and Matsa (2013: Table A1) who use data from the US Bureau of Labor Statistics "Mass Layoff Statistics."

We find our results to be robust that are also in line with expectation. Firms in high turnover industries undertake larger layoffs in response to low performance (-0.046 *versus* -0.034). The coefficient for $\Delta UI \times Negative\ shock$ is negative and significant across both samples with a moderately higher value for low-turnover industries.

DV:	$\Delta Employment_t$			
	High turnover		Low turnover	
	(1)	(2)	(3)	(4)
ΔUI_t	-0.007		0.001	
	[0.019]		[0.018]	
Low performance$_t$ (=1)	-0.046***	-0.046***	-0.034***	-0.034***
	[0.006]	[0.006]	[0.004]	[0.004]
$\Delta UI_t \times$ Low performance$_t$	-0.080**	-0.088***	-0.118***	-0.126***
	[0.030]	[0.029]	[0.037]	[0.039]
Adj. R2	0.184	0.186	0.183	0.179
Obs.	31,010	30,852	29,258	29,081
Controls	*yes*	*yes*	*yes*	*yes*
Firm FE	*yes*	*yes*	*yes*	*yes*
SIC3×Year FE	*yes*	*yes*	*yes*	*yes*
State×Year FE	*no*	*yes*	*no*	*yes*

Notes: Standard errors are clustered at the firm and state level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix C.7 High versus Low Benefit States

We expect the licensing effect of UI expansions to be driven by high-benefit states and attenuated in low-benefit states where UI expansions are unlikely to meaningfully reduce the economic hardship experienced by the unemployed. Table 4 divides each state into high- and low-benefit states based on the median value of the maximum weekly benefit amount for each year. In columns 5 and 6, we exclude states that consistently fall into high- and low-benefit states during our sample period (1972-2007). Thirty-one states switch positions as a low- or high-benefit state, reducing the concern that our results are driven by firms in one particular state.

DV:	ΔEmployment$_t$					
	High Benefit States		Low Benefit States		"Switch" States	
	(1)	(2)	(3)	(4)	(5)	(6)
ΔUI_t	0.000		0.013		0.000	
	[0.021]		[0.030]		[0.012]	
Low performance$_t$ (=1)	-0.033***	-0.033***	-0.042***	-0.043***	-0.042***	-0.042***
	[0.004]	[0.004]	[0.011]	[0.012]	[0.006]	[0.006]
$\Delta UI_t \times$ Low performance$_t$	-0.112**	-0.119**	-0.051	-0.039	-0.078***	-0.086***
	[0.044]	[0.047]	[0.056]	[0.055]	[0.025]	[0.025]
Adj. R2	0.185	0.183	0.186	0.181	0.181	0.180
Obs.	39,629	39,586	26,401	26,312	40,050	39,977
Controls	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Firm FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
SIC3×Year FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
State×Year FE	*no*	*yes*	*no*	*yes*	*no*	*yes*

Notes: Standard errors are clustered at the firm and state level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix D. Dynamic Specification for Table 3

The table below adopts a dynamic specification from Bertrand and Mullainathan (2003) and decomposes the passage of Business Combination laws (BCL) into five separate periods with five indicator variables: BCL^{year-2}, BCL^{year-1}, BCL^{year0}, BCL^{year+1}, and $BCL^{year\geq 2}$. The variable of interest ($BCL \times \Delta UI \times Low\ performance$) achieves statistical significance only after the adoption of BCL with respect to employment growth, mitigating concerns of reverse causality. $BCL \times \Delta UI \times Low\ performance$ does not achieve statistical significance with respect to capital investment at forward and backward lags, mitigating concerns of omitted variable bias.

	ΔEmployment$_t$					Capital Investment$_t$				
	Run simultaneously					Run simultaneously				
	n=-2 ($Before^{-2}$)	n=-1 ($Before^{-1}$)	n=0 ($After^{t+0}$)	n=1 ($After^{t+1}$)	n=2 ($After^{t\geq 2}$)	n=-2 ($Before^{-2}$)	n=-1 ($Before^{-1}$)	n=0 ($After^{t+0}$)	n=1 ($After^{t+1}$)	n=2 ($After^{t\geq 2}$)
Low performance$_t$ (=1)			-0.046***					-0.009***		
			[0.004]					[0.001]		
ΔUI$_t$ × Low performance$_t$			-0.020					0.001		
			[0.030]					[0.007]		
BCL$_{t+n}$	0.016	0.022*	0.041***	0.022*	0.015**	0.002	0.004	0.008**	0.008**	0.010***
	[0.011]	[0.012]	[0.009]	[0.012]	[0.007]	[0.003]	[0.003]	[0.004]	[0.003]	[0.003]
Low performance$_t$ (=1) × BCL$_{t+n}$	-0.019	0.004	-0.040*	0.001	0.014***	-0.004	-0.001	-0.003	-0.007**	0.001
	[0.015]	[0.019]	[0.022]	[0.015]	[0.004]	[0.004]	[0.003]	[0.003]	[0.003]	[0.001]
ΔUI$_t$ × BCL$_{t+n}$	0.036	-0.063	-0.563***	-0.135	-0.013	0.001	-0.022	-0.050	-0.028	-0.017
	[0.185]	[0.101]	[0.179]	[0.188]	[0.051]	[0.048]	[0.018]	[0.040]	[0.032]	[0.018]
ΔUI$_t$ × Low performance$_t$ × BCL$_{t+n}$	0.119	-0.051	0.388	-0.039	-0.174**	0.024	-0.006	-0.029	0.057	0.002
	[0.300]	[0.225]	[0.312]	[0.267]	[0.072]	[0.045]	[0.033]	[0.044]	[0.054]	[0.012]
Controls			*yes*					*yes*		
Firm FE			*yes*					*yes*		
SIC3×Year FE			*yes*					*yes*		
State×Year FE			*yes*					*yes*		
Adj. R2			0.181					0.57		
Obs.			68,912					73,239		

Notes: Standard errors are clustered at the firm and state level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix E.

Here we examine whether the additional layoffs from UI expansions translate to higher labor productivity. Column 1 estimates equation (1) with revenue per employee (log) as the dependent variable, and columns 2 and 3 divide the sample based on the adoption of Business Combination laws (Table 3). Columns 4-6 repeat the analysis but use firm profitability (at t+2) as the dependent variable. We find that UI expansions increase upward revision in labor productivity and profitability among low-performance firms and the positive effects to be stronger in weakly governed firms.

Table E. Performance Consequences of UI Expansions

DV:	Revenue / Employee$_t$			Profitability$_{t+2}$		
	All	Weak gov.	Strong gov.	All	Weak gov.	Strong gov.
	(1)	(2)	(3)	(4)	(5)	(6)
ΔUI_t	-0.004	0.016	0.004	-0.008	-0.009	0.000
	[0.014]	[0.020]	[0.018]	[0.006]	[0.010]	[0.008]
Low performace$_t$ (=1)	-0.043***	-0.047***	-0.031***	-0.015***	-0.012***	-0.005**
	[0.005]	[0.007]	[0.004]	[0.001]	[0.003]	[0.002]
$\Delta UI_t \times$ Low performance$_t$	0.048*	0.053*	-0.011	0.023**	0.050***	0.000
	[0.024]	[0.028]	[0.022]	[0.011]	[0.017]	[0.015]
Adj. R2	0.930	0.922	0.948	0.365	0.355	0.427
Obs.	70,708	40,617	28,220	64,614	36,353	26,373
Controls	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Firm FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
SIC3×Year FE	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
State×Year FE	*no*	*no*	*no*	*no*	*no*	*no*

Notes: Standard errors are clustered at the firm and state level and reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.