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Economic theory predicts that top executives and lower-level employees have incentives to smooth income due to compensating wage differential costs and fear of job loss, respectively. Following Agrawal and Matsa (JFE, 2013) who rely on exogenous variations in unemployment insurance benefits to examine how unemployment concerns affect corporate leverage, we examine the link between such benefits and income smoothing. We find that when unemployment insurance benefits are higher and concerns about unemployment are hence lower, there is less income smoothing. This relation is stronger when employees face higher unemployment risk and weaker when the firms' information and internal control environments are strong. Our study contributes to the literature by showing that labor market policies have a significant, likely unintended externality on corporate financial reporting.

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1. Introduction

In this study, we examine how unemployment concerns affect firms' income smoothing behavior. Unemployment imposes significant economic, physiological, and psychological costs on workers (e.g., Diamond, 1982; Harris and Holmstrom, 1982; Lazear, 2003; Mortensen, 1986; Wanberg, 2012). Workers are likely to be less concerned about unemployment if they are provided with reliefs such as unemployment insurance (UI) benefits in the event they are laid off. Prior theories and empirical evidence that link labor conditions to financial reporting choices typically focus on how the employment considerations of senior executives (e.g., bonus contracts and equity incentives) affect these choices (e.g., Healy, 1985; Fischer and Verrecchia, 2000; Kirschenheiter and Melumad, 2002; Goldman and Slezak, 2006). What is lacking in the literature is how unemployment concerns, especially those of broader groups of employees, impact these choices. Filling this gap can lead to a more holistic understanding of how labor conditions, particularly labor frictions such as unemployment, affect financial reporting outcomes.

Firms prefer to report smooth income because markets perceive them as less risky compared to more volatile earnings (Graham et al., 2005). A large body of empirical literature finds results consistent with firms creating precautionary reserves during periods of strong performance and releasing these reserves during periods of poor performance in order to report smoother streams of income (e.g., see Land and Lang, 2002; Lang, Raedy, and Wilson, 2006; Leuz, Nanda, and Wysocki, 2003; Tucker and Zarowin, 2006).

We expect concerns about unemployment to induce firm-level income smoothing through at least two avenues. First, it is well established in the labor economics literature that unemployment risk is costly to firms because employees concerned about the adverse effects of unemployment require firms to provide a wage premium ("compensating wage differential") for

this risk exposure. The outcome is an increase in the firm's compensation expenses (Abowd and Ashenfelter, 1981; Li, 1986). This compensating wage differential is not trivial. For example, Agrawal and Matsa (2013) conservatively estimate that when there are no UI benefits, the cost of compensating wage differentials to be over 150 basis points of firm value for a BBB-rated firm. We therefore argue that top executives have incentives to engage in income smoothing so that their firms appear less risky to their current as well as prospective employees, which, in turn, reduces compensating wage differentials and other related costs (e.g., the loss of productivity due to employees worried about unemployment).

Second, job security concerns can lead to lower-level members of an organization (e.g., branch managers, store supervisors, salesmen, etc.) to not be completely truthful in their upward communications (e.g., see Cohen, 1958; Read, 1962). For example, one of the problems of setting earnings targets for division managers is that it puts pressure on them, and consequently on other workers in the division, to meet these targets; this pressure results in their hiding bad news or storing good news as cookie jar reserves when preparing divisional reports (Bruns and Merchant, 1990). Oberholzer-Gee and Wulf (2012) argue that managers further down in the firm hierarchy likely also have incentives, and perhaps even greater opportunity, to engage in earnings manipulation activities that include income smoothing. They illustrate this point using a Harvard Business School case about the H.J. Heinz Company, which is based on Heinz form 8-K dated April 27, 1979.[1] In order to ensure that division managers at Heinz received bonuses in each reporting period, these managers engaged, without the knowledge of senior management, in a long list of improper accounting practices. These practices included manipulation of the timing of shipments, falsification of sale invoice dates, and improper recognition of advertising

[1] Post, R. and K. Goodpaster, "H.J. Heinz Company: The Administration of Policy," HBS Case #382-034. Source: Heinz form 8-K, April 27, 1979, p. 2.

expenses. To the extent that lower-level employees engage in smoothing activities in reporting their performance, and they do not cancel out on average, such activities can lead to income smoothing outcomes at the firm level because financial statements incorporate information gathered from all levels of the organization.[2]

Following Agrawal and Matsa (2013), we use exogenous inter-state cross-sectional and intra-state time-series variations in United States UI benefits to identify differences and changes in unemployment concerns (that is, the more generous the benefits, the lower the concerns). Our goal is to investigate whether firms' income smoothing behavior is affected by these concerns. Similar to Agrawal and Matsa (2013), we argue that this approach enables us to identify the impact of shocks to concerns about unemployment on corporate financial reports because legally mandated increases in UI payments by states reduce the costs workers face when unemployed.[3] Following prior literature, we capture income smoothing in terms of the negative correlation between operating cash flows and accruals (e.g., see Land and Lang, 2002; Lang, Raedy, and Wilson, 2006; Leuz, Nanda, and Wysocki, 2003; Tucker and Zarowin, 2006).

Using a sample period that spans from 1964 to 2012, we find evidence that greater unemployment concerns (as indicated by lower benefits) increase income smoothing. Specifically, we find that UI benefits, which should allay employees' concerns about getting laid off, reduce the firms' income smoothing behavior. This relation remains robust after several controls are employed to take account of industry effects, year effects, state-level industry concentration, firm invariant factors, and state invariant factors.

[2] Presenting a somewhat parallel argument that lower-level workers can indeed influence corporate outcomes, a recent paper by Bova et al. (2015) documents that nonexecutive employees are able to affect corporate risk-taking. Similarly, Garrett, Hoitash, and Prawitt (2014) find a positive relation between organizational trust and financial reporting quality with trust measured at both the higher and lower ranks of a firm.

[3] Agrawal and Matsa (2013) show that increases in state UI benefits are associated with greater state UI payouts.

We also conduct several cross-sectional analyses to further our understanding of the effects of unemployment concerns on income smoothing. Recognizing that employees' concern about unemployment is a function of both the generosity of UI benefits and the risk of being unemployed, we first investigate whether the propensity to engage in income smoothing increases with the risk of unemployment. As the value of UI benefits is especially salient when unemployment risk is high, we hypothesize that the role of UI benefits in curbing income smoothing is greater when unemployment risk is high. We investigate this by using firm leverage and the state-level prevalence of collective bargaining agreements to capture unemployment risk. Unemployment risk increases when a firm is more leveraged, while it decreases if employees are covered by union-negotiated collective bargaining agreements. Our findings are as predicted. In addition to finding that the role of UI benefits in reducing income smoothing is greater when unemployment risk is high, we also find evidence of a general positive relation between income smoothing and unemployment risk.

A firm's ability to engage in discretionary reporting behavior, such as income smoothing, is likely curtailed when it is operating in a strong information and internal control environment. Because strong information and internal controls inhibit income smoothing behavior in the first place, the role of UI benefits in reducing income smoothing should be further attenuated in such environments. We argue that firms' internal control environments have improved and that their propensity to manage earnings has decreased following the enactment of the Sarbanes Oxley Act of 2002 (SOX) (Bartov and Cohen, 2009; Cohen, Dey, and Lys, 2008; Hutton, Marcus, and Tehranian, 2009; Lobo and Zhou, 2006). Accordingly, we hypothesize and find results suggesting that the negative relation between UI benefits and income smoothing has weakened post SOX. We also investigate a post-SOX sample and evaluate whether the link between UI

benefits and income smoothing differs between firms that are identified as having material internal control weaknesses and those that are not. Firms with material internal control weaknesses are expected to engage in more earnings management activities *ceteris paribus*, and hence the role of UI benefits in attenuating income smoothing should be greater for these firms. Our empirical findings confirm this conjecture as well.

The results of these cross-sectional tests enhance our confidence that the main empirical findings we observe are indeed related to UI benefits and, by extension, unemployment concerns in general. All our results remain robust when we employ smaller samples, where additional state-level controls are employed, and industries with disperse workforces are removed.

In further analyses, we examine the impact of UI benefits on financial reporting quality. If unemployment concerns lead to income smoothing, then such concerns should result in lower financial reporting quality, as smoothing activities inhibit the ability of financial reports to present firm performance in a given period. Accordingly, UI benefits should result in improved financial reporting quality consequent to its effect on curtailing income smoothing. We measure financial reporting quality in terms of financial statement opacity (Hutton, Marcus, and Tehranian, 2009) and accruals quality (Dechow and Dichev, 2002). Our findings are as predicted. We indeed find that UI benefits are associated with higher financial reporting quality.

Our paper contributes to the literature in two ways. First, even though the Financial Accounting Standards Board (FASB) recognizes employees as a primary group of financial statement users, few studies investigate whether financial reporting choices are influenced by broad labor considerations (e.g., Hamm, Jung, and Lee, 2013; Liberty and Zimmerman, 1986).[4] In contrast, a large body of literature documents how the remuneration of top executives (typically, CEOs and CFOs) influences firms' financial reporting quality (e.g., see Healy and

[4] FASB Statement of Financial Accounting Concepts No. 8, OB2 and BC1.10.

Wahlen, 1999; Kothari, 2001). Second, the extant literature on how corporate behavior is affected by UI benefits investigates issues ranging from wage-setting (e.g., see Abowd and Ashenfelter, 1981; Hamermesh and Wolfe, 1990; Li, 1986; Topel, 1984) to layoff (Topel, 1983) and corporate leverage decisions (Agrawal and Matsa, 2013). Given the prior evidence that UI benefits affect real decisions of a firm, it becomes a natural question whether they also influence firm-level reporting decisions. In this paper, we use established identification techniques to provide strong evidence that state UI benefits affect corporate financial reporting decisions as well. Hence, we add to the growing literature about the externalities of UI (e.g., Dou, Khan, and Zou, 2014; Hsu, Matsa, and Melzer, 2014).

The remainder of this paper is organized as follows. Section two discusses the hypotheses. Section three describes the data and empirical design. Section four presents the results and robustness tests. Section five concludes.

2. Hypotheses Development

In the United States, the Federal-State UI Program is an important safety net that provides temporary income to eligible workers who are unemployed through no fault of their own.[5] Based on guidelines under federal law, each state administers a separate UI program. State laws determine the eligibility, amounts, and the duration of UI benefits. Most states fund their programs with taxation on employers, with three states requiring minimal employee contributions. The taxes imposed on the firms vary based on past experiences; firms that have had more worker unemployment claims in the past pay higher taxes.[6] Claims for UI benefits are paid by state governments, which are allowed to tap federal funds after they use up their resources or reach certain rates of aggregate unemployment. Benefits are typically based on a

[5] http://workforcesecurity.doleta.gov/unemploy/uifactsheet.asp.
[6] See, for example, the determination of UI tax rates in Washington State: http://www.esd.wa.gov/newsandinformation/faq/tax-rate-update-6-10.php.

percentage of an individual's earnings over the most recent 52-week period and are limited to a maximum amount stipulated by the state. Most states allow for a maximum of 26 weeks of benefits.[7]

Many factors can lead to variation in UI benefits across states and times. Key factors include underlying economic conditions (e.g., higher average wages) and political forces (e.g., bolstering of political support). The direct effect of the UI program is on unemployed workers. Gruber (1997) argues that the primary benefit of UI benefits is to smooth consumption during periods of unemployment. In particular, he argues that pooling unemployment risk through insurance leads to greater efficiency and provides evidence that consumption would fall significantly in the absence of UI. Other studies have found that UI is associated with workers' searches for new employment and the durations of their unemployment spells, labor productivity, savings, and stock market participation (e.g., Feldstein, 1978; Topel and Welch, 1980; Moffitt, 1985; Katz and Meyer, 1990; Meyer, 1995; Acemoglu and Shimer, 2000; Gormley, Liu, and Shou, 2010; Engen and Gruber, 2001; Meyer and Mok, 2007). Hsu et al. (2014) find that UI benefits help the unemployed avoid defaulting on their mortgage debt, and, as a result, banks expand credit access and offer reduced interest rates to low-income households.

For firms, UI programs have a direct and an indirect effect. The direct effect is the taxes that firms pay to fund the program. The indirect effect is via firms' consideration of the impact of UI benefits on their workers. Topel (1983) finds that firms are more willing to lay off workers when workers are more protected by UI. Agrawal and Matsa (2013) hypothesize that firms will choose financial policies that decrease the risk of distress and costly layoffs when their workers are less protected by UI programs, because workers will demand higher compensation for

[7] For a more detailed discussion of the institutional background of UI programs in the United States, see Agrawal and Matsa (2013).

potential job loss. Consistent with their hypothesis, they find that higher unemployment benefits lead to increased corporate leverage.

2.1 The Relation between UI and Income Smoothing

In this paper, we argue that unemployment concerns potentially impact managerial decisions on financial reporting because both existing and prospective employees likely use firms' accounting information to assess unemployment risk. As higher risks of unemployment lead to higher compensating wage differentials, firms have incentives to present its employment prospects in a more positive manner. These compensating wage differentials can impose quite substantial costs on the firm. For example, employing conservative assumptions, Agrawal and Matsa (2013) estimate the cost of compensating wage differentials to be 154 basis points of firm value for a BBB-rated firm when there are no UI benefits. Chemmanur et al. (2013) find the incremental labor costs associated with higher unemployment risk, due to added leverage, to be large enough to offset the tax-shield benefits of debt. Therefore, managers concerned about these costs should have incentives to project the firm as being less risky to its current and prospective employees.

Markets perceive volatile earnings as symptomatic of firm risk. Consequently, managers exhibit a proclivity to engage in income smoothing activities. For example, Graham et al. (2005) report that 97% of the senior managers responding to their survey indicate a preference for smooth income, and as many as 78% of managers indicate a willingness to sacrifice economic value in order to achieve it. Moreover, 89% of respondents express the belief that smoother earnings are perceived as less risky by the market. Consistent with the survey evidence, a large body of empirical literature reports the use of accruals to achieve smoother income (e.g., see Collins, Shackelford, and Wahlen, 1995; Kanagaretnam, Lobo, and Yang, 2004; Kilic et al.,

2013; Land and Lang, 2002; Lang, Raedy, and Wilson, 2006; Leuz, Nanda, and Wysocki, 2003; Liu and Ryan, 2006; Wahlen, 1994). In essence, these papers suggest that managers use accruals to build precautionary reserves during periods of strong performance and release these accrual reserves in subsequent periods of poor performance.

While the managerial propensity for income smoothing is well established in the literature, it is also possible that some lower-level employees (e.g., branch managers, store supervisors, and salesmen) engage in certain smoothing activities when reporting their performance, especially if they are under pressure to meet profit or sales targets.[8] These employees typically face asymmetric incentives in that they do not benefit much (e.g., limited bonus, if any) from reporting extreme good news, but they expose themselves to significant unemployment risk by reporting extreme bad news. The incentives to report smoother outputs are likely especially high for them. Their risk tolerance is arguably lower than that of top management, due to both lower wealth levels (the endowment effect) and a lack of high power incentives (the incentive effect). Hence, as with top executives, they are also likely to have incentives to create cookie jar reserves to store good news and release them during rainy days. Financial statements incorporate information gathered from all levels of the organization and such information provide inputs into accrual estimations. To the extent that smoothing activities at the lower levels are reflected in consolidated financial statements, they will manifest as income smoothing in firm-level financial reports.[9] Consistent with the broader premise that financial reporting outcomes can also be affected by lower-level workers, Garrett, Hoitash, and

[8] In fact, a sizeable body of literature on organizational behavior and marketing shows the discretion used by lower-level members of power hierarchies in their upward communications (e.g., see Cohen, 1958; Fornell and Westbrook, 1984; Harris and Ogbonna, 2010; Homburg and Fürst, 2007; Read, 1962).

[9] A necessary condition here is that performance at individual/ sub-unit levels are not negatively correlated so that the lower-level smoothing effects do not cancel out in aggregate.

Prawitt (2014) find a positive relation between organizational trust and financial reporting quality when trust is measured not only at higher ranks, but also at the lower ranks of the firm.

In the United States, workers' concerns about future unemployment are partially mitigated by the presence of UI benefits programs, as these programs provide unemployment income for workers in the event that they are laid off. A simple way of illustrating the impact of the UI program is to rely on the following equation:

Expected unemployment income (inverse proxy for unemployment concerns)

= *Unemployment risk* x *UI benefits.*

Note that when expected unemployment income is higher, there is less concern about future unemployment. Expected unemployment income is a function of the risk of layoff and UI benefits. Following Agrawal and Matsa (2013), we use exogenous changes in state-level UI benefits to empirically capture exogenous changes in unemployment concerns. As previously argued, if greater unemployment concerns indeed result in more income smoothing, because managers want to avoid paying high compensating wage differentials and/or workers want to avoid negative job consequences, such behavior should be curtailed when high UI benefits are present, so that concerns about unemployment are diminished. Accordingly, we would expect income smoothing to be negatively associated with UI benefits. Hence, our primary hypothesis is as follows (alternative form):

Hypothesis H1: Income smoothing is negatively associated with UI benefits.

It is worth noting, however, that a number of factors work against the propensity to smooth income in general. For example, managers may choose to report truthfully during periods of strong performance due to self-serving or capital-market-related reasons, which in turn inhibits the creation of precautionary reserves that can be released in later, less favorable times.

Employees may find it difficult to use discretion in their reporting due to monitoring by fellow employees, or smoothing activities at lower levels of the organization may not get reflected in firm-level financial reports in a predictable manner. Finally, firms' information and control environments will inhibit discretionary reporting at all levels of the organization.[10] The extent to which these countervailing factors prevail would weaken the relation hypothesized in H1 and would work against us finding supporting empirical results.

2.2 The Effect of Unemployment Risk

Clearly, there is a direct link between unemployment risk and the usefulness of UI benefits. As can be seen from equation (1), no income is expected from UI benefits if the layoff probability is zero. As unemployment risk increases, so does the expected unemployment income.

Unemployment risk can be thought of as stemming from one of several sources. While employees' layoff concerns should remain regardless of the source of risk, not all are equally relevant in the context of the relation between income smoothing and UI benefits. The most pertinent in this regard is firm-level unemployment risk. There is a clear, positive relation between firm-level risk and the magnitude of compensating wage differentials. For example, Chemmanur, Cheng, and Zhang (2013) find a positive relation between leverage and compensation costs. According to their analyses, the incremental labor expense associated with leverage-driven risk increases is large enough to offset the incremental tax-shield benefits of debt. According to Agrawal and Matsa's (2013) estimates, the cost of compensating wage differentials for a firm with an AAA credit rating is only 0.02 percent of firm value even in the absence of any UI benefits. However, this cost goes up to 4.28 percent of firm value for a riskier firm with a B credit rating. Accordingly, the incentives of both lower-level employees and senior

[10] We further explore this conjecture in our third hypothesis.

managers to engage in smoothing activities will be particularly high when the firm is riskier or perceived to be riskier. If so, the role of generous UI benefits in attenuating income smoothing behavior should be particularly strong for riskier firms.[11] It is also worth noting that some firms have institutional arrangements such as collective bargaining power agreements that stipulate policies on issues like employee dismissal and severance pay (Abraham and Medoff, 1984; Booth, 1995). The presence of such arrangements should potentially reduce the firm-level unemployment risk and weaken the association between income smoothing and UI benefits.[12] While employee-specific factors (e.g. skill level, work ethic etc.,) can also influence worker-level unemployment risk and the utility of UI benefits to employees, these factors are unlikely to affect compensation wage differentials or the link between income smoothing and UI benefits in a systematic manner.

Accordingly, we expect unemployment risk to strengthen the association between income smoothing and UI benefits only when risk is captured at the firm level. Therefore, we posit that;

Hypothesis H2: The negative association between income smoothing and UI benefits is stronger when the risk of unemployment from firm-level factors is high.

2.3 The Effect of the Information and Internal Control Environment

The information and internal control environment of firms play a significant role in maintaining the integrity of the financial reporting process. The U.S. Securities and Exchange Commission rules define internal control over financial reporting as "a process designed by, or under the supervision of, the [company's] principal executive and principal financial officers…

[11] Suggesting that UI benefits have a greater impact on riskier firms, Agrawal and Matsa (2013) find that the presence of UI programs reduce the costs of compensating wage differentials by 269 and 97 basis points of firm value, respectively, for B- and BBB-rated firms, but only by 10 and 1 basis points, respectively, for A- and AAA-rated firms.

[12] Unemployment risk could also arise from macroeconomic risk. High unemployment rate is symptomatic of economic downturns. However, it is unlikely that macro economy-driven unemployment risk increases compensating wage differentials. The reason is that alternative job opportunities are scarce and the employee's bargaining power is lower during economic downturns.

to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP…" (Source: Securities Exchange Act Rule 13a-15(f)). An environment with strong internal controls is characterized by the presence of systems and procedures ensuring that sufficient controls are in place to prevent and detect the inappropriate use of journal entries, adjustments, estimates etc., in order to achieve desired financial reporting outcomes. Moreover, strong internal control systems should also be capable of preventing and detecting fraud and misreporting at lower levels of the organization. In sum, the presence of a strong information and internal control environment should curtail the likelihood of discretionary reporting at all levels of the organization.

Consistent with the above notion, a number of studies establish a strong relation between internal control quality and accruals quality (Altamuro and Beatty, 2010; Ashbaugh-Skaife et al., 2008; Doyle, Ge, and McVay, 2007). Moreover, empirical evidence suggests that the adoption of SOX, which significantly improved firms' information and internal quality environments, has reduced the use of accruals for earnings management purposes (Bartov and Cohen, 2009; Cohen, Dey, and Lys, 2008; Hutton, Marcus, and Tehranian, 2009; Lobo and Zhou, 2006).

Accordingly, we conjecture that income smoothing due to unemployment concerns is curtailed in environments with strong information and internal control systems in the first place. If so, the incremental role of UI in mitigating income smoothing behavior should be less pronounced in such environments. Therefore, we present our third hypothesis as follows:

> *Hypothesis H3: The negative association between income smoothing and UI benefits is weaker when the information and internal control environment is strong.*

3. Data and Empirical Framework

Unlike most other countries, the level of UI benefits in the U.S. is determined at the state level, as opposed to the federal level. Moreover, there are time-series variations in UI benefits at the state level. We use these cross-sectional (across states) and time-series (within state) variations in UI benefits to test our conjecture of a link between income smoothing and unemployment concerns.

3.1 Data

We obtain data on UI benefits from the U.S. Department of Labor's annual issues of Significant Provisions of State Unemployment Insurance Laws and data on firm financials from Compustat.[13] We combine firm-level financial information with state-level UI benefits based on the state in which the firm's headquarter is located.[14] We use financial statement data from 1964 to 2012 and the corresponding unemployment insurance data with a one year lag (1963-2011). We exclude firms in financial services and utilities industries (SIC 6000-6999 and SIC 4900-4948). After ensuring data sufficiency to compute all control variables, the sample size used in testing our primary hypothesis varies from 128,856 to 155,404.

3.2 Measurement of UI Benefits

To analyze the impact of UI benefits on financial reporting, we use the maximum amount of unemployment benefits (*UI*) allowed for each state in a given year, defined as the maximum number of weeks that a state provides benefits to claimants (*Max Duration*), times the maximum weekly benefit amount (*Max Weekly Benefit*). This variable provides a proxy for the total UI

[13] http://workforcesecurity.doleta.gov/unemploy/statelaws.asp#sigprouilaws.

[14] This matching criterion creates some measurement error with respect to the variable of interest if some of the firm's workers are located outside of the headquarters-state, since employees are covered by the UI laws of the state in which they are employed. Following Agrawal and Matsa (2013), we address this issue in additional analyses by excluding industries with a dispersed workforce; we find similar results. See Section 4.4.2.

benefits that a claimant can receive in a given year and has been shown to impact firms' financial policies (Agrawal and Matsa, 2013).

Broad trends in state UI benefits over the sample period are presented in Figures 1 and 2. Figure 1 indicates the quartile of a state's increase in maximum total UI benefits by decade. As can be seen, the distribution appears heterogeneous and there are no prominent time-series trends in terms of regions. Figure 2 presents the distribution of UI benefit increases over each decade in our sample. On average, states appear to increase UI benefits by 25-75% over a decade. Larger increases are not that uncommon, representing about 30% of the sample. While no clear time trend is visible, except that UI benefits increase over time at varying rates, we employ year fixed effects in all our empirical specifications. Panel A of Table 1 presents the means of maximum weekly UI benefits, maximum duration, and the maximum total UI benefits by state over our sample period. While there is little variation in the maximum number of weeks a worker can claim unemployment benefits, with an average of 26 weeks across most states, the maximum amount of mean weekly (total) benefits varies significantly, ranging from a low of $125 ($3,259) in Mississippi to a high of $393 ($11,785) in Massachusetts. Panel B shows the mean values of the maximum weekly benefit, maximum duration, and total benefits for each year in our sample period.

[Insert Figures 1 and 2 and Table 1]

Table 2 presents summary statistics for the variables used in the study. The mean maximum UI benefit over our sample period is $6,610 with 25th and 75th percentiles of $3,820 and $8,580, respectively. One might look at these maximum benefits and consider them to be small relative to at least what some workers were receiving as employment income prior to being laid off. From a utility (or economic importance) perspective, it is important to note that the

utility of a dollar of employment income is likely to be lower than the utility of a dollar of unemployment income because of the diminishing marginal utility of income. A key reason is that the earlier and later dollars are likely to be spent on necessities and discretionary items, respectively. UI benefits provide an important economic lifeline to many who have lost their jobs. It is also important to note that involuntary unemployment tends to increase sharply during periods of economic crisis when the wealth of many individuals has fallen significantly and there are few job opportunities. The marginal utility per dollar of income – in particular, unemployment income – is likely to be greater during these periods. In fact, prior studies that document links between UI benefits and corporate leverage (Agrawal and Matsa, 2013) and banks' consumer credit decisions (Hsu et al., 2014) suggest that the impact of these benefits on the employee is nontrivial.

[Insert Table 2]

3.3 Regression Specification

We follow the prior literature and capture firms' income smoothing behavior in terms of the negative correlation between operating cash flows and accruals (e.g., see Land and Lang, 2002; Lang, Raedy, and Wilson, 2006; Leuz, Nanda, and Wysocki, 2003; Tucker and Zarowin, 2006). The intuition here is that income smoothing incentives will result in a firm making negative accruals in periods of strong performance (thereby creating precautionary reserves) and positive accruals in periods of weak performance (releasing of reserves). The firm's fundamental performance is proxied by operating cash flows. While a negative correlation between operating cash flows and accruals can be a natural result of accruals accounting (Dechow, 1994), the literature recognizes that a larger magnitude of this relation that varies in a systematic manner, as predicted by earnings management incentives, reflects income smoothing behavior. The above

approach to capturing income smoothing is also prevalent in the banking literature, where smoothing propensity is measured in terms of the correlation between income before provisions, equivalent to operating cash flows for banks, and loan loss provisions, the largest accrual for banks (e.g., see Collins, Shackelford, and Wahlen, 1995; Kanagaretnam, Lobo, and Yang, 2004; Kilic et al., 2013; Liu and Ryan, 2006; Wahlen, 1994).

Following prior literature (e.g., Dechow, Sloan, and Sweeney, 1995; Sloan, 1996), we measure accruals as: Accruals = (ΔCA – ΔCash) – (ΔCL – ΔSTD – ΔTP) – Dep, where ΔCA = the change in current assets, ΔCash = the change in cash/cash equivalents, ΔCL = the change in current liabilities, ΔSTD = the change in debt included in current liabilities, ΔTP = the change in income taxes payable, and Dep = depreciation and amortization expense. Having computed accruals, we then define the following variables:

Accruals = accruals / average total assets. (1)

CFO = (income from continuing operations – accruals) / average total assets. (2)

CFO is cash flow from operations, and average total assets is the average of the beginning and ending book value of total assets. Following the prior literature, a basic model of income smoothing can be depicted as:

$$Accruals_t = \beta_0 + \beta_1 CFO_t + \beta_n Controls_t + e. \quad (3)$$

Controls represents the vector of variables that attempts to capture the economic determinants of normal/non-discretionary accruals. We rely on the prior literature to determine the two sets of variables to be included. For the first set, we follow Jones (1991) and many subsequent papers (e.g., Dechow et al., 1995). Based on her model of normal accruals, we include $\Delta Revenue_t$ and PPE_t, where $\Delta Revenue_t$ is the change in revenue from *t-1* to *t*, scaled by average total assets and PPE_t is gross plant, property, and equipment at time *t*, scaled by average

total assets. We also include the log of total assets at time t, Log_Assets_t, to control for any size-related effects on accruals.

For the second set of control variables, we follow Dechow and Dichev (2002) and include CFO_{t-1} and CFO_{t+1} into the first set of control variables to take into account the mapping of current accruals into last-period and next-period cash flows.[15] Controlling for these cash flows, which are correlated to contemporaneous cash flows, is potentially important because our paper focuses on how accruals are conditional on contemporaneous cash flows. However, the inclusion of lag and lead cash flow from operations increases data requirements, which results in a smaller sample size.

Macroeconomic growth, in addition to firm-specific revenue growth, could reflect growth opportunities that may affect the normal level of accruals. Hence, we control for state-level growth, GDP_Growth_t, in all our empirical specifications. Finally, we include year fixed effects to control for general time trends in the accruals process, if any, and aggregate macroeconomic conditions that vary with time.[16] We also employ industry fixed effects based on the Fama French 48-industries classification to control for potential within industry variations in accruals. A remaining concern involves state-level industry concentration. In order to ensure that the results are not due to state-level industry concentrations that vary through time along with state UI benefits, we also employ a specification with industry fixed effects replaced by industry-state

[15] While the basic Dechow and Dichev (2002) model does not include changes in revenue and gross plant, property, and equipment, McNichols (2002), in her discussion of this model, suggests including changes in revenues and gross plant, property, and equipment as additional explanatory measures. Subsequent studies (e.g., Francis et al., 2004, 2005; Ng, 2011) typically use the Dechow and Dichev (2002) model that is augmented by these measures.

[16] Note that year fixed effects effectively capture country-level macroeconomic factors, which are the same for all firms within a year.

fixed effects, where industry-state is defined as the products of state and industry.[17] We cluster standard errors by state to correct for potential correlations among firms within the same state.[18]

In Eq. (3), the coefficient on CFO_t, β_1, represents the extent to which accruals are discretionally used to smooth earnings conditional on cash flow from operations. Note that by construction, CFO is income from continuing operations before accruals and thus could be considered as a proxy of the earnings signal prior to the use of accruals to smooth income.

To examine the relation between UI benefits and income smoothing, we extend Eq. (3) as follows:

$$Accruals_t = \beta_0 + \beta_1 CFO_t \times UI_{t-1} + \beta_2 CFO_t + \beta_3 UI_{t-1} + \beta_n Controls_t + e. \quad (4)$$

UI is included in the specification as a lagged variable because we argue that changes in *UI* would lead to changes in income smoothing behavior. Our coefficient of interest is the one on the interaction term $CFO_t \times UI_{t-1}$ (β_1). If, as hypothesized in H1, UI benefits indeed alleviate firms' income smoothing behavior, we would expect this interaction coefficient to be significantly positive.

4. Results

4.1 Test of H1: Relation between UI Benefits and Income Smoothing

Table 3 presents results for the tests of our main hypothesis that income smoothing is negatively associated with the level of state-level UI benefits. Columns (1) and (2) report the results with industry and year fixed effects while columns (3) and (4) report the corresponding results with industry fixed effects replaced by industry-state fixed effects. The results are very

[17] In additional tests, we also employ firm and state fixed effects. The choice of fixed effects does not impact our inferences. See Section 4.4.1.

[18] Agrawal and Matsa (2013) argue that it is more appropriate to cluster at the state level because the variation in UI benefits is at the state level, and that doing so controls for potential time-varying correlations in unobserved factors that affect different firms within the same state. They also argue that this also corrects for within-firm error term correlations over time, so it is more general than firm-level clustering.

similar across all specifications. The coefficient on CFO_t is reliably negative, suggestive of income smoothing behavior as reported in the prior literature. More importantly, the coefficient on interaction term $CFO_t \times UI_{t-1}$, our coefficient on interest, is positive and significant across all columns. This finding suggests that, as hypothesized in H1, UI benefits reduce the firms' propensity to engage in income smoothing activities.

[Insert Table 3]

We now examine whether the relation between UI benefits and income smoothing varies across the dimensions hypothesized in H2 and H3 to provide further support for our argument that unemployment concerns lead to more income smoothing.

4.2 Test of H2: The Effect of Unemployment Risk

Hypothesis 2 predicts that the role of UI benefits in reducing income smoothing should be stronger when the firm-level risk of unemployment is higher. This is due to both compensating wage differentials being greater and lower-level workers' incentives to engage in discretionary reporting behavior being higher when the firm-level unemployment risk is greater. Accordingly, the impact of UI benefits in mitigating income smoothing behavior should be stronger in this context.

We use two empirical proxies to investigate this relation. First, we capture unemployment risk through firm leverage (*Leverage*). The choice of leverage as the empirical construct is driven by prior literature that links leverage to firm-level unemployment risk and, consequently, to compensating wage differentials. For example, Berk, Stanton, and Zechner (2010) analytically demonstrate that firms with higher leverage should pay higher wages as compensation for the added risk of unemployment. Their predictions are empirically supported by Chemmanur, Cheng, and Zhang (2013), who find a both statistically and economically significant positive

relation between leverage and labor costs. Moreover, positing a direct link between leverage and unemployment risk, Agrawal and Matsa (2013) show that firms increase leverage following increases in UI benefits.

As argued in Section 2.2, certain features of institutional arrangements between the firm and employees, such as collective bargaining agreements, are designed to reduce employees' unemployment risk exposure. Collective bargaining agreements are prevalent in highly unionized settings, and these agreements cover a wide range of employment-related issues such as life and health insurance, pay, hours, holidays, employee dismissal, and severance pay (e.g., see Booth, 1995). It is widely understood that it is more difficult and/or costly to lay off employees who are covered by collective bargaining agreements. Abraham and Medoff (1984) find that written rules to deal with permanent layoffs are present in 92% of unionized firms, but only in 24% of nonunionized firms.[19] These written rules are typically incorporated into collective bargaining agreements. Moreover, Budd and McCall (1997, 2004) find that unionization significantly increases the likelihood of a low-level worker receiving UI benefits because unions act as an important information conduit regarding the UI benefit system. Therefore, both the risk and cost of unemployment should be lower for unionized employees who are covered by collective bargaining agreements. To capture the role of institutional arrangements to mitigate unemployment risk, we use the percentage of employees covered by collective bargaining power agreements (*Coverage*) as our second empirical proxy in testing hypothesis H2. While *Coverage* should ideally be measured at the firm level, data limitations

[19] On a related note, Gibbons and Katz (1991) argue that it is easier for employees of unionized firms to find reemployment in the event of a layoff. The rationale is that in nonunionized settings, where firms have discretion about whom to lay off, the market infers that laid-off workers are of low ability. However, such inferences cannot be made in unionized settings since most jobs covered by collective bargaining agreements are governed by layoff-by-seniority rules.

prevent us from doing so. Therefore, we measure this construct at the state-year level with data from the Unionstats database maintained by Barry T. Hirsch and David A. Macpherson.[20]

We test hypothesis H2 by introducing *Leverage* (*Coverage*) into Eq. (4) along with the three-way interaction term $CFO_t \times UI_{t-1} \times Leverage_t$ ($CFO_t \times UI_{t-1} \times Coverage_t$) and the related two-way interactions. As unemployment risk is increasing (decreasing) in *Leverage* (*Coverage*), hypothesis H2 predicts a positive (negative) coefficient on the three-way interaction term. Specifically, we employ the following models for our tests of hypothesis H2:

$$Accruals_t = \beta_0 + \beta_1 CFO_t \times UI_{t-1} \times Leverage_t + \beta_2 UI_{t-1} \times Leverage_t + \beta_3 CFO_t \times Leverage_t + \beta_4 Leverage_t + \beta_5 CFO_t \times UI_{t-1} + \beta_6 CFO_t + \beta_7 UI_{t-1} + \beta_n Controls + e. \quad (5)$$

$$Accruals_t = \beta_0 + \beta_1 CFO_t \times UI_{t-1} \times Coverage_t + \beta_2 UI_{t-1} \times Coverage_t + \beta_3 CFO_t \times Coverage_t + \beta_4 Coverage_t + \beta_5 CFO_t \times UI_{t-1} + \beta_6 CFO_t + \beta_7 UI_{t-1} + \beta_n Controls + e. \quad (6)$$

These results are presented in Table 4. Panel A of Table 4 reports regression results for Eq. (5), while those for Eq. (6) are reported in Panel B. In Table 4, Panel A, the coefficient on the two-way interaction term $CFO_t \times Leverage_t$ is negative across all specifications, suggesting that the propensity to smooth income is increasing in leverage. This finding is in line with the expectation that firms with higher risk face greater pressures to smooth income. More importantly, our coefficient of interest, the one on the three-way interaction term $CFO_t \times UI_{t-1} \times Leverage_t$, is positive and significant, as predicted by hypothesis H2. This suggests that the propensity to smooth income due to unemployment concerns is increasing in firm risk.

We get further evidence in support of hypothesis H2, when *Coverage* is used as an inverse proxy for firm-level unemployment risk. As can be seen from Panel B of Table 4, the coefficient on the two-way interaction term $CFO_t \times Coverage_t$ is positive, suggesting that firms are less likely to smooth income when *Coverage* is high and therefore unemployment risk is low.

[20] http://unionstats.gsu.edu/.

Moreover, the coefficient on the three-way interaction term, $CFO_t \times UI_{t-1} \times Coverage_t$, is negative across all specifications, as predicted in hypothesis H2.

In sum, results of Table 4 strongly support our hypothesis H2 that the negative association between income smoothing and UI benefits is stronger (weaker) when risk of unemployment is high (low).

[Insert Table 4]

4.3 Test of H3: The Effect of Information and Internal Control Environment

Our final hypothesis (H3) posits that firms' ability to engage in income smoothing is curtailed in environments with strong information and internal controls. Therefore, we expect the role of UI benefits in reducing income smoothing behavior to be limited in such contexts.

The passage of the Sarbanes-Oxley Act of 2002 (SOX) is probably the most significant event to impact firms' information and internal control environments during our sample period. Two of the act's most salient provisions in this regard are Sections 302 and 404. Section 302 mandates that CEOs and CFOs to take personal responsibility in ensuring that firms establish and maintain strong internal controls. Moreover, CEOs and CFOs are required to certify the material accuracy and completeness of financial statements. There are significant penalties for CEOs and CFOs who knowingly certify financial statements that do not meet SOX requirements. These can include up to $5,000,000 in fines and 20 years in prison. SOX Section 404 requires that annual reports include an internal control report that states that management is responsible for establishing and maintaining an adequate internal control structure and procedures for financial reporting and that contains an assessment of the above mentioned structures and procedures. Moreover, external auditors are required to provide an independent opinion on their client's internal controls over financial reporting.

In sum, SOX has strengthened the controls over firms' financial reporting and imposed significant costs for noncompliance. Consistent with SOX improving firms' financial reporting quality and having a significant negative impact on discretionary reporting behavior, a number of studies find that the use of accruals for earnings management has reduced post SOX (e.g., see Bartov and Cohen, 2009; Cohen, Dey, and Lys, 2008; Hutton, Marcus, and Tehranian, 2009; Lobo and Zhou, 2006).

Accordingly, in testing hypothesis H3, we first investigate whether the role of UI benefits in reducing income smoothing is lower in post-SOX periods compared to pre-SOX periods. Second, we focus on the post-SOX period and exploit the SOX Section 404 provision of auditor attestation of internal controls to distinguish between firms with strong versus weak internal control environments.[21] Prior literature establishes a strong relation between auditor-attested SOX Section 404 internal control weaknesses and accruals quality (Ashbaugh-Skaife et al., 2008; Doyle, Ge, and McVay, 2007). In line with hypothesis H3, we predict the role of UI benefits in constraining income smoothing behavior to be stronger for firms that auditors have identified as having material internal control weaknesses.[22]

We test hypothesis H3 by introducing the variables *SOX* and *ICW* into Eq. (4) along with the three-way interaction terms, $CFO_t \times UI_{t-1} \times SOX_t$ and $CFO_t \times UI_{t-1} \times ICW$, and the related two-way interactions. *SOX* takes the value of one for observations in the post-SOX period, and zero for the others. *ICW* is a firm-level variable that takes the value of 1 if the auditor identifies the firm as having material internal control weaknesses, and zero otherwise. Hypothesis H3 predicts a negative coefficient on the three-way interaction term $CFO_t \times UI_{t-1} \times SOX_t$ and a positive

[21] This requirement results in a significant reduction in sample size since we are only focusing on post-SOX observations with information about whether the firm has internal control weakness.
[22] We obtain data on internal control weaknesses from Audit Analytics.

coefficient on the three-way interaction term $CFO_t \times UI_{t-1} \times ICW$. Specifically, we employ the following models for our tests of hypothesis H3:

$$Accruals_t = \beta_0 + \beta_1 CFO_t \times UI_{t-1} \times SOX_t + \beta_2 UI_{t-1} \times SOX_t + \beta_3 CFO_t \times SOX_t + \beta_4 SOX_t + \beta_5 CFO_t \times UI_{t-1} + \beta_6 CFO_t + \beta_7 UI_{t-1} + \beta_n Controls + e. \quad (7)$$

$$Accruals_t = \beta_0 + \beta_1 CFO_t \times UI_{t-1} \times ICW + \beta_2 UI_{t-1} \times ICW + \beta_3 CFO_t \times ICW + \beta_4 ICW + \beta_5 CFO_t \times UI_{t-1} + \beta_6 CFO_t + \beta_7 UI_{t-1} + \beta_n Controls + e. \quad (8)$$

The results for tests of hypothesis H3 are presented in Table 5. Panel A of Table 5 reports results for pre- versus post-SOX analyses, while the results relating to internal control weakness (*ICW*) are reported in Panel B of Table 5. In Table 5, Panel A, we find the coefficient on the two-way interaction term $CFO_t \times SOX_t$ to be positive, indicating that income smoothing has gone down in post-SOX periods and confirming the evidence from prior literature that SOX has inhibited the use of accruals for earnings management. More importantly, the coefficient on the three-way interaction term $CFO_t \times UI_{t-1} \times SOX_t$, our coefficient of interest, is negative and significant as predicted across all specifications. This result suggests that the role of UI benefits in reducing income smoothing is lower in post-SOX periods where firms' information environments and internal controls are expected to be stronger on average.

We find further support for hypothesis H3 in Panel B of Table 5, where we report our findings on *ICW*. As conjectured, the coefficient on the three-way interaction term $CFO_t \times UI_{t-1} \times ICW$ is positive and significant, indicating that UI benefits result in a greater reduction of income smoothing in firms with internal control weaknesses, where the likelihood of exercising discretion over financial reporting is higher. Accordingly, the results reported in Table 5 support hypothesis H3: the negative association between income smoothing and UI benefits is weaker (stronger) when firms' information environments and internal controls are strong (weak).

[Insert Table 5]

4.4 Additional Analyses

4.4.1 Imposition of firm and state fixed effects

As explained in Section 3.4, we employ year, industry, and industry-state fixed effects in our main empirical analyses. While we believe these to be the most relevant controls in the context of our study, we also examine whether our results are robust to year and firm fixed effects. A related issue is whether time-invariant state-level factors play a role in the hypothesized relations, as opposed to the state-level industry concentration that we have conjectured and controlled via industry-state fixed effects. In Table 6, we report the sensitivity of our primary hypotheses when we control for firm and state fixed effects. As can be seen from Table 6, our inferences remain unchanged, and we continue to find that UI benefits attenuate income smoothing behavior. In untabulated analyses, we also confirm that our findings for hypotheses H2 and H3 are not sensitive to our choice of fixed effects.

[Insert Table 6]

4.4.2 Control for other state-level factors and dispersed workforce

Our primary analyses control for state-level GDP growth. In untabulated analyses, we employ additional state-level controls of the state unemployment rate and the percentage of the state population claiming unemployment benefits. Despite the use of these controls resulting in smaller sample sizes, we continue to find results supporting all our hypotheses. Further, as indicated in Section 3.1, we assign firms to states based on the location of the firms' headquarters. This criteria creates some measurement error if some of the firms' workers are located outside of the headquarters state. In order to mitigate this concern, we follow Agrawal and Matsa (2013) and exclude from our analyses industries with dispersed workforces. Agrawal

and Matsa (2013) identify retail, wholesale, and transportation as industries with more dispersed workforces. Again, untabulated results show that when we use this restricted sample, all our results continue to hold.

4.4.3 Impact on financial reporting quality

This paper argues that unemployment concerns exacerbate firms' discretionary reporting behavior in terms of income smoothing. If, as argued, unemployment concerns indeed give rise to the creation of precautionary reserves during good times and the release of these reserves during bad times, then these concerns should have a negative impact on the firms' financial reporting quality.[23] Hence, to the extent that UI benefits alleviate income smoothing behavior, they should also result in improving the financial reporting quality of the firm. We next investigate this conjecture. In order to do so, we use variants of two empirical proxies of financial reporting quality.

Our first proxy is financial statement opacity (opacity), introduced by Hutton, Marcus, and Tehranian (2009). They measure opacity for year *t* as the absolute value of abnormal accruals for the three-year-period *t-1*, *t*, and *t+1*, where abnormal accruals are estimated based on the cross-sectional modified Jones model (Dechow, Sloan, and Sweeney, 1995; Jones, 1991). We use two modifications of this approach to capture opacity. In the first modification, we capture opacity as the mean of abnormal accruals over the three-year window of *t* to *t+2* (*3yr_Opacity*).[24] In the second modification, we relax the requirement of an arbitrary time window and capture opacity for period *t* as the mean of abnormal accruals from *t* to *t+n-1*, where *n* is the number of years before UI benefits subsequently change (*Fwd_Opacity*). *Fwd_Opacity*

[23] Here, we identify financial reporting quality as the ability of financial statements to present the true economic performance of a firm in a given period.
[24] We bring forward the time window by one year because a firm is unlikely to alter income smoothing behavior prior to UI benefits being changed.

assumes that opacity remains unchanged until a change in UI benefits occurs. The advantage of this second measure is that it better captures changes in reporting behavior directly due to changes in UI benefits.

We use accruals quality (AQ), measured as the standard deviation of abnormal accruals over a period of time, as our second proxy of financial reporting quality. Higher standard deviations imply lower AQ. Following prior literature, abnormal accruals are captured as the firm-specific residual from a cross-sectional regression of accruals on prior, current, and future operating cash flows as well as changes in revenue and PP&E (Dechow and Dichev, 2002; Francis et al., 2005; McNichols, 2002). We define *3yr_AQ* and *Fwd_AQ* by computing standard deviations over time windows that correspond to *3yr_Opacity* and *Fwd_Opacity*, respectively.

We regress our four constructs of financial reporting quality on the lagged UI benefits (UI_{t-1}), log of assets (Log_Assets_t) and state-level GDP growth (GDP_Growth_t).[25] These results are reported in Table 7. As can be seen, the results across all four measures are in line with our conjecture. The coefficient on UI_{t-1} with *3yr_Opacity, 3yr_AQ, Fwd_Opacity,* and *Fwd_AQ* as dependent variables is negative and significant for all three specifications, suggesting that UI benefits have a positive impact on firms' financial reporting quality. It appears that because UI benefits reduce firms' income smoothing activities, they also result in an improvement of financial reporting quality.

[Insert Table 7]

5. Conclusion

The labor theory on compensating wage differentials suggests that firms have incentives to reduce the actual and/or perceived unemployment risk of workers because, ex-ante, this would

[25] We do not employ the other control variables used in our previous specifications because those are already in the model used to derive abnormal accruals.

lower the cost of compensating the workers. Using exogenous inter-state cross-sectional and intra-state time-series variations in U.S. UI benefits to identify changes in unemployment concerns, we show that more generous state UI benefits, which reduce workers' concerns about unemployment risk, result in less income smoothing by firms. This effect of UI benefits on income smoothing is interesting because it is likely to be an unintended outcome of state-level labor policies. It is difficult to imagine that policy makers, in their deliberations about UI policies, explicitly consider the firm-level financial reporting implications of their decisions (which, in turn, could have other consequences, such as a lower cost of capital and higher financial reporting quality). To add richness to our study about the effect of UI benefits on income smoothing, we show that the relation is stronger when workers face higher firm-level unemployment risk and weaker when the firm's information and internal control environment is strong. These additional results further corroborate our main finding that workers' unemployment concerns play an influential role in firms' financial reporting outcomes.

Reverse causality and endogeneity are serious concerns that preclude the researcher from making strong causal inferences in empirical studies in financial economics. While our study is not completely devoid of these concerns, we believe that our institutional setting and research design choices allay them to a great extent. First, since we capture UI benefits at the state level, it is unlikely that reverse causality explains our results; it is difficult to imagine a situation where UI benefits at the state level are affected by income smoothing at the firm level.

Second, it is conceptually plausible to conceive of broader economic factors that affect both UI benefits and firms' income smoothing behavior, thereby raising concerns about omitted correlated variables. But from a practical stand-point, it appears that changes in UI benefits are driven more by political considerations than by underlying economics. For example, in the state

of Florida, maximum UI benefits remained constant over the 1998-2011 period, despite notable fluctuations in the economy, whereas states such as Connecticut and Massachusetts increased their UI benefits almost annually during the same period. Lending support to this notion, Agrawal and Matsa (2013) report that in contrast to broader economic indicators, there are no regional trends in UI benefits. Moreover, in all our analyses, we control for GDP growth rates to capture statewide economic conditions and employ year fixed effects to control for broad time series trends. Further, our findings remain robust to the use of industry-state fixed effects to control for industry concentration at the state level, which likely varies over time, as well as the use of industry and state fixed effects to control for time-invariant industry and state factors. [26] Third, lending support for a causal relation, we obtain the expected results for all our cross-sectional tests, which examine conditions under which income smoothing related to UI benefits are likely to be more/less pronounced.

How firms' financial reporting outcomes are shaped by concerns about members of the workforce is an important issue because accounting standard setters identify employees as an important user group of financial statements. Yet, empirical evidence in this regard is scant in the corporate disclosure literature. Meanwhile, both labor economists and regulators alike are likely interested in the broader, unintended effects of labor market interventions, such as UI programs. Seen in this light, we believe this paper to be of interest to a broad array of audiences. While our paper indicates a link between UI benefits and accruals-based financial reporting decisions, it is plausible that UI benefits influence earnings management decisions through real actions (i.e., real earnings management) as well. We leave the exploration of this issue to future research.

[26] We also employ firm fixed effects to ensure that results are not driven by time-invariant firm factors.

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Figure 1 Relative Increases in UI by Decade, 1963-2011

This figure displays the quartile of a state's increase in maximum total benefits from 1963 to 2011. Maximum total benefits is the product of the stautory maximum weekly UI benefit and the maxium duration. The first (fourth) quartile indicates the lowest (highest) increase in benefit.

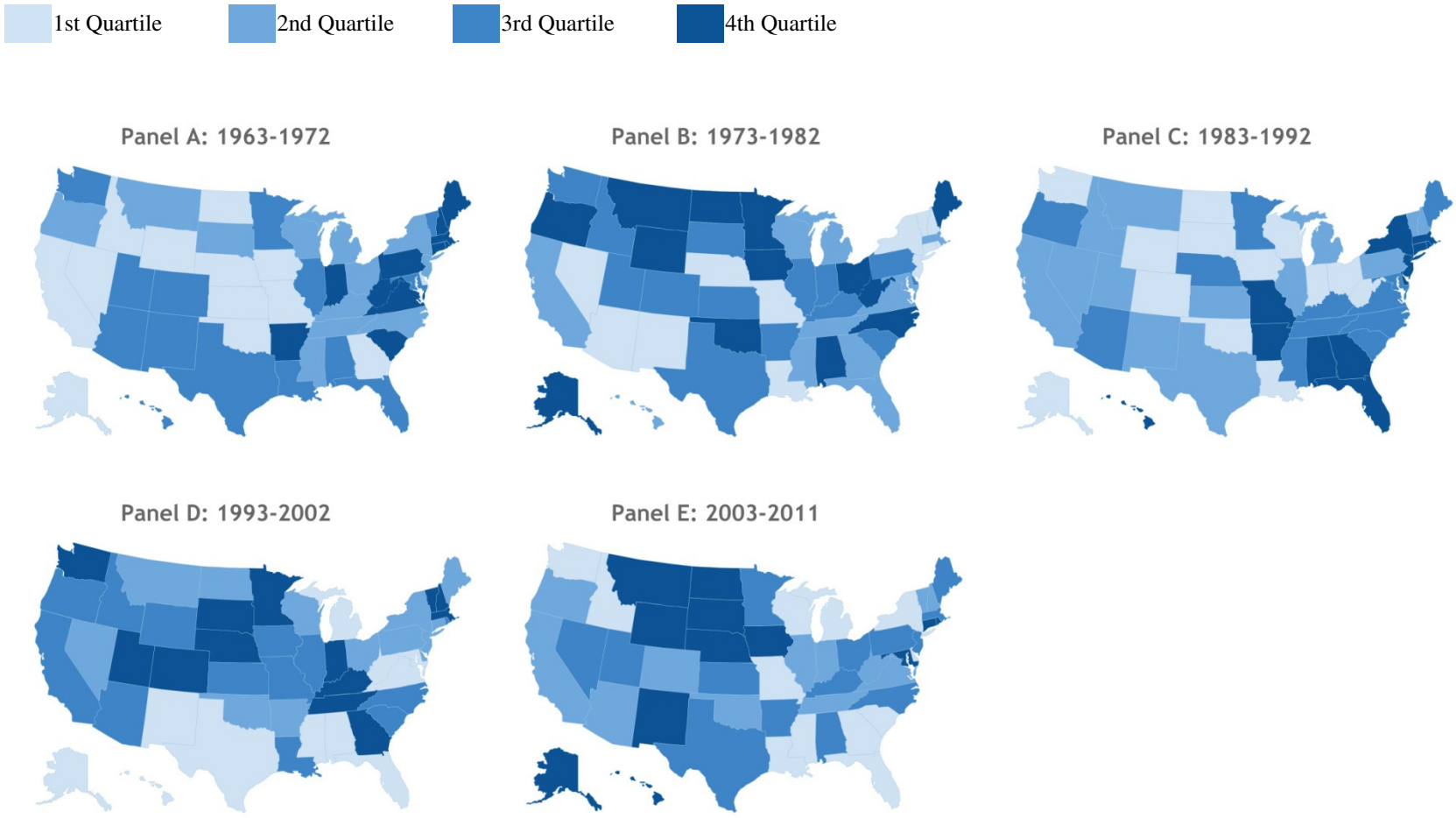

Figure 2 Distribution of State Increases in UI, 1963-2011

This figure shows the distribution of state increases in their UI benefits over each decade from 1963 to 2011. The percent change in UI benefit is defined as the increase in maximum total benefits for each decade. There are 255 state-decade observations, including Washington D.C.

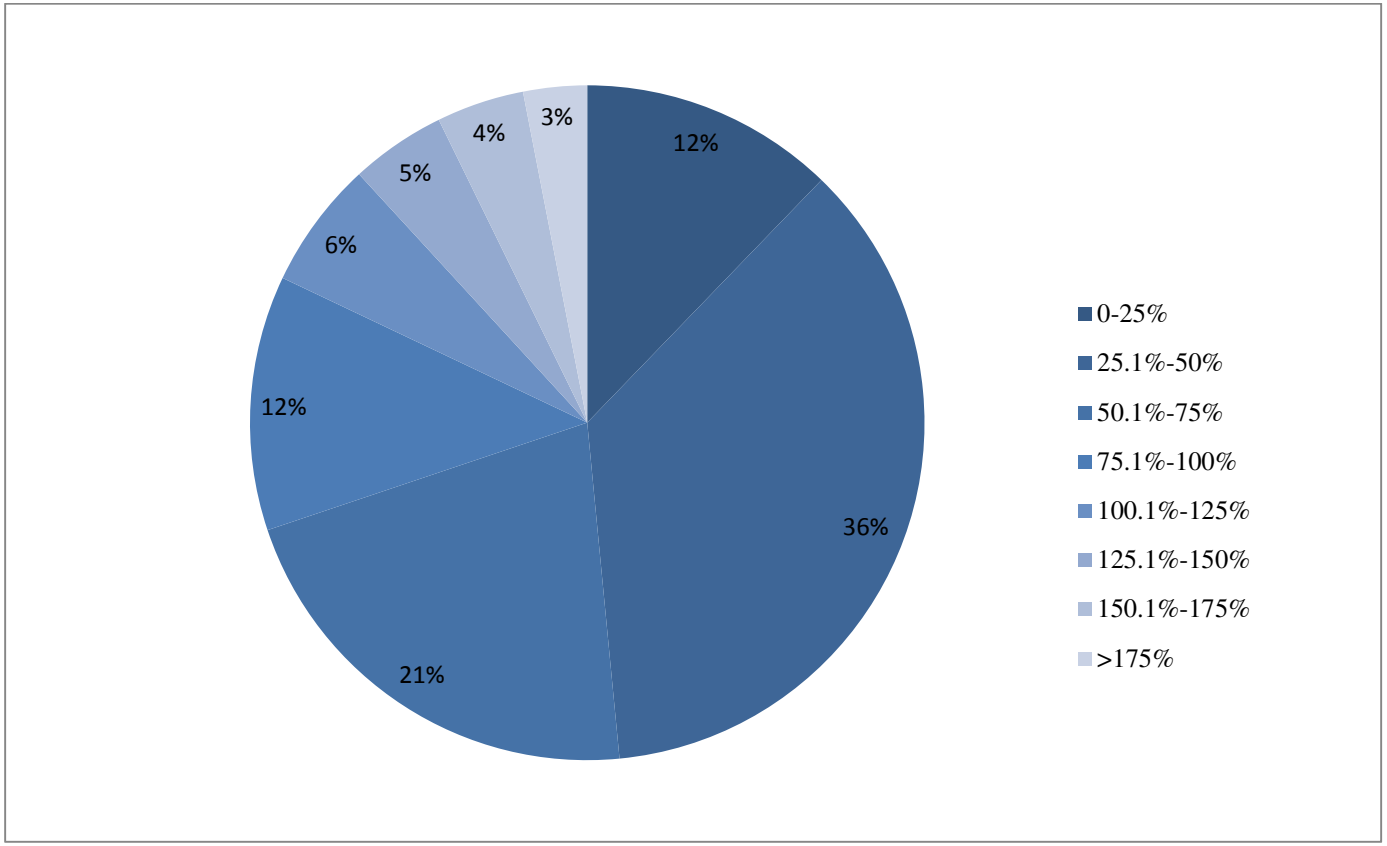

Table 1 Panel A: Average Unemployment Insurance Benefits by State

State	Max Weekly Benefit	Max Duration	Unemployment Insurance	State	Max Weekly Benefit	Max Duration	Unemployment Insurance
Alabama	132	26	3,427	Montana	180	26	4,793
Alaska	225	27	5,911	Nebraska	148	26	3,841
Arizona	136	26	3,534	Nevada	187	26	4,867
Arkansas	198	26	5,149	New Hampshire	186	26	4,828
California	200	26	5,199	New Jersey	260	26	6,757
Colorado	223	26	5,809	New Mexico	181	27	4,796
Connecticut	295	26	7,678	New York	217	26	5,630
Delaware	197	26	5,112	North Carolina	221	26	5,743
District of Columbia	228	29	6,321	North Dakota	189	26	4,919
Florida	167	26	4,333	Ohio	258	26	6,713
Georgia	161	26	4,182	Oklahoma	186	28	4,920
Hawaii	248	26	6,440	Oregon	226	26	5,880
Idaho	185	26	4,805	Pennsylvania	267	28	7,110
Illinois	254	26	6,608	Rhode Island	294	26	7,651
Indiana	181	26	4,701	South Carolina	161	25	4,158
Iowa	212	27	5,631	South Dakota	144	26	3,746
Kansas	201	26	5,223	Tennessee	152	26	3,948
Kentucky	187	26	4,855	Texas	190	26	4,950
Louisiana	163	27	4,319	Utah	209	30	5,776
Maine	238	26	6,178	Vermont	186	26	4,841
Maryland	186	26	4,841	Virginia	174	26	4,528
Massachusetts	393	30	11,785	Washington	249	29	7,181
Michigan	216	26	5,603	West Virginia	217	26	5,697
Minnesota	249	26	6,470	Wisconsin	203	29	5,626
Mississippi	125	26	3,259	Wyoming	186	26	4,848
Missouri	149	26	3,884				

Table 1 Panel B: Unemployment Insurance Benefits by Year, 1963-2011

Year	N	Max Weekly Benefit	Max Duration	Max UI Benefits	Year	N	Max Weekly Benefit	Max Duration	Max UI Benefits
1963	868	42.64	26.67	1,145.71	1988	3,963	194.64	26.04	5,090.42
1964	944	42.72	26.67	1,147.71	1989	3,902	203.62	26.04	5,326.34
1965	1,046	43.53	26.71	1,170.25	1990	3,896	214.19	26.04	5,605.13
1966	1,223	46.12	26.71	1,238.46	1991	3,927	222.17	26.04	5,813.32
1967	1,306	47.77	26.75	1,285.58	1992	4,176	233.32	26.15	6,119.32
1968	1,422	51.02	26.79	1,371.58	1993	4,476	242.15	26.15	6,351.85
1969	1,542	53.67	26.79	1,442.38	1994	4,695	251.40	26.15	6,598.72
1970	1,627	57.92	26.92	1,563.69	1995	4,899	257.32	26.15	6,754.26
1971	1,715	62.40	26.77	1,678.27	1996	5,178	264.17	26.15	6,934.15
1972	2,066	70.15	26.77	1,894.00	1997	5,050	272.66	26.15	7,157.70
1973	2,463	73.73	26.77	1,991.85	1998	4,696	280.23	26.15	7,358.11
1974	2,789	80.46	26.77	2,172.19	1999	4,496	291.26	26.15	7,647.06
1975	2,819	88.46	26.77	2,388.19	2000	4,328	299.47	26.15	7,863.55
1976	2,850	98.50	27.02	2,683.37	2001	4,033	322.77	26.15	8,479.36
1977	2,843	106.62	27.02	2,903.54	2002	3,738	336.23	26.15	8,837.28
1978	2,818	113.57	27.00	3,092.53	2003	3,584	347.85	26.15	9,138.87
1979	2,899	119.79	27.00	3,264.09	2004	3,526	357.62	26.15	9,393.13
1980	2,934	128.92	26.72	3,474.91	2005	3,423	365.64	26.11	9,578.04
1981	3,114	139.85	26.68	3,763.85	2006	3,325	376.02	26.11	9,848.26
1982	3,237	151.62	26.68	4,081.25	2007	3,253	388.00	26.11	10,166.72
1983	3,427	160.91	26.49	4,299.40	2008	3,096	404.81	26.11	10,607.58
1984	3,639	167.32	26.08	4,384.19	2009	2,936	420.17	26.11	11,010.87
1985	3,726	173.87	26.08	4,554.45	2010	2,853	427.55	26.11	11,203.32
1986	3,858	181.91	26.04	4,756.53	2011	2,754	428.58	26.11	11,229.81
1987	4,026	187.62	26.04	4,907.21					

Panel A (B) shows the distribution of unemployment insurance allowed by state (year). UI is the average of the maximum unemployment benefit allowed, defined as the product of the maximum weekly benefit times the maximum number of weeks allowed.

Table 2: Summary Statistics

	Mean	Standard Deviation	25th Percentile	Median	75th Percentile
$Accruals_t$	-0.035	0.106	-0.080	-0.034	0.011
CFO_t	0.017	0.212	-0.014	0.064	0.120
UI_{t-1}	0.661	0.401	0.382	0.598	0.858
CFO_{t-1}	0.027	0.193	-0.006	0.067	0.122
CFO_{t+1}	0.026	0.199	-0.005	0.067	0.122
$\Delta Revenue_t$	0.114	0.313	-0.009	0.084	0.233
$PP\&E_t$	0.586	0.389	0.280	0.508	0.834
Log_Assets_t	4.832	2.137	3.300	4.699	6.270
GDP_Growth_t	6.640	3.634	4.340	6.450	8.820

This table presents the summary statistics for the variables used in the study. *Accruals* is total accruals divided by total assets. *CFO* is cash flow from operations divided by total assets. *UI* is the maximum unemployment benefit allowed, defined as the product of maximum weekly benefits times the maximum number of weeks allowed. Δ*Revenue* is change in sales divided by total assets. *PP&E* is property, plant, and equipment divided by total assets. *Log_Assets* is the natural log of total assets. *GDP_Growth* is state-level growth in GDP. Number of observations = 155,404.

Table 3: Impact of Unemployment Insurance on Income Smoothing

	(1)	(2)	(3)	(4)
	$Accruals_t$	$Accruals_t$	$Accruals_t$	$Accruals_t$
$CFO_t \times UI_{t-1}$	**0.136*** **	**0.120*** **	**0.149*** **	**0.134*** **
	(3.00)	**(3.11)**	**(3.05)**	**(3.17)**
CFO_t	-0.240***	-0.411***	-0.258***	-0.423***
	(-5.86)	(-10.08)	(-5.83)	(-9.72)
UI_{t-1}	0.004	0.001	-0.002	-0.003
	(1.01)	(0.34)	(-0.47)	(-0.72)
CFO_{t-1}		0.159***		0.157***
		(22.70)		(22.50)
CFO_{t+1}		0.124***		0.123***
		(25.61)		(26.20)
$\Delta Revenue_t$	0.116***	0.112***	0.116***	0.112***
	(27.53)	(22.37)	(26.86)	(21.92)
$PP\&E_t$	-0.049***	-0.057***	-0.051***	-0.058***
	(-21.65)	(-28.83)	(-19.52)	(-25.77)
Log_Assets_t	0.008***	0.003***	0.008***	0.003***
	(27.79)	(9.39)	(26.78)	(9.05)
GDP_Growth_t	0.000**	0.000***	0.001***	0.001***
	(2.56)	(3.03)	(4.96)	(4.60)
Year Fixed Effects	✓	✓	✓	✓
Industry Fixed Effects	✓	✓		
Industry-state Fixed Effects			✓	✓
Observations	155,404	128,856	155,404	128,856
R-squared	0.2767	0.4066	0.2943	0.4230

This table presents regression results on income smoothing. $Accruals_t$ is total accruals in t-1. UI_{t-1} is maximum total benefits in t-1. CFO_t is cash flow from operations in t. CFO_{t-1} is cash flow from operations in t-1. CFO_{t+1} is cash flow from operations in t+1. See Table 2 for other variable definitions. We include year and industry (industry-state) fixed effects in columns 1-2 (3-4). We report coefficient estimates and t-statistics (in parentheses) based on robust standard errors clustered by state. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 4 Panel A: The Role of Leverage

	(1)	(2)	(3)	(4)
	$Accruals_t$	$Accruals_t$	$Accruals_t$	$Accruals_t$
$\boldsymbol{CFO_t \times UI_{t-1} \times Leverage_t}$	**0.114*** **	**0.122*** **	**0.105*** **	**0.112*** **
	(3.56)	**(3.56)**	**(3.45)**	**(3.38)**
$UI_{t-1} \times Leverage_t$	0.004*	0.001	0.006***	0.003*
	(1.95)	(0.74)	(2.89)	(1.81)
$CFO_t \times Leverage_t$	-0.174***	-0.164***	-0.164***	-0.155***
	(-5.22)	(-6.49)	(-5.17)	(-6.31)
$Leverage_t$	-0.017***	-0.009***	-0.020***	-0.012***
	(-7.61)	(-7.17)	(-8.82)	(-9.45)
$CFO_t \times UI_{t-1}$	0.099***	0.085***	0.115***	0.102***
	(2.78)	(2.78)	(2.89)	(2.89)
CFO_t	-0.189***	-0.361***	-0.209***	-0.375***
	(-6.23)	(-10.52)	(-6.15)	(-9.89)
UI_{t-1}	0.002	-0.000	-0.005	-0.004
	(0.46)	(-0.20)	(-1.00)	(-1.07)
CFO_{t-1}		0.150***		0.149***
		(23.38)		(22.88)
CFO_{t+1}		0.119***		0.118***
		(32.05)		(32.18)
$\Delta Revenue_t$	0.112***	0.108***	0.111***	0.108***
	(25.81)	(21.70)	(25.55)	(21.43)
$PP\&E_t$	-0.046***	-0.054***	-0.048***	-0.055***
	(-20.63)	(-28.03)	(-18.62)	(-24.66)
Log_Assets_t	0.008***	0.004***	0.009***	0.004***
	(26.57)	(9.71)	(25.57)	(9.42)
GDP_Growth_t	0.000*	0.000**	0.000***	0.000***
	(1.72)	(2.38)	(3.68)	(3.72)
Year Fixed Effects	✓	✓	✓	✓
Industry Fixed Effects	✓	✓		
Industry-state Fixed Effects			✓	✓
Observations	152,688	126,803	152,688	126,803
R-squared	0.2885	0.4145	0.3062	0.4311

Table 4 Panel B: The Role of Collective Bargaining Agreements

	(1)	(2)	(3)	(4)
	$Accruals_t$	$Accruals_t$	$Accruals_t$	$Accruals_t$
$\boldsymbol{CFO_t \times UI_{t-1} \times Coverage_t}$	**-0.174*** **	**-0.144*** **	**-0.181*** **	**-0.152*** **
	(-3.56)	**(-3.13)**	**(-3.44)**	**(-3.04)**
$UI_{t-1} \times Coverage_t$	0.003	0.004	-0.001	-0.000
	(0.77)	(1.09)	(-0.14)	(-0.01)
$CFO_t \times Coverage_t$	0.123**	0.097*	0.130**	0.103*
	(2.53)	(1.99)	(2.52)	(1.99)
$Coverage_t$	-0.003	-0.003	-0.003	-0.004
	(-0.88)	(-0.70)	(-0.52)	(-0.86)
$CFO_t \times UI_{t-1}$	0.259***	0.224***	0.274***	0.242***
	(6.98)	(6.64)	(6.97)	(6.72)
CFO_t	-0.309***	-0.459***	-0.330***	-0.474***
	(-11.95)	(-17.14)	(-12.44)	(-17.47)
UI_{t-1}	0.000	-0.004	0.000	0.002
	(0.04)	(-0.71)	(0.04)	(0.26)
CFO_{t-1}		0.152***		0.151***
		(21.48)		(21.05)
CFO_{t+1}		0.122***		0.121***
		(22.41)		(22.70)
$\Delta Revenue_t$	0.118***	0.114***	0.118***	0.114***
	(26.88)	(21.40)	(26.00)	(20.85)
$PP\&E_t$	-0.049***	-0.057***	-0.051***	-0.057***
	(-22.48)	(-29.11)	(-22.04)	(-27.18)
Log_Assets_t	0.008***	0.003***	0.009***	0.003***
	(27.15)	(8.32)	(24.33)	(7.50)
GDP_Growth_t	0.000**	0.000***	0.001***	0.001***
	(2.40)	(3.23)	(5.53)	(4.83)
Year Fixed Effects	✓	✓	✓	✓
Industry Fixed Effects	✓	✓		
Industry-state Fixed Effects			✓	✓
Observations	133,574	109,812	133,574	109,812
R-squared	0.2513	0.3782	0.2692	0.3953

This table presents regression results on income smoothing and firm risk. Panel A (B) reports results on how the relation between income smoothing and UI benefits is affected by leverage (collective bargaining agreements). $Accruals_t$ is total accruals in t-1. UI_{t-1} is maximum total benefits in t-1. CFO_t is cash flow from operations in t. CFO_{t-1} is cash flow from operations in t-1. CFO_{t+1} is cash flow from operations in t+1. $Leverage_t$ is total debt divided by market value of equity in t. $Coverage_t$ is the percentage of employees covered by collective bargaining agreements in t. See Table 2 for other variable definitions. We include year and industry (industry-state) fixed effects in columns 1-5 (6-10). We report coefficient estimates and t-statistics (in parentheses) based on robust standard errors clustered by state. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 5 Panel A: The Impact of the Sarbanes Oxley Act of 2002

	(1)	(2)	(3)	(4)
	$Accruals_t$	$Accruals_t$	$Accruals_t$	$Accruals_t$
$CFO_t \times UI_{t-1} \times SOX_t$	**-0.265*** **	**-0.236*** **	**-0.265*** **	**-0.238*** **
	(-2.69)	**(-2.89)**	**(-2.72)**	**(-2.94)**
$UI_{t-1} \times SOX_t$	-0.010	-0.001	-0.007	0.001
	(-1.55)	(-0.20)	(-1.07)	(0.16)
$CFO_t \times SOX_t$	0.241***	0.224***	0.232***	0.219***
	(4.01)	(4.47)	(4.05)	(4.51)
SOX_t	-0.051***	-0.039***	-0.050***	-0.038***
	(-10.65)	(-9.62)	(-8.93)	(-7.62)
$CFO_t \times UI_{t-1}$	0.281***	0.253***	0.300***	0.273***
	(2.95)	(3.18)	(2.98)	(3.23)
CFO_t	-0.338***	-0.502***	-0.358***	-0.516***
	(-5.36)	(-8.76)	(-5.38)	(-8.58)
UI_{t-1}	0.009	-0.000	0.002	-0.004
	(1.18)	(-0.01)	(0.21)	(-0.55)
CFO_{t-1}		0.155***		0.154***
		(23.71)		(23.60)
CFO_{t+1}		0.122***		0.120***
		(27.91)		(28.89)
Controls	✓	✓	✓	✓
Year Fixed Effects	✓	✓	✓	✓
Industry Fixed Effects	✓	✓		
Industry-state Fixed Effects			✓	✓
Observations	155,404	128,856	155,404	128,856
R-squared	0.2852	0.4134	0.3026	0.4296

Table 5 Panel B: The Impact of Internal Control Weaknesses

	(1)	(2)	(3)	(4)
	$Accruals_t$	$Accruals_t$	$Accruals_t$	$Accruals_t$
$CFO_t \times UI_{t-1} \times ICW_t$	**0.051****	**0.067****	**0.043****	**0.063****
	(2.62)	**(2.22)**	**(2.44)**	**(2.16)**
$UI_{t-1} \times ICW_t$	0.001	0.002	-0.001	0.000
	(0.67)	(0.89)	(-0.48)	(0.00)
$CFO_t \times ICW_t$	-0.062**	-0.064	-0.044	-0.056
	(-2.14)	(-1.54)	(-1.54)	(-1.43)
ICW_t	-0.014***	-0.014***	-0.011**	-0.012**
	(-4.39)	(-3.53)	(-2.38)	(-2.22)
$CFO_t \times UI_{t-1}$	0.022***	0.023***	0.025**	0.023**
	(2.97)	(2.99)	(2.54)	(2.23)
CFO_t	-0.104***	-0.217***	-0.115***	-0.216***
	(-5.45)	(-8.50)	(-4.79)	(-7.55)
UI_{t-1}	-0.003**	-0.003***	-0.002	-0.002
	(-2.34)	(-2.77)	(-0.47)	(-0.42)
CFO_{t-1}		0.096***		0.097***
		(14.86)		(14.30)
CFO_{t+1}		0.078***		0.077***
		(9.89)		(10.31)
Controls	✓	✓	✓	✓
Year Fixed Effects	✓	✓	✓	✓
Industry Fixed Effects	✓	✓		
Industry-state Fixed Effects			✓	✓
Observations	21,326	19,024	21,326	19,024
R-squared	0.2189	0.3012	0.2740	0.3526

This table presents regression results on income smoothing and the information and internal control environment. Panel A (B) reports results on how the relation between income smoothing and UI benefits is affected by the enactment of Sarbanes Oxley Act of 2002 (presence of material internal control weaknesses). $Accruals_t$ is total accruals in t-1. UI_{t-1} is maximum total benefits in t-1. CFO_t is cash flow from operations in t. CFO_{t-1} is cash flow from operations in t-1. CFO_{t+1} is cash flow from operations in t+1. SOX_t is an indicator variable equal to one for the post-SOX period, and zero otherwise. *ICW* is an indicator variable equal to one if the firm reports an internal control weakness, and zero otherwise. See Table 2 for other variable definitions. We include year and industry (industry-state)

fixed effects in columns 1-4 (5-8). We report coefficient estimates and t-statistics (in parentheses) based on robust standard errors clustered by state. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 6: Analyses with Firm and State Fixed Effects

	(1)	(2)	(5)	(3)	(4)	(6)
	$Accruals_t$	$Accruals_t$	$Accruals_t$	$Accruals_t$	$Accruals_t$	$Accruals_t$
$CFO_t \times UI_{t-1}$	**0.213*** **	**0.143*** **	**0.137*** **	**0.195*** **	**0.122*** **	**0.121*** **
	(3.44)	**(3.06)**	**(3.00)**	**(3.30)**	**(3.07)**	**(3.10)**
CFO_t	-0.440***	-0.245***	-0.243***	-0.491***	-0.416***	-0.412***
	(-8.05)	(-5.78)	(-5.91)	(-9.23)	(-10.02)	(-10.11)
UI_{t-1}	-0.005	0.001	0.001	-0.006	0.001	-0.000
	(-0.69)	(0.13)	(0.12)	(-1.37)	(0.32)	(-0.03)
CFO_{t-1}				0.138***	0.155***	0.158***
				(27.22)	(22.22)	(22.35)
CFO_{t+1}				0.099***	0.123***	0.124***
				(30.41)	(23.93)	(24.91)
$\Delta Revenue$	0.114***	0.114***	0.116***	0.113***	0.109***	0.112***
	(19.35)	(27.20)	(27.25)	(18.29)	(22.31)	(22.24)
PP&E	-0.050***	-0.050***	-0.050***	-0.050***	-0.054***	-0.057***
	(-14.22)	(-24.60)	(-20.38)	(-14.10)	(-28.32)	(-27.27)
Log Assets	0.014***	0.008***	0.008***	0.008***	0.004***	0.003***
	(16.55)	(30.22)	(25.31)	(12.51)	(10.97)	(8.69)
GDP Growth	0.000***	0.001***	0.001***	0.000***	0.001***	0.001***
	(4.92)	(5.37)	(4.93)	(4.48)	(5.37)	(4.85)
Year Fixed Effects	✓	✓	✓	✓	✓	✓
Firm Fixed Effects	✓			✓		
State Fixed Effects		✓	✓		✓	✓
Industry Fixed Effects			✓			✓
Observations	155,404	155,404	155,404	128,856	128,856	128,856
R-squared	0.4733	0.2632	0.2787	0.5296	0.3915	0.4079

This table presents regression results on income smoothing with alternative time-invariant controls. $Accruals_t$ is total accruals in t-1. UI_{t-1} is maximum total benefits in t-1. CFO_t is cash flow from operations in t. CFO_{t-1} is cash flow from operations in t-1. CFO_{t+1} is cash flow from operations in t+1. See Table 2 for other variable definitions. We report coefficient estimates and t-statistics (in parentheses) based on robust standard errors clustered by state. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 7: Unemployment Insurance and Financial Reporting Quality

	(1)	(2)	(3)	(4)
	$3yr\_Opacity_t$	$3yr\_AQ_t$	$Fwd\_Opacity_t$	Fwd_AQ_t
UI_{t-1}	**-0.005****	**-0.005***	**-0.007*****	**-0.010*****
	(-2.48)	**(-1.82)**	**(-3.98)**	**(-3.32)**
Log_Assets_t	-0.011***	-0.014***	-0.011***	-0.014***
	(-22.00)	(-19.90)	(-29.43)	(-26.35)
GDP_Growth_t	0.000**	0.000	0.000***	0.000
	(2.02)	(1.08)	(3.34)	(1.63)
Year Fixed Effects	✓	✓	✓	✓
Industry Fixed Effects	✓	✓	✓	✓
Observations	114,235	114,235	145,600	131,341
R-squared	0.1910	0.1620	0.2025	0.2032

This table presents regression results on earnings opacity. $3yr\_Opacity_t$ ($3yr\_AQ_t$) is the mean (standard deviation) of absolute abnormal accruals from t to t+2. $Fwd\_Opacity_t$ (Fwd_AQ_t) is the mean (standard deviation) of absolute abnormal accruals from t to t+n-1, where t+n is the first year of increase in unemployment benefits. UI_{t-1} is maximum total benefits in t-1. See Table 2 for other variable definitions. We include year and industry fixed effects in all specifications. We report coefficient estimates and t-statistics (in parentheses) based on robust standard errors clustered by state. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.