WHAT DETERMINES EMPLOYER ACCOMMODATION OF INJURED WORKERS? THE INFLUENCE OF WORKERS' COMPENSATION COSTS, STATE POLICIES, AND CASE CHARACTERISTICS

ERIN TODD BRONCHETTI AND MELISSA P. McINERNEY*

Despite a recent dramatic increase in the rate of employer accommodation of injured workers, the extant literature provides little evidence on the determinants of accommodation or the reasons for this upward trend. In this study, the authors take a comprehensive approach to estimating the determinants of workplace accommodation, assessing the influence of employer workers' compensation (WC) costs; WC market features and state WC laws; and characteristics of firms, injured workers, and their injuries. Using state-level data from the BLS, they find that employer WC costs, WC market features, and state return-to-work (RTW) policies all have an impact on accommodation, but the effects are small and explain only one-fifth of the increase in restricted work. With data on injured workers from the NLSY79 and HRS, the authors study case-specific determinants of accommodation. Results suggest that employer and injury characteristics matter most, and these results are consistent with accommodation occurring mostly at large, experience-rated employers.

The past two decades have witnessed a dramatic increase in the rate of employer accommodation of workers who experience a job-related injury or illness. Between 1987 and 2010, the share of workers with moderately severe occupational injuries and illnesses who were accommodated by their employers more than quadrupled (Figure 1). This trend was first documented in Ruser (1999), which showed that the increase in accommodation occurred across nearly all industries. Yet the extant literature provides limited evidence on the determinants of workplace accommodation or the factors that contributed to this steep increase in restricted work.

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KEYWORDS: job-related injury or illness, injured workers, workers' compensation, employer accommodation

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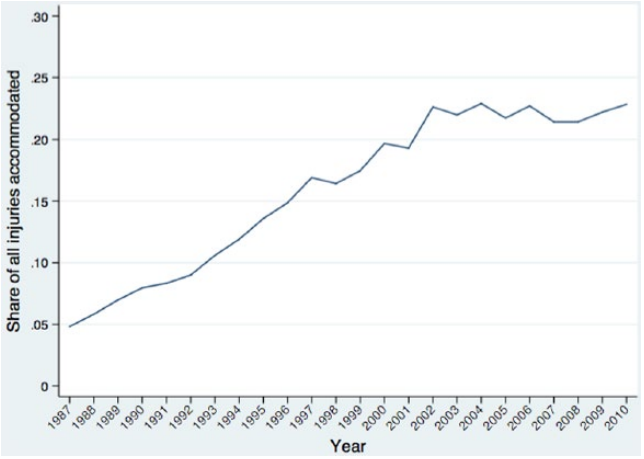
Figure 1. Share of Workplace Injuries Receiving Workplace Accommodation, 1987–2010



Source: Authors' calculations from BLS Injuries, Illnesses, and Fatalities series.
Notes: Share accommodated is calculated as incidence rate of cases with job transfer and restriction (JTR) divided by incidence rate of all recordable cases.

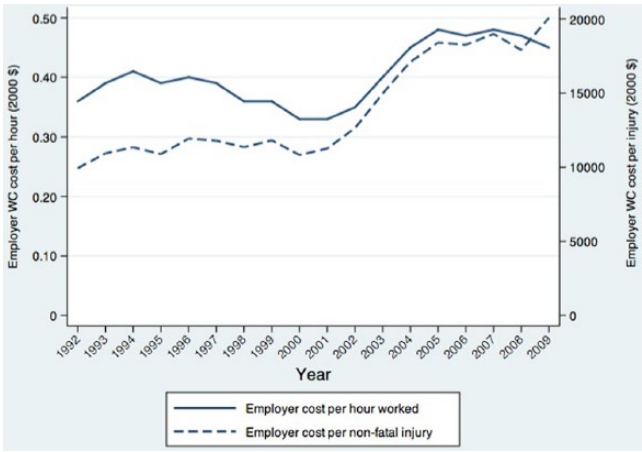
Most posited explanations for the upward trend in worker accommodation have to do with changing incentives for employers to accommodate injured workers. If a worker is injured on the job and is temporarily unable to work at full capacity, his employer may provide on-the-job accommodation (e.g., modified job tasks, reduced work hours or schedule changes, or job reassignments), either to promote the worker's quick return to work or to discourage a worker from claiming WC benefits in the first place.[1] The benefit to an employer of providing such an arrangement will be affected by many factors, including WC costs and the degree of experience rating for the firm, the WC market and policy environment in which the firm operates, and characteristics of the worker or injury. This study takes a comprehensive approach to analyzing the determinants of workplace accommodation of injured workers and attempts to shed light on which of these factors are important in explaining the recent increase in accommodation.

First, we address the hypothesis that employers increasingly offer on-the-job accommodations to injured workers in an effort to mitigate rising employer costs for WC insurance.[2] With experience-rated WC premiums, firms can directly reduce WC costs by providing accommodation if doing so helps avoid claims or get injured workers back to work quickly. These

[1]Indeed, McLaren, Reville, and Seabury (2010) showed that injured workers return to work 1.4 times faster if they work for a firm that has an early return-to-work program. We know of no comparable evidence on the extent to which offers of workplace accommodation reduce WC claiming, but a large share of the increase in restricted work has come from cases with no days away from work, suggesting that accommodation may also reduce cash benefit claims.

[2]One rigorous study on this topic is Waehrer and Miller (2003). Krueger (1991) and Thomason and Pozzebon (2002) also provided suggestive evidence related to this question.

Figure 2. Employer WC Costs (2000 $), per Hour and per Nonfatal Workplace Injury/Illness



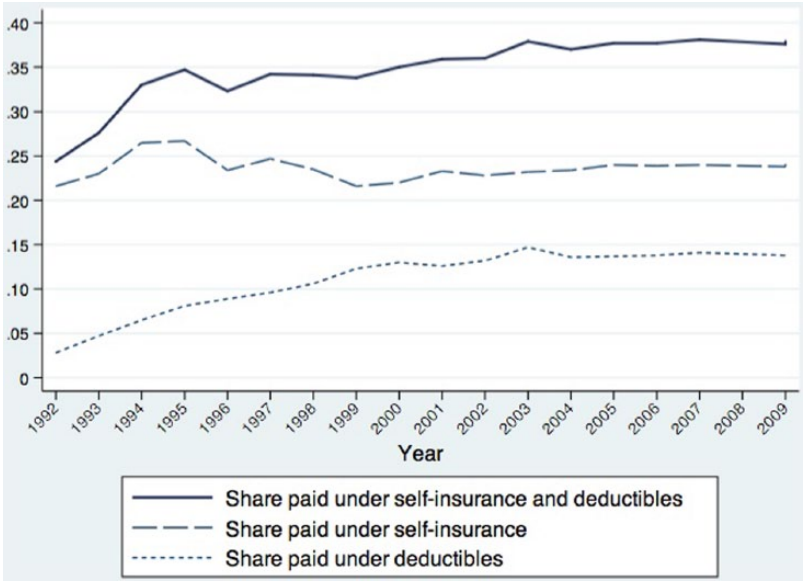
Source: National employer cost per hour for WC taken from BLS Employer Costs for Employee Compensation series.
Notes: Authors derive employer cost per injury by dividing employer cost per hour for WC by injury incidence rate (per hour). The injury incidence rate is taken from the BLS Survey of Occupational Injuries and Illnesses. The published rate is per 100 full-time equivalent workers (i.e., 200,000 hours), so to derive injury rate per hour, we divide by 200,000.

incentives are discussed often in the literature,[3] and Seabury et al. (2011) documented survey evidence that a majority of firms "report that WC costs are an important factor in shaping their employer-based return-to-work policies" (xiii). Yet the aggregate trends in restricted work and employer WC costs tell a mixed story. As demonstrated in Figure 2, the rise in workplace accommodation coincided with a period of meaningful increases in one measure of employer WC costs (i.e., employer costs for WC per nonfatal injury). However, measures of the overall costs of WC to employers (e.g., employer cost for WC per hour of employment) increased through the early 1990s but then decreased in the latter half of the decade as the rate of accommodation continued to climb. The influence of employer WC costs on workplace accommodation remains an open question. Using multiple restricted-use measures of employer costs for WC from the Bureau of Labor Statistics (BLS) National Compensation Survey (NCS), our analysis provides some of the first direct evidence on the relationship between WC costs and the likelihood that injured workers are accommodated by their employers.

While employer costs for WC may be one determinant of accommodation, employer incentives to accommodate injured workers are also affected by other factors related to the WC insurance market and state policy environment in which the firm operates. Indeed, the marked increase in workplace accommodation and restricted work activity occurred during a period

[3]See, e.g., Krueger (1991), Ruser (1999), Thomason and Pozzebon (2002), Burkhauser and Daly (2012), Burkhauser, Schmeiser, and Weathers (2012), and Butler, Gardner, and Kleinman (2012).

Figure 3. Share of WC Benefits Paid under Deductible Arrangements or by Self-Insuring Employers, 1992–2009



Source: Data from the National Academy of Social Insurance.

characterized by important changes in WC markets and in state WC policies. For instance, the increasing prevalence of self-insurance and large deductible policies during the 1980s and 1990s meant an increase in the overall degree of experience rating in WC (Figure 3). The introduction and expansion of managed care in WC also may have impacted the incidence of workplace accommodation in that it resulted in increased monitoring and case management and greater employer control over injured workers' choices of medical providers. Along with these changes in WC insurance markets, Burton (2001) documented that more than half the states passed major legislation related to WC between 1989 and 1996; many of these laws were designed to mitigate rising WC costs by improving return to work for injured workers. We examine the role of policies that directly impact employer incentives by *subsidizing* accommodation of injured workers or imposing financial *penalties* on firms that do not provide reasonable accommodations.

When deciding to accommodate an injured worker, an employer may make case-by-case decisions or may implement a firm-wide early return-to-work program, such as those examined in Seabury et al. (2011). The existing literature provides some evidence on the characteristics of injury cases that receive workplace accommodation. Ruser and Wiatrowski (2013) showed that injured workers receiving job transfer or restriction are more likely to be employed by larger firms and to have certain types of injuries (e.g., fractures, dislocations, and carpal tunnel syndrome). But as the authors note, there remain questions that the BLS data are unable to answer fully, such as whether certain workers (e.g., older workers) are systematically

more or less likely to be given restricted work arrangements by their employers. Additionally, case characteristics like the worker's WC cash benefit entitlement may impact the likelihood of accommodation by affecting both employer incentives to *offer* accommodation and employee incentives to *accept* it (rather than receive WC cash benefits). We provide evidence on which characteristics of employers, workers, and injuries are associated with increased likelihood of accommodation, studying two nationally representative samples of workers who were injured or became ill on the job from 1987 to 2009.

Using three different data sets that together span the years from 1987 to 2009, we examine the roles of employer costs for WC insurance; state WC policies and WC insurance market features; and characteristics of employers, injured workers, and their injuries. At the state level, we study the frequency of workplace accommodation using the BLS Survey of Occupational Injuries and Illnesses (SOII) reports of cases with job transfer and restriction (JTR). These totals reflect the number of workplace injury cases resulting in a worker's being accommodated with restricted work or being restaffed to a job that accommodates the injury. At the individual level, we study samples of injured workers in the National Longitudinal Survey of Youth 1979 (NLSY79) and the Health and Retirement Study (HRS).[4] The NLSY79 and HRS are two of the only nationally representative surveys that permit researchers to identify workers who became injured or ill at work (without conditioning on WC receipt) and to observe whether the worker's employer provided accommodation at the time of injury. Reville, Battacharya, and Sager Weinstein (2001) pointed to the NLSY79 and HRS as "promising though largely untapped sources of data on workplace injuries" (452) and called for further research using these surveys to study workplace injuries.

Beyond helping to illuminate the causes of the more than fourfold increase in restricted work over the past few decades, understanding the determinants of workplace accommodation also has important policy implications. To the extent that employer accommodation facilitates earlier return to work for injured workers, it may benefit both employers, by reducing costs associated with workplace injuries and illnesses, and workers, by reducing long-run losses in earnings and human capital. Our findings are informative for how states can use policy changes (e.g., a short waiting period for cash benefits, subsidies for employers who provide accommodations) to encourage accommodation. Our evidence on characteristics of the employer, injury, and injured worker that impact the likelihood of accommodation sheds light on how employers make decisions about which injured workers should receive accommodation.

[4]These data sets are restricted access because they include state identifiers. Interested users may contact NLSYGeocode@bls.gov (NLSY79) and hrsquest@isr.umich.edu (HRS).

Determinants of Employer Accommodation: Background and Related Literature

Employer Costs for WC Insurance

With experience-rated premiums for WC insurance, an employer benefits from accommodating an injured worker if the accommodation reduces the employer's WC costs and if the associated WC cost savings exceed the cost of providing accommodation.[5] For the least severe injuries, providing job accommodations may reduce WC costs by preventing the worker from filing a claim for WC cash benefits. For more severe injuries that receive WC, accommodation may reduce the duration of the worker's WC claim. All else being equal, higher employer costs for WC will increase incentives for employers to accommodate injured workers.

It has been suggested that this upward trend in workplace accommodation of injured workers may reflect employer responses to rising WC costs in the late 1980s and 1990s (see, e.g., Ruser 1999; Waehrer and Miller 2003; Ruser and Wiatrowski 2013). By some measures, this period of rising accommodation coincided with substantial increases in employers' costs for WC, but for other measures of employer WC costs, the relationship is less clear. Figure 2 plots two measures of employer costs for WC, constructed from the BLS-NCS annual series Employer Costs for Employee Compensation (ECEC) and the SOII data on injury/illness incidence rates. While the per-injury costs of WC to employers rose from 1987 to 2009, we do not observe an increase over this time period in overall costs for WC (in large part because the number of workplace injuries was falling during these years). Our empirical analysis uses both measures to estimate the relationship between employer WC costs and the likelihood of accommodation.

The only rigorous study on the relationship between employer WC costs and the likelihood of workplace accommodation is Waehrer and Miller (2003), which presented evidence that restricted work arrangements are more likely in states with higher average WC benefits. While employer costs (and incentives to accommodate) are indeed higher in states with more generous benefits, employees may also be less likely to *accept* accommodation when benefits are more generous. We contribute to this literature by *directly* estimating the impact of a separate measure of employer WC costs on the accommodation rate, *controlling* for WC benefit generosity.[6] Assume that WC benefit generosity impacts employer incentives only insofar as it affects employers' WC insurance costs. Then when we control for WC benefit generosity, the relationship between employer costs and the likelihood of accommodation should be positive, reflecting that employer incentives

[5]Gunderson and Hyatt (1996) showed that an employer bears the full cost of the workplace accommodation when the injured worker returns to his or her pre-injury employer.

[6]We also expand on the work of Waehrer and Miller (2003) in that we examine accommodation among samples of all injuries, whereas Waehrer and Miller (2003) included only those injured workers who had days away from work. Thus the authors' study does not include workers who had no days away from work but did receive accommodation for their injuries (called "job transfer and restriction" cases by the BLS). Evidence in Ruser and Wiatrowski (2013) suggested that these types of cases account for a substantial fraction of the observed increase in accommodation.

to offer accommodation are stronger when WC costs are higher. In contrast, if our measures perfectly control for variation in WC employer costs, the estimated relationship between WC benefits and the rate of accommodation should be negative: Increased benefit generosity will not impact employer incentives to offer accommodations but will decrease the likelihood that workers find offers of accommodation acceptable.

Changes in WC Policies and WC Insurance Markets

The period during which we observe a marked increase in accommodation was also characterized by substantial changes in WC insurance markets and state WC policies. Many of these changes arose in response to rapidly rising WC costs during the late 1980s and early 1990s and were designed with cost containment as an important goal (Burton 2001). To disentangle the impacts of these policy and market changes from the effects of rising WC costs, we include all these factors in a comprehensive model of the determinants of accommodation. We focus on four major changes to WC insurance markets and state WC policies:

1) an increase in self-insurance and large deductible policies, reflecting an increase in the overall degree of experience rating in WC;
2) the introduction and expansion of managed care in WC;
3) state policies that *subsidize* employer accommodation of injured workers; and
4) state policies that *penalize* employers who fail to provide reasonable accommodations for injured workers.[7]

Figure 3 demonstrates the dramatic increase in the share of WC benefits paid under self-insurance or large deductible arrangements over this time period, from 24.4% in 1992 to 37.9% in 2009. Firms that insure WC risk through self-insurance or large deductibles are essentially 100% experience rated—their WC insurance costs fully reflect their own losses due to workplace injury claims.[8] For a given level of costs, firms that self-insure or have

[7]We also note other important influences on the likelihood that an employer offered accommodation to an injured worker. Many states incorporated retrospective rating in WC policies, which effectively increases the salience of employer costs. Some states passed anti-discrimination legislation mandating accommodation of individuals with disabilities without regard to whether the disability was work-related. Although variation occurs across states in the presence of retrospective rating and policies governing accommodation, these policies did not vary over our study time period. In our empirical analysis, we account for these differences across states with state fixed effects. Other factors changed during our study period and impacted accommodation in all states, such as the passage of the Americans with Disabilities Act and the growing importance of skilled labor to employer productivity. We include year fixed effects to control for these changes over time in the rate of accommodation.

[8]Note that if firms can pool risk by self-insuring through a group, their premiums will not be 100% experience rated. Nonetheless, firms that self-insure their own risks and those with large deductible policies are likely to face higher degrees of experience rating.

large deductible WC policies face a stronger incentive to provide accommodation to an injured worker to reduce the likelihood or duration of a WC claim. The previous literature provides some evidence consistent with the premise that employers are more likely to accommodate injured workers to bring them back to work sooner if they face more tightly experience-rated WC premiums. Krueger (1991) showed that injured workers in self-insured firms return to work faster than similar injured workers in firms with imperfectly experience-rated WC premiums, and suggested that these firms may encourage return to work by accommodating injured workers (21). Similarly, Thomason and Pozzebon (2002) estimated the effects of experience rating on firms' investments in workplace safety and their efforts to reduce costs through claims management, which includes accommodating the worker's injury. The authors studied one type of accommodation, temporary work assignments, and found that compared with firms that are not experience-rated, firms that face experience-rated premiums provide this accommodation to 1.27 additional workers. In more recent work, Seabury, McLaren, Reville, and Mendeloff (2012) found that injured California workers in self-insured firms have improved return-to-work outcomes in the short term and up to five years after their injuries. The authors noted, however, that they could not distinguish the mechanisms (e.g., employer accommodation) through which self-insurance improves return-to-work outcomes.

The adoption of managed care organizations (MCOs) in WC during the early 1990s (Table 1) transformed the WC health care delivery system and brought with it a rise in disability management as employers and insurance carriers began to more closely monitor claims. Managed care also increasingly shifted control of the choice of medical provider from the injured worker to the employer, as many states required that injured workers seek care from the MCOs with which their employers contracted (Ruser, Pergamit, and Krishnamurty 2004). Because medical providers are responsible for reporting when a worker is ready to return to work, identifying necessary activity restrictions, and quantifying the degree of remaining disability, shifting control over provider choice to employers may have contributed to the increased incidence of accommodation.

Finally, we consider state-level WC policies that are intended to improve return-to-work outcomes for injured workers and directly impact employer incentives to provide accommodation. Several states have introduced policies that encourage employer accommodation of injured workers by *subsidizing* or reimbursing employers for the costs of providing accommodations. For example, in 2004, California created its Return to Work program, which reimburses up to $1,250 of employer expenses to accommodate injured workers with temporary disabilities, and up to $2,500 for accommodating those with permanent disabilities. Other state policies mandate that employers provide reasonable accommodations to injured workers or impose financial penalties for failure to do so. Since 1993, Florida has required large employers to make work available that is "appropriate to the employee's physician limitations" or face a fine of between $250 and $2,000. Table 1 indicates the dates of adoption of such state policies.

Table 1. State WC Insurance Market Features and State Return-to-Work Policies

State	*Share benefits paid under deductibles and self-insurance*	*Has managed care for WC*	*Subsidies for providing accommodation*	*Penalties for failure to accommodate*	*State*	*Share benefits paid under deductibles and self-insurance*	*Has managed care for WC*	*Subsidies for providing accommodation*	*Penalties for failure to accommodate*
Alabama	0.63				Montana	0.25	1994		1987(m), 1997(p)
Alaska	0.29		1988		Nebraska	0.36	1993		
Arizona	0.27				Nevada	0.36	1993		
Arkansas	0.43	1995		1989 (penalty)	New Hampshire	0.35	1994		1994 (mandate)
California	0.42	1994	2004		New Jersey	0.30	2003		
Colorado	0.36	1991	1996		New Mexico	0.47			
Connecticut	0.41	1993			New York	0.31	1996		
Delaware	0.43				North Carolina	0.45	1993		1994 (mandate)
DC	0.37				North Dakota	0.05	1997		
Florida	0.54	1994			Ohio	0.20	1993		
Georgia	0.50	1994			Oklahoma	0.37			
Hawaii	0.44				Oregon	0.18	1990	1993	
Idaho	0.21				Pennsylvania	0.38			1996 (penalty)
Illinois	0.39				Rhode Island	0.29	1992		
Indiana	0.28				South Carolina	0.45			
Iowa	0.34				South Dakota	0.26	1993		1995 (penalty)
Kansas	0.42				Tennessee	0.41			
Kentucky	0.44	1995			Texas	0.29	2005	1999	
Louisiana	0.43		2004		Utah	0.29	1998		1995 (penalty)
Maine	0.39			1989 (mandate)	Vermont	0.24			
Maryland	0.40				Virginia	0.39			1995 (penalty)
Massachusetts	0.30				Washington	0.23			
Michigan	0.52				West Virginia	0.16	2005		
Minnesota	0.37	1993	1995		Wisconsin	0.14			
Mississippi	0.53				Wyoming	0			1995 (penalty)
Missouri	0.44								

Notes: Share of benefits in a state paid under deductible or self-insurance arrangements is constructed as the sum of two series from the National Academy of Social Insurance (NASI): share of benefits paid by self-insuring employers and share of benefits paid under deductible arrangements. No state-level deductible information is available between 1992 and 1995, so we impute the share deductible for states that have deductibles in 1996 by linear interpolation between the 1992 national share of benefits paid under deductibles (2.8) and the state's share of benefits paid under deductibles in 1996. Years for managed care acquired from Workers' Compensation Research Institute (WCRI); other policy changes acquired from series of articles entitled "State Workers' Compensation Policy Changes in (Year)" from the *Monthly Labor Review, 1986-2004*. Last column shows year state introduced a mandate to accommodate injured workers or a penalty for failure to provide reasonable accommodations.

Characteristics of Individual Workers, Their Employers, and Their Injuries

Employers will consider whether to offer accommodation to a *particular* injured worker by comparing the benefits and costs of accommodating that worker. The costs will depend on factors such as the type of accommodation necessary (a function of the type or severity of injury) and whether the firm has the infrastructure to readily accommodate injured workers (e.g., large firms may have formal early-return-to-work programs or sufficiently varied job tasks that make such accommodation less costly). The benefits to the employer of accommodating a particular injured worker will depend on both the productivity gains of keeping the worker at work and the expected WC cost savings from avoiding or shortening a WC claim for that injury.

The existing literature provides little empirical evidence on how the likelihood of accommodation is impacted by factors specific to injured workers or their employers. Ruser and Wiatrowski (2013) analyzed BLS-SOII data and showed that workers from large firms and workers with sprains are disproportionately represented among injury cases receiving accommodation. However, the authors pointed out the need for more research regarding which types of workers/injuries are *systematically* more likely to receive restricted work arrangements. Our study uses samples of injured workers from the NLSY79 and HRS to provide some of the first evidence on employer, injury, and worker characteristics that determine the likelihood of accommodation. That is, controlling for aggregate-level factors—such as state-year employer WC costs, characteristics of the WC insurance market, and WC policies addressing worker return to work—we estimate the impact of those factors specific to a particular workplace injury on the probability that the injured worker is accommodated by his employer.

A second advantage of our individual-level analysis of the NLSY79 and HRS is that we can include *all* types of injury and accommodation cases: workers who are accommodated and have no days away from work, workers who have days away from work and also receive accommodation, and workers who are not accommodated by their employer. In contrast, the aggregate BLS-SOII data do not separately identify those workers who have days away from work and also receive accommodation. Instead, the aggregate data provide information on workers who have days away from work, regardless of whether those workers do or do not have additional restricted work.[9] This analysis is important, then, because it examines determinants of accommodation provided by employers in order to either prevent WC claims or reduce their duration.

[9]See Ruser and Wiatrowski (2013) for a description of a new data series the BLS released in 2013, containing details on worker characteristics in all restricted-work cases from 2011 forward.

Data

This study examines the determinants of employer accommodation of work-related injuries and illnesses using three restricted-access data sources: NCS measures of state-level employer WC costs merged with state-level BLS-SOII data on workplace injuries, and individual-level samples of injured workers from the NLSY79 and HRS.

Aggregate Analysis with Bureau of Labor Statistics Data

We use data from the annual BLS SOII for the years from 1992 through 2009 to measure the share of all nonfatal injuries and illnesses that result in workplace accommodation.[10] The SOII captures three types of workplace accommodation. Two types reflect adjustments to the injured worker's "permanent job"—reduced hours or reduced duties. A third way employers might accommodate injured workers is to temporarily assign the worker to another job. With these data, we identify instances of workplace accommodation that do not involve a worker's missing a full day of work (and in many cases do not result in WC cash benefit receipt).[11] That is, our measure does not capture accommodation for injured workers who miss at least one full day of work.

Figure 1 displays trends in the rate of accommodation. Between 1987 and 2010, the rate increased by over 450%, from 4.8% to 22.2%, though we note that this rise was concentrated in the years prior to 2001. Our state-level analysis begins in 1992, when the rate of accommodation ranged from 3% in Hawaii to 15.3% in Michigan. From 1992 to 2009, the average within-state, year-to-year increase in accommodation was 1.6 percentage points (the maximum year-to-year increase was 6.8 percentage points).

The state-level data from the SOII provide sufficient within-state variation over this 18-year period for us to examine the impact of changes in state employer costs for WC, WC insurance markets, and policies targeting return to work on the rate of accommodation. Nonetheless, there are three primary drawbacks to using this data series for our analysis. First, several states do not participate in the SOII, so they are excluded from this part of the analysis, and a few participating states are missing data in one or more years. Second, as described above, we cannot identify instances of accommodation for injured workers who miss at least one day of work. With the individual-level data we

[10]This series is also examined in Ruser (1999) and Ruser and Wiatrowski (2013), which described the rapid increase in the share of injuries resulting in restricted work during the past few decades.

[11]For the years 2002–2009, the survey publishes the rate of "job transfer or restriction cases" (JTR). These are cases with either a job transfer or restricted work activity but no full days away from work. To derive the share of injuries that result in workplace accommodation, we divide the rate of "job transfer or restriction cases" (JTR) by the rate of total recordable cases. For the years 1992 to 2001, the survey does not separately tally the rate of "job transfer or restriction cases" (JTR). Instead, two series are published: "lost workday cases" (DART) and "lost workday cases with days away from work" (DAW). The series, "lost workday cases" (DART) includes both cases with days away from work (DAW) and cases with days of restricted activity only (and no missed work) (JTR) (i.e., DART = DAW + JTR). Therefore, to derive the rate of cases of days with restricted activity only (JTR), we subtract "lost workday cases with days away from work" (DAW) from "lost workday cases" (DART).

describe below, we are able to identify instances of accommodation for injured workers who do miss work to assess how much workplace accommodation is missing from this series. Third, the state-level data do not include employer, worker, or injury characteristics, so we are unable to examine which characteristics are correlated with increased rates of workplace accommodation. With the individual-level data described below we are able to estimate the relationships between these characteristics and workplace accommodation.

National Longitudinal Survey of Youth

The NLSY79 is a longitudinal data set of over 12,000 individuals who were ages 14 to 22 in 1979. Respondents were interviewed annually through 1994 and biennially thereafter. On nine occasions between the 1988 and 2000 surveys, respondents were asked questions about their most recent and most severe workplace injuries that had occurred since the previous interview, the impact of each injury on days missed from work, and whether the employer provided accommodations to them. The NLSY79 permits the identification of workers who were injured on the job without conditioning on WC receipt and, as described above, we are able to observe accommodation among workers who do and do not miss work.

We include an NLSY79 respondent in our sample if he (or she) answered that he had any incident at any job since the last interview that resulted in a work-related injury or illness.[12] In each survey year, individuals are asked to identify not more than two workplace injuries; we preserve the first observed injury for each worker.[13] An injured worker in the NLSY79 sample is treated as receiving accommodation from his employer if he reports that the employer allowed him to "work other duties," "work part time," or "transfer to another job." Figure A.1 in the Appendix presents the share of workplace injuries accommodated in the NLSY data (1987–2000). Despite the small sample size, the general trend is similar to that shown by the aggregate data; we observe an increase in accommodation during the 1990s.[14]

The first column of Table 2 contains descriptive statistics for the sample of 1,617 injured workers in the NLSY79. The average age among the injured workers in the NLSY79 sample is 30, and more than half of the injured workers report missing at least one day of work. Nearly one quarter of injuries are sprains and 18% are lacerations. Approximately 37% of these injured workers are accommodated by their employers; column (2) contains descriptive statistics for this group. We note that workers who are accommodated by their employer work for larger employers than does the sample of all injured

[12]We exclude individuals employed in agriculture because agricultural employers are often exempt from WC. We also exclude individuals employed in the public sector, who are missing information on whether they were accommodated, or who report weekly wages less than $100.

[13]In 1988 through 1996, individuals are asked to report on their "most recent" and "most severe" workplace injury, and in 1998–2000, they are asked about "injury 01" and "injury 02."

[14]We also show that this pattern holds in the small subset of injuries in the NLSY79 that do not report any missed work (to be consistent with the aggregate SOII data).

Table 2. Characteristics of Injured Workers in the NLSY79 and HRS

	NLSY79 (1988-2000)		*HRS (1992-2008)*	
	All injured workers	*Accommodated by employer*	*All injured workers*	*Accommodated by employer*
Share accommodated by employer	0.369	1	0.145	1
Average WC cost per injury in *t-1* (2000 $)	9,758	9,988	12,511	12,137
	(2,544)	(2,582)	(3,581)	(3,324)
Average hourly cost for WC in *t-1* (2000 $)	0.38	0.39	0.39	0.38
	(0.73)	(0.07)	(0.07)	(0.07)
Expected weekly benefit for WC (2000 $)	296.32	287.47	328.08	323.18
	(133.19)	(129.82)	(159.77)	(138.60)
Weekly earnings (2000 $)	502.41	498.01	576.55	522.68
	(365.76)	(429.66)	(384.54)	(255.76)
Share missing any work	0.53	0.66	—	—
Union member	0.166	0.188	0.077	0.044
Age	30.61	30.97	58.81	58.08
	(4.27)	(4.49)	(5.49)	(7.26)
Firm size				
0-24 employees	0.349	0.28	0.366	0.333
25-99 employees	0.246	0.262	0.175	0.244
100-499 employees	0.252	0.272	0.177	0.189
500+ employees	0.153	0.186	0.109	0.078
Type of accommodation				
Worked other duties		0.74		0.45
Worked part-time		0.36		0.52
Transferred to another job		0.31		0.13
Get someone to help you		—		0.47
Arrange special transportation		—		0.03
Provide special equipment		—		0.17
Anything else to help		—		0.21
Type of injury				
Musculoskeletal injury	0.06	0.09	0.71	0.80
Neurological injury	0.03	0.04	0.03	0.01
Sprain	0.23	0.27	—	—
Fracture or dislocation	0.09	0.13	—	—
Contusion	0.07	0.05	—	—
Laceration	0.18	0.13	—	—
Crushing injury	0.02	0.02	—	—
Burn	0.04	0.03	—	—
Other injury	0.28	0.26	0.26	0.19
N	1,617	596	620	90

Notes: For comparability, we report regional cost measures. Types of accommodation reported are not mutually exclusive. The HRS contains more details about the type of accommodation, and the NLSY79 provides more detailed injury information. The NLSY79 sample is composed of individuals working in period *t-1* who report a work-related injury or illness between periods *t-1* and *t*. The HRS sample is composed of individuals working in period *t-1* who report a work-limiting disability that arose due to the nature of respondent's work between *t-1* and *t*. In both cases, we keep the first observed injury for each worker.

workers. The most common way an employer accommodates an injured worker is by allowing the worker to "work other duties." Approximately 34% of respondents report receiving more than one type of accommodation.

Examining the determinants of accommodation in an individual-level data set such as the NLSY79 or HRS provides important advantages. First, we relate the incidence of accommodation to employer characteristics (e.g., firm size, industry); the type of injury; individual characteristics (e.g., age, education, gender, tenure with firm, etc.); and an individual-specific measure of WC generosity. Second, while our state-level data do not identify instances of workplace accommodation among workers who miss at least one workday, our individual-level samples do include such cases. In the NLSY79, we are able to identify these workers, and we find that they are an important group—more than 66% of injured workers who report accommodation by their employer missed at least one workday.[15] Finally, because the NLSY79 is sponsored by and conducted in conjunction with the BLS, we match our NLSY79 sample to a restricted-use measure of employer costs for WC from the BLS's National Compensation Survey. Although the NLSY79 lacks workplace injury information for years more recent than 2000, we note that the nationwide increase in the rate of accommodation leveled off in 2001, so the survey covers the period with the largest run-up in accommodation.

Health and Retirement Study

The HRS provides a second nationally representative, individual-level data set with which to study employer accommodation of injured workers. The HRS has been collected biennially since 1992, with the initial wave including about 13,000 respondents nearing (or of) retirement age.[16] Studying workplace accommodations among this sample of older workers complements our analysis of prime-aged injured workers in the NLSY79. Along with detailed records of health status, disability, and employment, the HRS also provides information on demographic characteristics, income, and program participation. Like the NLSY79, the HRS identifies workers who become injured/ill on the job without conditioning on WC receipt.

We study a sample of HRS workers who become injured (or ill) on the job between two HRS survey years. A worker is included in our sample if he reports in period t having a "work-limiting health problem or impairment" that was "caused by the nature of [his] work" but was working without any reported disability in period $t\text{-}1$.[17] Note that this definition of work-related

[15]NLSY79 respondents who indicate a workplace injury/illness are asked, "Did the injury/illness cause you to miss one or more scheduled days of work, not counting the day of the incident?"

[16]The initial HRS wave interviewed almost 8,000 households containing at least one individual born between 1931 and 1941. Age-eligible respondents and their spouses were interviewed.

[17]An alternative set of questions asks respondents whether the health problem was caused by an accident and whether the accident occurred at work. We choose the broader definition of work-related injuries and illnesses in order to include workers with conditions like carpal tunnel syndrome and other similar problems not caused by specific accidents.

injury implies that our HRS sample is likely to contain workers with injuries of higher average severity than those in the BLS and NLSY79 samples, in which employers or workers have only reported the incidence of a work-related injury or illness, but workers are not necessarily limited in their ability to work. The sample is also limited to workers for whom this is the first reported work-limiting disability in the HRS.[18]

We identify injured workers as being accommodated by their employers on the basis of their responses to the question "At the time your health started to limit your ability to work, did your employer do anything special to help you out so that you could stay at work?" While the HRS provides information on several types of employer accommodations, we harmonize the definition of accommodation used in the analysis to match the BLS and NLSY79 data. We classify an injured worker as receiving accommodation if he reports a change in job tasks (called "worked other duties" in the NLSY79); shortened work days, changed work times, or allowed more breaks (called "worked part time" in the NLSY79); or helped the worker learn new skills (called "transferred to another job" in the NLSY79).[19] About 15% of injured workers in the HRS report receiving these types of accommodation at the time of their injuries. This rate is significantly lower than the rate of accommodation for injured workers in the NLSY79.

Descriptive statistics for the injured workers in the HRS are in columns (3) and (4) of Table 2. Not surprisingly, the injured workers in the HRS are older, earn more per week, and have more than twice as many weeks of tenure with their employer. Important differences exist between those HRS respondents who are accommodated by their employer and the full sample of injured workers in the HRS.

Measures of WC Benefit Generosity, Employer WC Costs, and State WC Policies

To estimate the impact of WC cash benefit levels on the accommodation rate in our state-level regressions using aggregate BLS-SOII data, we use the (log) state-year maximum benefit level as our measure of generosity. In the NLSY79 and HRS, we instead calculate an individual-specific expected weekly benefit for each injured worker, based on his average gross weekly earnings in the prior year and the benefits formula in place in his state at that time. The average expected weekly benefit is approximately $300 (in 2000 dollars) for injured workers in the NLSY79 and approximately $325 per week for those in the HRS.

We construct two direct measures of WC costs to employers, based on restricted-use data from the BLS-NCS annual ECEC. Our first cost metric

[18]As in the NLSY79 sample, we exclude individuals employed in agriculture, who are often not covered by WC. We also exclude individuals who are employed in the public sector or who are missing information on workplace accommodation.

[19]Accommodations that are excluded from this definition include someone to help with tasks, special transportation, special equipment, or "anything else [done by the employer] to help out."

quantifies the restricted-use ECEC measure of the state-year average dollar cost of WC to employers per injury.[20] This measure represents an upper limit on the potential savings an employer might expect from accommodating an injured worker because over the time period in our analysis, medical benefits for WC comprised an increasing share of WC benefits, and these medical costs are unlikely to be mitigated by accommodating an injured worker.[21] We find that the mean cost per injury is between $10,000 and $12,000. Because the state-level measure cannot be merged with our restricted-access HRS sample, our HRS analysis uses the ECEC's analogous measure of WC costs to employers that varies at the regional level. We also consider the employer WC cost per hour worked, which reflects overall WC costs to employers (and will rise and fall with the number of injuries). The average cost of WC per hour worked is approximately $0.34 in our aggregate BLS sample, and approximately $0.39 in our NLSY79 and HRS samples, ranging from $0.12 to close to $1.[22]

We examine four key aggregate-level factors, related to WC insurance markets and state policy environments, that may affect accommodation of injured workers. First, we construct the state-year share of benefits paid under self-insurance and deductible arrangements from data made available for our study by the National Academy of Social Insurance (NASI).[23] Some states do not allow self-insurance or large deductibles, whereas in other states, over half of all benefits are covered under these arrangements. The average share of benefits covered under self-insurance and deductible policies was roughly 36.2% during the sample period (see Table 1). We also compile data on the adoption of state-level WC policies that impact the incidence of accommodation: managed care in WC, subsidies for employers who provide accommodations, and penalties imposed on firms that fail to provide reasonable accommodations for injured workers. The years in which states adopted these policies are shown in Table 1.[24]

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[20]The ECEC measure quantifies state average cost per hour for WC, and the incidence rate of workplace injuries is computed per 100 full-time workers (assumed to work 2,000 hours per year). We then divide the ECEC cost measure by the (nonfatal) injury incidence rate/200,000.

[21]In 1987, medical benefits accounted for only 36% of all WC benefits, whereas by 2009, nearly 50% of all WC benefits were medical benefits (48.1%) (Sengupta, Reno, and Burton 2013).

[22]Our main results use this state-year measure of employer WC costs. However, we find our conclusions are upheld when we use a weighted average (using the "establishment occupation weight" from the NCS) or a regression-adjusted measure of employer cost, which partials out the influence of cost of living, union membership, and injury risk across industries and occupations. Our results are also robust to using the published measures of employer costs by region, which are less noisy than the restricted-use state estimates. Results available upon request.

[23]We acquired state-level estimates of the share of benefits paid under deductible arrangements for 1996 through 2009 from NASI. To impute state-level estimates for the years 1992 through 1996, we first assign the national share paid under deductible arrangements in 1992 (2.8) to all states that have deductibles in 1996. We then linearly interpolate estimated values for each state in 1993–1995 based on this and the state's actual share for 1996. We do not include this measure in our NLSY79 analysis because nearly 60% of the NLSY79 injuries occur before 1992.

[24]Data on state adoption of managed care in WC are drawn from Workers' Compensation Research Institute (2009). Data on state policies regarding accommodation of injured workers are compiled from the annual *Monthly Labor Review* article "State Workers' Compensation Legislation Enacted in (Year)" for 1987–2004 (the last year of the series).

Empirical Methods and Results

Aggregate-Level Determinants of Workplace Accommodation

Our analysis of aggregate BLS data is informative for understanding how the incidence of workplace accommodation is influenced by legislated WC generosity, employer WC costs, WC insurance market features, and state WC laws intended to encourage accommodation. The regression models take the following form:

$$\begin{aligned} ACCOM_{s,t} = {} & \alpha + \theta X_{s,t} + \beta_1 EmployerCosts_{s,t-1} \\ & + \beta_2 ln\left(Max\right)_{s,t} + \beta_3 ln\left(WklyEarn\right)_{s,t} + \beta_4 wait_{s,t} \\ & + \beta_5 share\_DSI_{s,t} + \beta_6 mgdcare_{s,t} + \beta_7 accom\_subsidy_{s,t} \\ & + \beta_8 accom\_penalty_{s,t} + \lambda_s + \varphi_t + \varepsilon_{s,t} \end{aligned}$$

where *ACCOM* is the rate of accommodation among all injuries in a state and year, and the vector *X* includes controls for state employment and demographic characteristics that may be related to employer WC costs or state WC policies *and* the rate of accommodation. Specifically, we control for the state-year unemployment rate, industry and occupation composition, and the state-year share of workers by union membership, establishment size, race, gender, marital status, and education level.[25] All models also include a full set of state fixed effects, λ_s, to capture time-invariant differences across states that impact the likelihood of accommodation (e.g., presence of retrospective rating for WC), and year effects, φ_t, to capture national trends in the propensity to accommodate injured workers.[26] For example, accommodation of all disabled workers increased after the implementation of the Americans with Disabilities Act in 1992 (Burkhauser et al. 2012).

Table 3 presents the results of our aggregate-level analysis. We include a lagged measure of employer WC costs because of concerns that current-period employer costs might be endogenous to the rate of accommodation. Similar to previous work (e.g., Waehrer and Miller 2003), all models include three parameters that reflect the generosity of state WC programs: the (log) state-year maximum weekly WC benefit for Temporary Total Disability cases, the (log) state-year average weekly wage, and the length (number of days) of the state waiting period for cash benefits. The model in column (2) incorporates features of the WC insurance market in a state (share of benefits covered under deductibles and self-insurance and whether states have managed care for WC), and column (3) controls for state policies that enhanced incentives for employers to accommodate injured workers (subsidies for providing accommodations and mandates or financial penalties for failing to provide accommodations).

[25]These shares are calculated from annual March Current Population Survey (CPS) data.

[26]Year effects also capture the change to the definition of injury that governed inclusion in the survey beginning in 2002 (see Wiatrowski 2004).

Table 3. The Influence of Employer WC Costs, WC Market Features, and State Policies on Workplace Accommodation

	Ln(Cost per injury)$_{t-1}$					*Cost per hour$_{t-1}$*				
	Employer WC costs (1)	*WC ins. mkt. features (2)*	*RTW policies (3)*	*No ben. variable (4)*	*% medical (5)*	*Employer WC costs (6)*	*WC ins. mkt. features (7)*	*RTW policies (8)*	*No ben. variable (9)*	*% medical (10)*
Ln(employer WC costs per injury)$_{s,t-1}$	0.008**	0.007*	0.008**	0.008**	0.008**	—	—	—	—	—
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)					
Employer WC costs per Hour$_{s,t-1}$	—	—	—	—	—	0.015	0.015	0.016*	0.017*	0.017*
						(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Ln(max weekly benefit)$_{s,t}$	0.015	0.018*	0.017	—	0.017	0.017*	0.020*	0.019*	—	0.018*
	(0.010)	(0.010)	(0.010)		(0.010)	(0.010)	(0.010)	(0.010)		(0.010)
Ln(average weekly wage)$_{s,t}$	0.026	0.026	0.024	0.025	0.023	0.026	0.024	0.023	0.024	0.022
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Waiting period for cash benefits$_{s,t}$ (days)	–0.004	–0.004	–0.004	–0.005**	–0.004	–0.004	–0.004	–0.004	–0.005**	–0.004
	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)
Share benefits paid under deductiblesor self-insurance$_{s,t}$	—	0.032**	0.031**	0.031*	0.030*	—	0.033**	0.033**	0.032**	0.031**
		(0.016)	(0.016)	(0.016)	(0.016)		(0.016)	(0.016)	(0.016)	(0.016)
Has managed care for WC$_{s,t}$	—	0.011***	0.011***	0.010**	0.011***	—	0.009**	0.010**	0.009**	0.010**
		(0.004)	(0.004)	(0.004)	(0.004)		(0.004)	(0.004)	(0.004)	(0.004)
Has subsidy for providing accommodation$_{s,t}$	—	—	0.010*	0.011*	0.011*	—	—	0.011*	0.012**	0.012**
			(0.006)	(0.006)	(0.006)			(0.006)	(0.006)	(0.006)
Has penalty for failure to provide accommodation$_{s,t}$	—	—	–0.012	–0.012	–0.012	—	—	–0.011	–0.010	–0.012
			(0.010)	(0.010)	(0.010)			(0.009)	(0.009)	(0.009)
Medical benefits as % of WC benefits paid$_{s,t-1}$	—	—	—	—	0.00035**	—	—	—	—	0.00033**
					(0.00017)					(0.00017)
Number of observations	704	704	704	704	704	720	720	720	720	720
R^2	0.920	0.922	0.922	0.922	0.923	0.920	0.922	0.922	0.922	0.923
p-value from F-test of joint significance:										
State WC insurance market features		0.0027	0.0024	0.0041	0.0029		0.0051	0.0039	0.0063	0.0050
State return-to-work policies			0.1609	0.1252	0.1298			0.1127	0.0885	0.0750
Percentage points of rise in accommodation explained by variables above:	0.0150	0.0237	0.0230	0.0202	0.0230	0.0109	0.0190	0.0185	0.0147	0.0180
As a % of total rise in accommodation:	14.4%	22.8%	22.1%	19.4%	22.1%	10.5%	18.3%	17.8%	14.1%	17.3%

Source: State-Year Evidence from the BLS Survey of Occupational Injuries and Illnesses, 1992–2009.

Notes: Each regression also includes controls for the state unemployment rate and the share of workers in the state who are female, black, Hispanic (or other race/ethnicity), married, have a high school degree or attended at least some college (the left-out category is less than high school), are union members, work in each 1-digit industry (mining and construction; transportation, communication, and public utilities; manufacturing; wholesale, retail; finance, insurance, and real estate; the omitted category is services); are employed in each 1-digit occupation (managerial/professional; support; production worker; laborer; the omitted category is service worker); and are employed in establishments having between 25 and 499 employees, and 500 or more employees (the omitted category is establishments with between 1 and 24 employees); and state and year fixed effects. Percentage of WC benefits composed of medical benefits ranges from 0 to 100.

The two panels of Table 3 present results for our two different measures of employer WC costs in the prior year, derived from restricted-use ECEC data: employer cost per nonfatal workplace injury and employer cost per hour worked. An employer deciding whether or not to accommodate injured workers on a case-by-case basis is likely to consider the expected cost of a claim as the relevant measure of costs. On the other hand, if employers make accommodation decisions by setting overall policies or creating return-to-work programs, employer costs per hour (which rise and fall with the injury rate) might be more relevant. We expect to find a positive relationship between either measure of employer costs and the rate of workplace accommodation.

Regardless of the measure of employer WC costs we employ, our results indicate a positive and statistically significant relationship between employer costs for WC and the share of injuries that are accommodated; however, the effect is small. Holding all else constant, we find that a doubling of employer cost per injury leads to only a 0.55 percentage-point increase in the share of injured workers that are accommodated by their employers (column 1).[27] Relative to a mean rate of accommodation of 17%, this represents an increase in the rate of accommodation of approximately 3%. The estimated impact of an increase in employer WC cost per hour (column 6) is similar in magnitude. It suggests that a doubling of employer WC cost per hour (relative to the mean of $0.37) would lead to just a 0.56 percentage-point increase in accommodation. That is, while higher employer WC costs do appear to increase the likelihood that an injured worker will be accommodated, the size of this effect is economically small.

We also note the estimated impacts of the legislated WC parameters: the coefficient estimate on the maximum benefit level is positive but only marginally significant, while the estimated effect of the length of the waiting period is not statistically different from zero. This contrasts with results in Waehrer and Miller (2003), which studied a cross-section of injuries in 1993 and found a positive impact of benefit levels and a negative impact of the waiting period.

In columns (2) and (3) we add features of WC insurance markets that are likely to impact accommodation and indicators for policies that explicitly incentivize employers to accommodate injured workers on the job. Our results demonstrate a positive and statistically significant relationship between the share of benefits paid under deductible or self-insuring arrangements and the share of injuries accommodated. As predicted, holding employer WC costs constant, a higher average degree of experience rating in WC is associated with increased likelihood that injured workers are accommodated on the job. Similarly, we find increased accommodation in states that have adopted managed care for WC, suggesting that changes associated with managed care (e.g., case management and monitoring,

[27]Because the independent variable is log-transformed, the estimated coefficient of 0.008 implies a 200% increase in employer costs per injury (or a 0.69 increase in ln (*Cost per injury*)) yields a 0.69*0.008*100 = 0.55 percentage-point increase in the share of workers accommodated.

increased employer control over choice of medical provider) significantly raise the probability of workplace accommodation. Finally, in column (3) we document the effects of state WC policies intended to increase accommodation of injured workers. We find an increased rate of accommodation in states that subsidize employer costs of accommodation but no similar increase in states that mandate accommodation or impose financial penalties for failure to accommodate.

In short, we find little evidence that higher employer costs are responsible for the rising share of injured workers receiving accommodation. While the estimates reflect the impact of various factors on the likelihood of accommodation at a point in time, we find that all these features together explain (at most) only approximately two percentage points, or one-fifth, of the 10.4 percentage-point rise in accommodation in this subset of states from 1992 to 2009.[28]

These estimates might understate the impact of employer costs on worker accommodation if our preferred specification (columns 3 and 8) leaves little meaningful variation in our measure of employer costs. With experience-rated WC insurance premiums, employer costs for WC will depend on cash benefit payments, medical benefit payments, and administrative costs. In models that control for cash benefit generosity, then, our measure of employer costs primarily reflects within-state variation in the duration of cash benefit receipt, medical benefit payments, and administrative costs. To shed light on this concern, we first examine whether the estimated effect of employer WC costs on accommodation rises when we remove the control for benefit generosity from the model. As shown in columns (4) and (9), this is not the case; the coefficient estimate on the cost variable is unchanged, and the policy and cost variables continue to explain approximately one-fifth of the rise in accommodation.

A related question is whether the variation in employer costs that remains once benefit generosity is controlled represents variation in WC costs that can be reduced by accommodating injured workers. If within-state variation in medical costs accounts for much of the remaining variation in overall employer costs for WC, we might not expect employer accommodation to be responsive to this measure of employer WC costs because accommodating injured workers does not reduce the cost of medical benefits. In columns (5) and (10), we examine whether the coefficient estimate on employer costs is sensitive to the inclusion of a control for the state-year percentage of total WC benefit payouts that were composed of medical benefits. We find that the estimated impact of employer costs on accommodation is unchanged in magnitude and no less precisely estimated.[29] Thus our conclusion remains that employer WC costs have a significant—but small—positive impact on the

[28]As shown in Figure 1, the rate of accommodation rose by 13.2 percentage points for all SOII states between 1992 and 2009; however, a few SOII states do not have ECEC WC cost data.

[29]For the years 1996–2009, NASI published the percentage of WC benefits composed of medical benefits in the annual publication *Workers' Compensation Benefits, Coverage, and Costs*. For years prior to 1996, we imputed a value for each state based on the national change in the share of benefits composed of medical costs. We note that our conclusions are upheld when we restrict the data to the years for which we have the direct measure, 1996 through 2009.

share of workplace injuries that are accommodated, and they do not account for much of the dramatic increase in accommodation over this period.

Finally, while we have examined those policy and market changes that most directly affect employer accommodation incentives, we should note that state policy reforms occurred during this time period that are not included in our analysis. For example, some states changed the rules concerning the compensability of cases or legal representation, which may have reduced the likelihood that a WC claim will be successful. If these changes were correlated with both firms' WC costs and accommodation decisions, our estimated effect of employer costs on workplace accommodation may be biased. In ancillary regressions, we test whether our results are robust to controlling for other trends in WC during this period, such as a change in the likelihood of a successful WC claim, by including state-specific linear time trends. While state time trends soak up much of the identifying variation in WC policies and market characteristics, confidence intervals on the estimated employer cost coefficient yield upper limits only slightly larger than the coefficient estimates documented in Table 3. That is, we continue to find that higher employer costs explain very little of the run-up in accommodation.[30]

Individual-Level Determinants of Workplace Accommodation

We turn our focus to individual-level determinants of workplace accommodation in Table 4. An advantage of the individual-level analysis is that it permits us to directly examine how individual-level WC generosity—as well as case-specific characteristics of the employer, injury, and worker—impacts the probability of accommodation while *controlling* for employer WC costs, insurance market characteristics, and the presence of policies explicitly intended to impact return to work. Recall that in a model that perfectly controls for employer WC costs, we would expect an individual worker's WC benefit entitlement to have a *negative* impact on the likelihood of accommodation: Other things being equal, a worker eligible for higher WC benefits is more likely to refuse an offer of accommodation and stay out of work receiving cash benefits. For the NLSY79, our estimated coefficient on the individual benefit entitlement is indeed negative and statistically significant. The corresponding estimate for the HRS is positive but not statistically different from zero. Recall that in the HRS analysis, our measure of employer WC costs varies at the level of the census *region* rather than at the state level. Thus the estimated coefficient on benefits in the HRS sample may incorporate employer incentives to a greater degree, offsetting the negative effect of benefit generosity on the probability that a worker accepts accommodation.[31]

Our results indicate that job and employer characteristics are important determinants of the likelihood that an injured worker will be accommodated on the job. For example, results in columns (1) and (2) show that an

[30]Results available upon request.

[31]When we extend the definition of accommodation to include all types of accommodation in the HRS, results are qualitatively similar. The estimated coefficient on WC employer costs fails to achieve statistical significance, while the benefit coefficient is somewhat larger in magnitude.

Table 4. The Influence of Worker, Injury, and Employer Characteristics on Workplace Accommodation

		NLSY79 (1988-2000)		*HRS (1992-2008)*	
WC variables	Ln(employer WC costs per injury)$_{s,t-1}$	0.056	—	0.140	—
		(0.091)		(0.201)	
	Employer WC costs per hour$_{s,t-1}$	—	0.240	—	0.184
			(0.248)		(0.514)
	Ln(expected weekly benefit)	–0.161***	–0.165***	0.089	0.084
		(0.059)	(0.056)	(0.099)	(0.080)
	Ln(pre-injury weekly wage)	0.072	0.093**	–0.074	–0.060
		(0.046)	(0.041)	(0.075)	(0.067)
	State waiting period for cash benefits	–0.103***	–0.095***	–0.062**	–0.074***
		(0.038)	(0.035)	(0.024)	(0.021)
Employer traits	Employer size 25-499	0.113***	0.079**	0.053	0.057
		(0.035)	(0.030)	(0.060)	(0.053)
	Employer size 500+	0.182***	0.153***	0.055	0.036
		(0.042)	(0.041)	(0.085)	(0.078)
	Mining or construction industry	0.023	0.066	0.098	0.056
		(0.050)	(0.045)	(0.100)	(0.083)
	Manufacturing industry	0.095*	0.107***	0.095	0.068
		(0.055)	(0.038)	(0.058)	(0.052)
	Transportation industry	0.017	0.013	0.029	–0.009
		(0.070)	(0.051)	(0.092)	(0.073)
	Wholesale industry	–0.110**	–0.028	0.244*	0.222*
		(0.054)	(0.052)	(0.142)	(0.127)
	Retail industry	0.166***	0.108***	0.0088	0.066
		(0.042)	(0.033)	(0.055)	(0.052)
	Finance, insurance, real estate industry	–0.060	–0.073	0.035	0.023
		(0.099)	(0.081)	(0.085)	(0.077)
	Services industry	—	—	—	—
Selected worker traits	Union member	0.089*	0.041	–0.066	–0.069
		(0.051)	(0.034)	(0.068)	(0.064)
	Age 30-39	–0.079*	–0.041	—	—
		(0.041)	(0.032)		
	Age 40-49	–0.202*	–0.213**	—	—
		(0.104)	(0.088)		
	Age 50-59	—	—	–0.215*	–0.290***
				(0.119)	(0.104)
	Age 60+	—	—	–0.224*	–0.319***
				(0.127)	(0.114)
	High school degree	0.069**	0.057	0.045	0.038
		(0.026)	(0.035)	(0.039)	(0.037)
	Some college or more	0.042	0.032	0.049	0.050
		(0.037)	(0.048)	(0.060)	(0.058)
Selected injury types	Musculoskeletal injury	0.197***	0.187***	0.073*	0.048
		(0.070)	(0.045)	(0.039)	(0.038)
	Sprain	0.136***	0.130***	—	—
		(0.050)	(0.034)		
	Fracture/dislocation	0.246***	0.217***	—	—
		(0.064)	(0.042)		
	Laceration	–0.046	–0.071**	—	—
		(0.049)	(0.034)		
Number of Observations		1,009	1,617	533	620
R^2		0.178	0.135	0.181	0.177

Sources: Individual-Level Evidence from the NLSY79 and the HRS.
Notes: Results are from linear probability models in which the dependent variable is equal to 1 if the worker reports having been accommodated by his employer at the time of injury. Regressions also include controls for state-year fraction of WC benefits composed of medical benefits, state-year unemployment rate, state-year characteristics of WC markets, state-year WC return-to-work policies, and additional worker characteristics, including occupation dummies, (log) hours worked, tenure with firm, gender, marital status, number of children, and race/ethnicity. The estimated coefficients on these variables are generally not statistically different from zero. In the HRS, employer WC costs vary at the census region level.

injured worker employed by a large manufacturing company that has 25 or more workers would be between 20.8 and 27.7 percentage points more likely to be accommodated than an injured worker employed by a small financial services firm. Overall, we find that the likelihood of accommodation rises with employer size and is higher for workers employed in the manufacturing or retail industries.[32]

Similarly, we find that injury type significantly impacts the probability of accommodation. Individuals with musculoskeletal injuries (e.g., intervertebral disc disorders or other joint disorders), sprains, fractures, or dislocations are significantly more likely to receive accommodation, while those suffering from lacerations are less likely to be accommodated. The corresponding result for the HRS is smaller and imprecise but is consistent with a higher likelihood of accommodation for musculoskeletal injuries.

We document a smaller role for worker characteristics. We find strong evidence that the likelihood of accommodation decreases with age, consistent with the lower rate of accommodation among injured workers in the HRS (15%) compared with those in the NLSY79 (37%). But other individual traits (e.g., marital status, gender, race/ethnicity, tenure with employer, usual hours worked) do not significantly impact the probability of accommodation. At best, we find weak evidence that union members and workers with a high school degree are somewhat more likely to be accommodated.

In summary, our analysis of data on injured workers in the NLSY79 and HRS provides evidence on which types of employers are more likely to accommodate injured workers and which types of injured workers are systematically more likely to be accommodated. All else being equal, the likelihood of accommodation appears to be higher if the worker is employed by a larger firm, works in the manufacturing or retail industry, and has a musculoskeletal injury or a sprain, fracture, or dislocation. This finding, along with the limited influence of individual characteristics on accommodation, is consistent with most of the instances of accommodation that we observe occurring at larger firms. It may be that these larger firms have formal early return-to-work programs such as the ones described in Seabury et al. (2011) and do not make accommodation decisions based on a worker's individual characteristics. Finally, we do not suspect that changes in individual-level factors (injury type, firm size, or industry) contributed meaningfully to the rise in accommodation of injured workers between 1987 and 2009.[33]

Conclusions

This article offers new evidence on factors that determine whether injured workers are accommodated on the job, and in doing so it sheds light on possible explanations for the more than 400% increase in workplace accommodation

[32]Firm size data are missing for a large fraction of the HRS sample. The regressions control for missing data, but we are less confident in the coefficient estimates for employer size in the HRS.

[33]In our NLSY and HRS samples, we do not observe an increase in the share of injured workers reporting these injuries, working for large employers, or working in manufacturing or retail.

between 1987 and 2009. Our comprehensive approach examines the roles of employer costs for WC, state WC policies and insurance market features, and individual-level characteristics of injured workers and their cases.

We find that employer costs for WC significantly affect accommodation, but the magnitude of this relationship is very small, with a doubling of employer WC costs (similar to the 205% increase we observe from 1992 to 2009) causing only a 0.55 percentage-point increase in the share of injuries that are accommodated. Thus our results do not support the hypothesis that accommodation rose because employers increasingly accommodated injured workers in an effort to mitigate rising employer WC costs.

Our results indicate that state policymakers seeking to increase accommodation have several effective policy levers at their disposal, including shortening the waiting period for cash benefits, increasing the use of large deductible policies or self-insurance, introducing managed care for WC, and subsidizing employers to offset the costs of accommodating injured workers. Yet the causes of the increase in restricted work and workplace accommodation remain largely unexplained. We find that *together* with changes in employer WC costs, changes in WC market features and state WC policies can explain only one-fifth of the rise in accommodation.

Our findings are informative for the broader literature on workplace injuries and return to work. For instance, that increased use of self-insurance and large deductible policies leads to a higher rate of accommodation is consistent with—and sheds light on the mechanisms behind—evidence that self-insured or experience-rated firms have improved return-to-work outcomes for injured workers (see, e.g., Krueger 1991 and Seabury et al. 2012). Second, that within-state changes in the factors we examine explain so little of the observed increase in restricted work suggests that perhaps accommodation was driven primarily by trends that affected all employers.[34] This would be consistent with the effects of state anti-discrimination laws and the passage of the ADA, documented in Burkhauser et al. (2012). Seabury et al. (2011) also found that many self-insured employers in California adopted return-to-work programs well before California's 2004 reforms incentivized them to do so.

In addition to examining aggregate-level factors that increase accommodation, we provide new evidence on how the likelihood of accommodation is impacted by characteristics of employers, injured workers, and their injury cases. Using NLSY79 and HRS data on injured workers, we find that employer/job and injury characteristics are the most important determinants of whether an injured worker is accommodated on the job. All else being equal, an injured worker is more likely to be accommodated if he is employed by a larger firm or works in the manufacturing or retail industry (consistent with unconditional findings from BLS data on restricted work cases). Workers with musculoskeletal injuries, fractures, dislocations, or sprains/strains are also more likely to be accommodated on the job. The

[34]Indeed, the p-value on the test of joint significance of year fixed effects is < 0.0001.

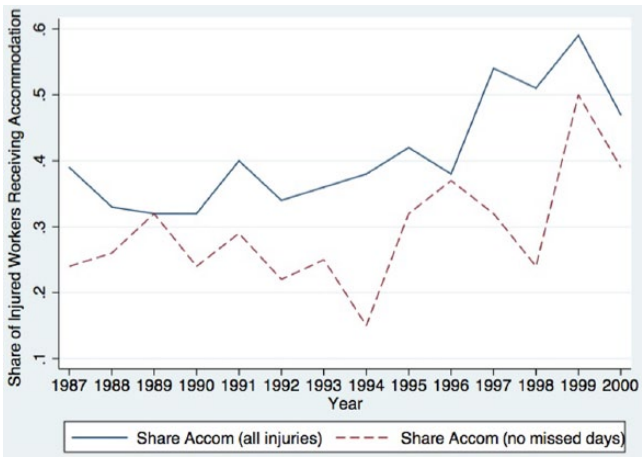
only worker trait that seems to matter is age: the likelihood of accommodation is significantly lower for older workers.

One interpretation of our finding that accommodation is most impacted by employer and injury characteristics may be that large employers put in place accommodation programs at the firm level, by implementing return-to-work programs, rather than weighing the costs and benefits of accommodating each injured worker. Indeed, the factors that have the most explanatory power in our aggregate analysis are changes in experience rating and the introduction of managed care, which would complement the efforts of a large employer implementing a return-to-work program. Individual worker characteristics may matter more for smaller firms, which will be less willing to incur fixed costs associated with an accommodation program and are thus more likely to make accommodation decisions on an individual basis. Given that only a small fraction (35%) of workers in our samples work for small firms, these data sets simply may not be large enough to reveal individual-level traits as important determinants. Future research might explore how small and large employers make decisions about accommodating injured workers.

While our focus has been on employer incentives, whether policies to encourage accommodation should be pursued depends on the extent to which accommodation also benefits workers. It is not clear, however, whether accommodation is likely to improve or harm worker outcomes. Workers who are not accommodated on the job will enjoy a longer recovery period and perhaps may heal more fully. In contrast, workers who are accommodated stay more attached to the labor force and perhaps maintain more human capital. A better understanding of the impact of workplace accommodation on injured workers' post-injury earnings and employment, as well as their probability of re-injury, is warranted.

Appendix

Figure A.1. Share of Workplace Injuries in the NLSY79 Receiving Workplace Accommodation, 1987–2000



Source: Authors' calculations from National Longitudinal Survey of Youth 1979 (NLSY79).

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