Do unions protect injured workers from earnings losses?

Woock, Christopher

18 August 2009

Do Unions Protect Injured Workers from Earnings Losses?[1]

CHRISTOPHER WOOCK
The Conference Board
845 Third Avenue
New York, NY 10022
chris.woock@tcb.org
212-339-0415

August 18, 2009

Abstract: Using the National Longitudinal Survey of Youth 1979 I employ a longitudinal framework to examine the impact of union membership on the earnings losses following a workplace injury, and explore some possible avenues through which unions can mitigate earnings losses. The annual earnings results suggest that those injured workers who were not under union contract the year of injury suffer large and persistent losses in the years following injury. In contrast, union workers who suffer an injury do not suffer significant post-injury earnings losses. Probit estimates suggest that following injury union workers are less likely to change occupations or be fired from their job, but no more likely to be accommodated for their injury.

Keywords:
Union; Workers' Compensation; National Longitudinal Survey of Youth; Workplace Injury; Earnings Losses

JEL Codes:
J3. Wages, Compensation, and Labor Costs
J5. Labor–Management Relations, Trade Unions, and Collective Bargaining
I1. Health

[1] The author would like to thank Jim Ziliak, Chris Clark, and participants at the Eastern Economic Association meetings for comments on an earlier draft. The analysis and views presented are solely the responsibility of the author and do not necessarily represent those of The Conference Board. Data and programs used in this article can be obtained from the author upon request.

Introduction

There were 4.2 million nonfatal workplace injuries and illnesses recorded in 2005, resulting in a rate of approximately 4.6 cases per 100 equivalent fulltime workers (BLS 2005 News Release USDL 06-1816). Moreover, more than 1 in 4 recoded cases required time away from work for recovery (BLS 2005 News Release USDL-06-1982). The costs of addressing these injuries make injured workers one of the most expensive groups in the U.S. Workers' Compensation programs paid out $49.4 billion in 2001, more half of which were paid as cash benefits to replace lost earnings (Williams, Reno, and Burton 2003). These costs are only the beginning, however, as employers incur expenses to comply with OSHA and other safety regulations, accommodate injured/disabled workers, and pay their (rising) Workers' Compensation insurance premiums.

Despite the Workers' Compensation insurance system, preventive measures taken by firms, and accommodations made for injured/disabled workers, those who suffer workplace injuries continue to incur substantial costs. Previous studies have shown that individuals who suffer a workplace injury experience a significant earnings loss, with estimates ranging from 6% to 20% of annualized earnings the year following injury (Boden and Galizzi 2003, Woock 2009). Moreover, these losses are persistent – estimates range from 3% to 30% five years after injury. As a result, injured workers not only suffer substantial earnings losses (which WC is designed to partially replace), but they are unable to return to their previous earnings path. These losses in potential earnings are not captured by states' WC programs, and exacerbate the difficulties faced by injured workers.

Unions present one alternative avenue through which an injured worker may be (at least partially) insulated from the lost potential future earnings that results from a flatter post-injury earnings growth profile. Previous studies have shown unions to play other important roles for injured workers. The decision to apply for WC, and the subsequent work required of the application process, can be daunting. Recent empirical evidence suggests unions provide workers with the information about WC and assistance in completing the application process (Hirsch, MacPherson, and DuMond 1997, Laksawalla, Reville, and Seabury 2007, and Woock 2008).

The impact of unions on the duration of the injury, however, is mixed. Some evidence suggests union members who suffer a workplace injury have shorter injury durations (Campolieti 2005), attributed to the union's ability to provide job protection or negotiate accommodations for disabled workers. Others, however, have found that union members who suffer a workplace injury have longer durations away from work (Ben-Ner and Park 2003, Johnson and Ondrich 1990). Unions may promote longer spells away from work if they can provide additional disability benefits (Johnson and Ondrich 1990). They may also indirectly increase the time away from work through improved safety – which it is argued results in fewer but more severe injuries (Ben-Ner and Park 2003).

What role could unions play in the earnings losses for injured workers in the years following injury?

Today, about 97% of workers are covered by either their state's WC program, or by one of two Federal WC programs (Meyer 2002). Eligibility begins immediately with employment; unlike

unemployment insurance laws there is no work history requirement. By law the employer is liable to the employee for losses associated with a workplace injury, and is (in most states) required to purchase insurance to cover this liability (Biddle 2001). The injured employee is responsible for notifying their employer, filing the claim with the appropriate agency (the employer, the employer's insurance carrier, or state workers' compensation board), and submitting to examination by an appropriate physician (some states allow the employee to choose their physician, while others require the employee to choose from an employers' or state approved list). The process varies by state, and can be quite complex. For example, in Kentucky the claims are handled by the employer and the employer's insurance carrier. Only when a dispute arises does the Kentucky Department of Workers' Claims become involved (Kentucky Department of Workers' Claims 2008). By contrast, in Ohio most employees report their injury to the Ohio Bureau of Workers' Compensation. The Ohio BWC provides the employee with the appropriate claims forms, renders a decision on the claim, and if accepted pays benefits to the employee (Ohio Bureau of Workers' Compensation 2008). In both states, it is the injured employee's responsibility to obtain the proper medical care, and have that care appropriately documented.

Unions play several important roles in the case of a workplace injury. First, unions provide a platform for employees to voice their concerns to the employer under anonymous cover of the union representative. Without unions, workers may be less likely to request non-pecuniary benefits, such as improved workplace safety or accommodations for injured workers, for fear of retaliation. Add to this the ability for any individual worker to free ride off others' requests, and these benefits become underprovided. The union provides the collective voice for workers to

better communicate with the employer (Budd 2007, p.163). In the particular case of the injured worker, negotiated benefits could include supplemental injury/disability insurance or long term disability insurance; they could also include wage benefits such as a higher pre-injury wage, or guaranteed regular wage increases for injured workers. These increased benefits may result in larger wage losses following injury (in the case of increased benefits), or smaller wage losses following injury (in the case of guaranteed regular pay raises).

Second, as Budd (2007) notes, "labor unions can facilitate workers' knowledge and use of existing benefits." Indeed, a recent study by Kramer (2008) shows that individuals who are members of a union are more likely to be aware of their parental leave benefits provided under the Family and Medical Leave Act, while Gustman and Steinmeier (2005) found union employees have greater knowledge of their social security and pension benefits. The implications for injured workers are straightforward: Unions can ease the burdens of obtaining WC benefits both by providing information on how to navigate the application process, and by providing support in the event of a claim challenge. By facilitating workers to apply for injury insurance, unions may prolong the time away from paid work, increasing the earnings losses. On the other hand, unions can facilitate the return to work, by informing workers of available employer provided accommodations for injured/disabled employees.

Estimating the earnings losses following injury

The empirical framework used in this analysis follows the estimation approach developed by Jacobson, LaLonde, and Sullivan (1993). Used originally to estimate the impact of a job displacement, their approach is to generalize the difference-in-differences approach that would

simply compare the differences in earnings before and after a job displacement for injured and uninjured workers. Jacobson, LaLonde, and Sullivan (1993) used a series of dummy variables indicating the time relative to injury, which allowed them to present a longitudinal comparison of the earnings losses in the time leading up to and following displacement.

Their model has been adopted for the case of the workplace injury, where a set of dummy variables Ikit are created which identify the time period k relative to the period in which the injury occurred, k = 0. The k superscript then identifies the number of years since the injury occurred, with k = -6, …,-1 representing the years prior to injury. For example, if you experience an injury in 1994, then the variable $I_{-1,I,1993}$ would equal one, indicating that your information in year 1993 relates to one year prior to injury. This method assumes that, within the given time horizon (in this study 1987-1999) there is no difference between an injury in one year (say 1990) and another year (say 1997), all else equal.

The simple difference between pre-injury and post-injury earnings does not fully capture the welfare loss due to injury. The worker's earnings profile in the absence of injury is needed in order to look at the losses incurred in the years following injury. In the absence of this counterfactual a comparison group is used to approximate what the worker's earnings would have been had the injury not occurred. For the uninjured worker, I^k_{it} equals zero for all k, i, and t.

Controlling for individual specific effects, α_i, calendar year effects, γt, and observed worker and firm characteristics, $X_{it}\beta$, the model of annual earnings, y_{it} is:

$$y_{it} = \alpha_i + \gamma t + X_{it}\beta + \sum_{k=-6}^{6} I_{it}^{k}\eta_k + \sum_{k=-6}^{6} U_i I_{it}^{k}\rho_k + e_{it} \quad (1)$$

The variable U_i is an indicator variable equal to one if the worker was in a union in the year of injury. The control vector, X_{it}, includes age, age squared, region of residence, marital status, a union dummy, a blue collar occupation dummy, and a set of major industry dummies. The γt's capture the overall time patterns of earnings in the economy through a set of calendar year dummies and α_i captures the impact of time invariant differences between workers. The mean zero, constant variance error term in the model is assumed to be uncorrelated across individuals and time. I estimate the time demeaned version of equation 1 by pooled ordinary least squares. The focus in this paper is on the η_k's and ρ_k's, which combine to map out any differences in the earnings history of injured workers relative to similar uninjured workers in the years surrounding the injury.

Using the NLSY to identify workplace injuries and follow workers over time

The National Longitudinal Survey of Youth, 1979 (NLSY79) consists of a sample of all American men and women born in the late 1950's and early 1960's that was nationally representative as of 1979. Following these individuals over time, from their prime schooling years into adulthood and their prime working years, the NLSY79 included a set of questions around workplace injuries. These questions, which were asked beginning with the 1988 survey (and ending with the 2000 survey), included questions about whether the individual suffered a workplace injury or illness, when the injury occurred, and several outcomes, including about days missed, WC application and benefit receipt, and whether the worker changed jobs following

injury. The working sample is restricted to male workers who are employed in the years 1987 to 1999. Individuals who were in the military, farmers, or self employed at any time between 1987 and 2000 were excluded, due to concerns with the comparability of their earnings during those years.

Thirteen percent of the uninjured workers were members of a union, whereas 20% of the injured sample are union members. For the comparison group average annual earnings, adjusted to 2002 dollars using the Current Price Index, are almost $35,000. The injured men who are union members in the year of injury earn an average of $37,000, while the injured men who were not in a union in the year of injury earn $28,500.

Injured workers are more heavily located within the blue collar occupations. Those who were in a union at the time of injury are more likely employed in the manufacturing or transportation industries; while nonunion injured men are more likely employed in the trade, business services or professional services industries. Injured workers in a union also have nearly two more years of tenure, on average, compared to the injured workers who were not covered by a union.

Union workers experience smaller earnings losses following injury

Equation (1) is first estimated without the summation containing the union identifier U_{it}, to provide baseline earnings losses estimates for the injured workers who receive WC benefits. Prior to injury, the injured workers are earning slightly less than the uninjured workers, although the gaps are neither individually nor jointly significant (Figure 1 plots the estimates for the η_k's). Beginning in the year of injury, however, the injured workers are earning $2100 less than the

uninjured workers (about 7% of the uninjured workers' average annual earnings over this period).

These relative losses increase in the years following injury, exceeding $3,600 by the fifth year after injury. The post-injury losses are both individually and jointly significant. On average, in the six years following injury the injured workers earn about $2,700 less per year, or just over $16,000 during that timespan. Moreover, the average post-injury gap is significantly larger than the average pre-injury gap – these injured workers suffer large and persistent losses in relative earnings.

Including the U^j_{it} in equation (1) results in two parameter estimates for each year relative to injury – one for injured workers who were in a union at the time of injury and another for those injured workers who were not in a union at the time of injury (Figure 2). Prior to injury those injured workers who were in unions at the time of injury were earning less than the uninjured, although the gaps were neither individually nor jointly significant. Moreover, the pre-injury gaps between the union injured workers and the uninjured were not significantly different from the pre-injury gaps between the non-union injured and the uninjured.

In the years following injury the injured men who were not in a union at the time of injury suffer large and significant earnings losses. In the first year after injury, annual earnings for the non-union injured men are $2,800 less than the uninjured workers. These gaps increase to as much as $4,200 in the fifth year after injury, before showing some modest signs of recovery (the loss in the sixth year after injury is smaller, but not statistically significantly different from the fifth year

after injury). On average, the non-union injured men earn about $3,200 less than the uninjured men following injury.

Like the non-union injured workers, earnings for those in a union are not significantly different from the uninjured men prior to injury. Following injury, their earnings are reasonably unchanged. Average post-injury losses are a mere $193, and the post injury gaps are neither individually nor jointly significant. Compared to the non-union injured men, those covered by a union show no signs of significant earnings losses. The post injury gaps for union injured workers are individually and jointly significantly smaller than the gaps for the non-union injured men.

Examining the avenues through which unions could mitigate earnings losses

The set of workplace injury questions in the NLSY79 provides an opportunity to explore several possible avenues through which union membership could help mitigate the earnings losses following injury. Four possible avenues are explored here: whether the employee changed occupations, quit his job, was fired from his job, or was assigned new tasks to accommodate any limitations following injury. In the NLSY79 each of these possibilities is addressed in the context of the workplace injury. For example, the NLSY79 asks, "xxx."

Restricting the sample to injured workers, the probability that the injured worker changed occupations, quit his job, was fired, or was assigned new tasks is estimated using the probit model:

$$Pr(Y) = \Phi(X\beta + U\alpha) \qquad (2)$$

Where Y = one of the four possible avenues, X is a vector of control variables, and U is a dummy variable indicating whether the individual was a union member at the time of injury.

The results from estimating equation (2) suggest that each of these avenues may provide means for unions to mitigate earnings losses for injured workers (Table 2). Union workers who suffered an injury were more likely to be assigned new tasks to accommodate their injury, and less likely to quit their job due to injury, although in both these cases the results are not statistically significant. The marginal effect is small, but the probability of being fired is significantly lower for union workers who suffer a workplace injury. Finally, injured workers in a union are significantly less likely to change occupations as a result of their injury.

Conclusion

Unions, although declining in the U.S., play an important role for injured workers. Previous studies have shown that unions facilitate the application for Workers' Compensation benefits, and that union membership influences the time taken away from work for recovery. This paper addressed the influence unions have on the earnings losses suffered by injured workers in the years after injury, and several avenues through which unions can protect injured workers. Studies ignoring the union distinction have found injured workers suffer large and persistent losses relative to uninjured workers. Here it is shown that injured union workers do not suffer significant earnings losses relative to the uninjured workers. In contrast, the nonunion injured workers suffer significant, persistent losses in the years following injury.

Exploring a limited number of avenues for unions to assist injured workers supports the idea that unions protect injured workers from undesirable outcomes. Although the results were not statistically significant in all cases, injured union workers were more likely to receive work accommodations, and less likely to quit, be fired, or change occupations due to injury.

References

Ben-Ner, Avner, and Yong-Seung Park. 2003. "Time Away from Work After Injury: Unions and the Duration of Non-Work Spells in the Workers' Compensation Insurance System," *Economic and Industrial Democracy*, Vol. 24, No. 3 (August).

Biddle, Jeff, 2001, "Do High Claim-Denial Rates Discourage Claiming? Evidence from Workers Compensation Insurance," *Journal of Risk and Insurance*, Vol. 68, No. 4 (December), pp. 631-658.

Boden, Leslie I., and Monica Galizzi, 2003. "Income Losses of Women and Men Injured at Work," *Journal of Human Resources,* Vol. 38, No. 3 (Summer), pp. 722-757.

Budd, John W. 2007. "The Effect of Unions on Employee Benefits and Non-Wage Compensation: Monopoly Power, Collective Voice, and Facilitation," in *What Do Unions Do? A Twenty-Year Perspective*, James T. Bennett and Bruce E. Kaufman, eds., pp. 160-191. New Brunswick, New Jersey: Transaction Publishers.

Bureau of Labor Statistics, 2005. "OS NR 10/19/2006 News Release: Workplace Injuries and Illnesses in 2005," Department of Labor, USDL 06-1816.

Bureau of Labor Statistics, 2007. "OS NR 11/1/2007 Case and Demo News Release: Nonfatal Occupational Injuries And Illnesses Requiring Days Away From Work, 2005," Department of Labor, USDL 06-1982.

Campolieti, Michele. 2005. "Unions and the Duration of Workers' Compensation Claims," *Industrial Relations*, Vol. 44, No. 4 (October), pp. 625-653.

Freeman, Richard B., and James L. Medoff. 1984. *What Do Unions Do?* New York: Basic Books.

Hirsch, Barry T., David A. MacPherson, and J. Michael DuMond. 1997. "Workers' Compensation Recipiency in Union and Nonunion Workplaces," *Industrial and Labor Relations Review*, Vol. 50, No. 2 (January), pp. 213-236.

Jacobson, Louis S., Robert J. LaLonde, and Daniel G. Sullivan, 1993. "Earnings Losses of Displaced Workers," *American Economic Review*, Vol. 83, No. 4 (September), pp. 685-709.

Johnson, William G., and Jan Ondrich. 1990. "The Duration of Post-Injury Absences from Work," *The Review of Economics and Statistics*, Vol. 72, No. 4 (November), pp. 578-586.

Lackdawalla Darius N., Robert T. Reville, and Seth A. Seabury. 2007. "How Does Health Insurance Affect Workers' Compensation Filing?" *Economic Inquiry*, Vol. 45, No. 2 (April), pp. 286-303.

Williams, Cecili Thompson, Virginia P. Reno, and John F. Burton Jr. 2003. *Workers' Compensation: Benefits, Coverage, and Costs, 2001*, Washington, DC: National Academy of Social Insurance.

Woock, Christopher. 2009. "The Earnings Losses of Injured Men: Accounting for Injuries Outside the Workers' Compensation System," forthcoming, *Industrial Relations*, Vol. 48, No. 4 (October).

Woock, Christopher. 2009. "Unions and the decision to apply for and the receipt of workers' compensation benefits" MPRA Paper, 14689, University Library of Munich, Germany.

Table 1: Summary Statistics

	Comparison Group		Injured Group			
			Union Members		Non-Union	
	mean	standard deviation	mean	standard deviation	mean	standard deviation
Annual Earnings	34,943.45	24,596.76	36,991.25	18,643.64	28,492.14	18,378.91
Annual Hours	2,051.10	827.19	2,073.44	610.77	2,065.81	804.66
Hourly Earnings	16.31	55.20	17.41	11.10	13.17	11.50
Median days of work missed			5		1	
Changed employer as a result of the injury			0.132	0.338	0.178	0.382
Age	31.64	4.24	31.32	3.62	30.70	3.73
Years of Schooling	13.50	2.68	12.76	1.93	12.46	2.19
Less than HS	0.117	0.322	0.096	0.294	0.175	0.380
HS only	0.392	0.488	0.526	0.500	0.519	0.500
Some College	0.491	0.500	0.379	0.485	0.307	0.461
College Graduate	0.284	0.451	0.114	0.317	0.123	0.328
White	0.622	0.485	0.682	0.466	0.702	0.457
Married	0.564	0.496	0.647	0.478	0.577	0.494
Ever report a Health Limitation	0.226	0.418	0.305	0.460	0.365	0.482
Blue Collar Occup.	0.388	0.487	0.704	0.457	0.567	0.496
Union Member	0.133	0.340	0.699	0.459	0.081	0.272
Years of Tenure	4.321	4.416	5.653	4.610	3.771	4.045
Government Employee	0.123	0.329	0.216	0.411	0.091	0.288
Industry						
Mining	0.008	0.092	0.007	0.085	0.018	0.132
Construction	0.086	0.281	0.133	0.339	0.145	0.352
Manufacturing	0.254	0.435	0.317	0.466	0.272	0.445
Transportation	0.095	0.293	0.157	0.364	0.090	0.286
Wholesale & Retail Trade	0.183	0.387	0.088	0.284	0.215	0.411
F.I.R.E.	0.055	0.228	0.005	0.069	0.027	0.163
Business Services	0.088	0.283	0.034	0.182	0.072	0.258
Personal Services	0.020	0.140	0.014	0.117	0.021	0.144
Entertainment	0.014	0.115	0.010	0.101	0.013	0.112
Professional	0.129	0.335	0.120	0.325	0.077	0.266
Public Administration	0.069	0.253	0.115	0.319	0.052	0.221
NT	17305		1665		7293	

Table 2: Impact of unions on selected responses to injury

	Change occupation	Quit Job	Fired from Job	Assigned New Tasks
union member	-0.280 [-0.027]	-0.266 [-0.012]	-0.428 [-0.009]	0.086 [0.034]
	(0.158)*	(0.200)	(0.236)*	(0.092)

Notes: Table presents coefficients from equation 2 with standard errors in parentheses and marginal effects in brackets. Estimated equation includes controls for years, industry, occupation, tenure, firm size, age, age squared, education, race, marital status, earnings, nonlabor income, region, health limitation, days of work missed due to injury, and reciept of workers' compensation benefits. Full results available from author upon request.
*** indicates significance at the 0.01 level; ** indicates significance at the 0.05 level; * indicates significance at the 0.10 level.

Figure 1: Relative Annual Earnings Losses for Injured Workers

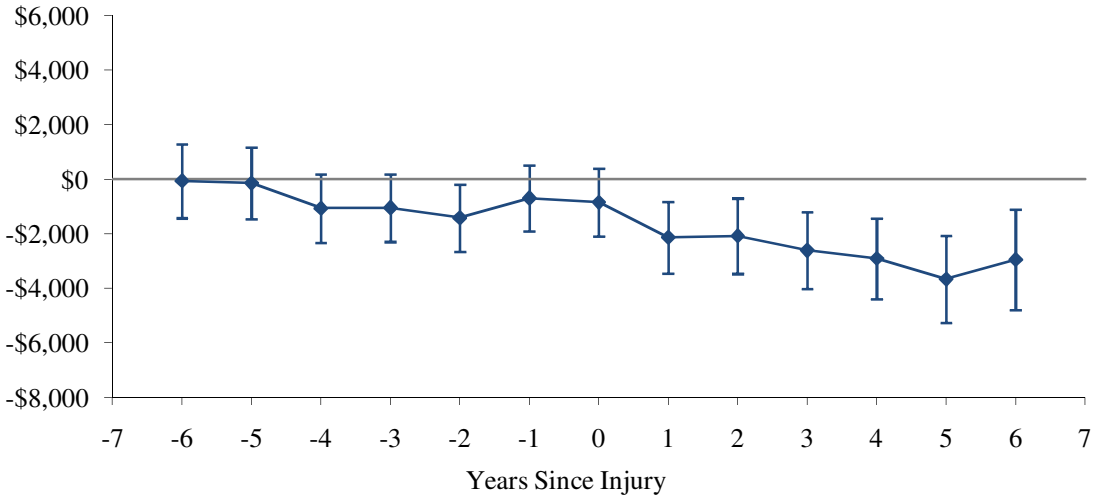
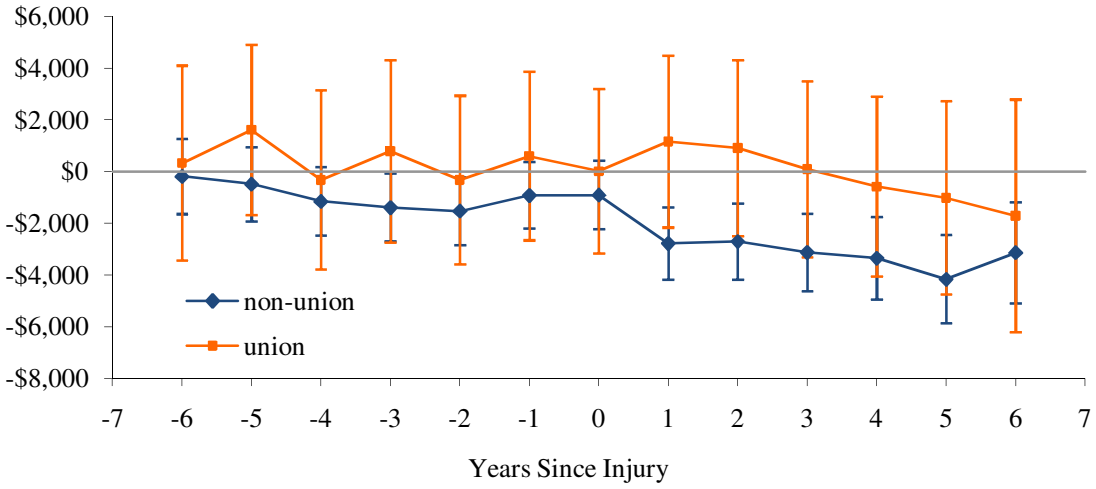


Figure 2: Relative Annual Earnings Losses for Injured Workers, by Union Status at Time of Injury



Appendix

Table A1: Earnings Losses for Injured Workers by Union Status

	Nonunion	Union
6 yrs before	-190.47	327.91
	(743.55)	(1922.55)
5 yrs before	-485.60	1611.66
	(732.49)	(1677.69)
4 yrs before	-1156.12*	-322.27
	(676.79)	(1766.57)
3 yrs before	-1394.00**	784.39
	(669.50)	(1800.78)
2 yrs before	-1530.54**	-323.30
	(670.30)	(1661.45)
1 yr before	-915.81	597.29
	(658.10)	(1661.89)
year of injury	-910.32	11.08
	(674.86)	(1626.04)
1 yr after	-2784.02***	1158.28
	(713.51)	(1695.69)
2 yrs after	-2708.07***	909.01
	(752.91)	(1738.27)
3 yrs after	-3130.28***	94.34
	(768.30)	(1736.35)
4 yrs after	-3353.62***	-582.42
	(810.53)	(1769.27)
5 yrs after	-4166.27***	-1021.46
	(871.89)	(1905.73)
6 yrs after	-3137.12***	-1715.21
	(996.26)	(2295.74)
Wald Tests (p-values only)		
Tests of Joint Significance:		
pre-injury gaps	0.233	0.807
post-injury gaps	0.000	0.320
pre-injury gap – post-injury gap	0.000	0.415

Notes: Table presents estimates of the φ's from Equation (1), with standard errors in parentheses. Full results available from author upon request.

*** indicates significance at the 0.01 level; ** indicates significance at the 0.05 level; * indicates significance at the 0.10 level.