

## **The Impact of Wrongful Discharge Laws on Wages: 1979-2014**

1 September 2019

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**Abstract:** While economic theory offers predictions about the effect of employment protection on wages, the empirical literature has focused primarily on the effects on employment. This paper estimates the effect of wrongful discharge laws, a court-based form of employment protection, on real wages. Using difference in differences regression, unconditional quantile regression, and probit models on individual-level cross-sectional and panel data, I find that one wrongful discharge law in particular, the good faith doctrine, increases average real wages by 2.34 percent for all private-sector workers, 3.33 percent for private manufacturing workers, 1.96 percent for private nonmanufacturing workers, 3.25 percent for women, 2.37 percent for men, 3.93 percent for nonwhite workers, and 2.81 percent for white workers in the private-sector over all of the years these policies are in place. My results show that wrongful discharge laws, whether by increasing workers' bargaining power or by increasing their labor productivity, boost workers' wages, particularly for low wage workers, women, and workers in the manufacturing and logistics industries, where unions have been traditionally strong and workers occupy key nodes in production and supply chains.

**Keywords:** wages, unconditional quantile regression, wrongful discharge laws, employment protection

**Acknowledgements:** I am grateful for the guidance of Professors Fidan Kurtulus, Gerald Friedman, and Eve Weinbaum as well as for the numerous helpful comments of professors and fellow graduate students at the University of Massachusetts Amherst. I am also grateful to the Department of Labor for granting access in my dissertation research to the confidential NLSY1979 geocode files.

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## **I. Introduction**

Employers' ability to fire workers is a major focus in the literature on different patterns of employment. Wrongful discharge laws, a form of court-based employment protection in the United States, are a convenient entry point into this analysis. Since state adoption of wrongful discharge laws is an idiosyncratic function of the decisions of state supreme court and intermediate appellate court justices, as well as of the cases that emerge and rise to the docket of these courts, I have numerous natural experiments over the 1980s and 1990s to investigate the effect of wrongful discharge laws on workers' wages. Theoretical literature argues that employment protection policies like wrongful discharge laws raise employers' firing costs, leading to an inward shift in labor demand that pulls down both workers' wages and employment levels. The literature also suggests that employment protection policies may strengthen workers' bargaining power, leading to an inward shift in labor supply putting upwards pressure on wages and further downward pressure on employment.

Three primary wrongful-discharge doctrines arose in recent decades: the implied contract doctrine, the public policy doctrine, and the covenant of good faith and fair dealing. The implied contract doctrine states that language in employee manuals and oral promises made by supervisors detailing a specific duration of employment or standard procedures for dismissal can override the default of employment-at-will. The public policy doctrine is an exception to the at-will rule that arises when an employee is discharged after invoking a publicly protected right or obligation, such as filing a worker's compensation claim or attending jury duty, or refusing an employer's request to break the law. The good faith doctrine, if followed to the letter, requires that every discharge decision be justified by inserting a provision prohibiting bad faith dismissal into every employment contract. While the implied contract and public policy doctrines were

adopted by 43 states, the good faith doctrine was adopted by only 12 states. The earliest wrongful discharge law adoption occurred in 1959 and the latest in 1994. Few wrongful discharge laws have been repealed, so that, as shown geographically by Maps 1 through 3, as of 2014, 42 states recognized the implied contract doctrine, 43 states recognized the public policy doctrine, and 11 states recognized the good faith doctrine<sup>1</sup>. Only Florida, Georgia, Louisiana, and Rhode Island never adopted any wrongful discharge doctrines.

My paper is the first to investigate the impact of wrongful discharge laws on wages by gender, race, detailed industrial categories, and upon the quartiles of the marginal distribution of wages. This paper uses state court decisions from 1959 through 2014 to compile original legal data on wrongful discharge doctrine adoptions, repeals, and restrictions. I employ the method of Morris (1995) by coding the first state supreme or state intermediate appellate court ruling that demonstrates a clear acceptance of each of the three wrongful discharge doctrines.<sup>2</sup> As illustrated by Figure 1, wrongful discharge cases, falling under civil law, first emerge at the level of trial courts. Regardless of the outcome, either party may appeal the decision to the intermediate appellate court. Either party may appeal the ruling of the intermediate appellate

<sup>1</sup> See Table 1 for a full summary of wrongful discharge law adoptions, repeals, and restrictions, which I created through an original analysis of case law and secondary legal literature. I also added information on weak and strong state court rulings regarding handbook disclaimers, an important restriction to the implied contract doctrine, which are the focus of a companion paper, Hoyt (2018a), currently in progress.

<sup>2</sup> While I first drew solely upon the legal adoption data for 1959 through 1999 constructed by Autor et al. (2006) that are publicly accessible on David Autor's MIT faculty website, <http://economics.mit.edu/faculty/dautor/data/autdonschw06>, and that I first accessed on November 14, 2012, I reassessed and updated the legal adoptions dataset to 2014 based on my own analysis of the case law. My analysis conforms to Morris (1995), but differs from Autor et al. (2006), in counting the implied contract doctrine as being adopted without subsequent repeal in Arizona from 1983 onwards. My coding differs from Autor et al. (2006) in not coding Louisiana as having adopted the good faith doctrine in 1998. Autor et al. (2006) appear to have misclassified *Barbe v. A.A. Harmon & Co.* (1998) as an adoption of a good faith exception to employment-at-will when the text of the case decision shows that it only created a good faith covenant in the provision of employee bonuses. Finally, my reading of the case law and secondary literature made clear that the New Hampshire Supreme Court, in its *Centronics v. Genicom* (1989) decision, readopted the good faith doctrine. This finding contradicts Morris (1995) and Autor et al. (2006) as they seem to have both missed this development in their legal coding.

court, sending the case to the state supreme court, whose decision is final and binding for all lower courts in the state. Following Morris, if an appellate court rules in favor of workers' claims of wrongful discharge and neither party appeals this ruling then I code a state as having adopted this policy. If, what is more common, either party appeals an intermediate court ruling such that the issue is ultimately decided by the state supreme court, then this ruling is coded as the first state recognition of the particular wrongful discharge law.

By employing NLSY79 panel data, which follows individual workers over time from 1979 to 2014, I contribute an important robustness check on all previous results using the cross-section CPS-MORG data, since policy change may introduce compositional bias in state employment. Since the NLSY79 follows individuals from their early teenage years through middle-age and since most wrongful discharge laws are passed in the 1980s and 1990s, the NLSY79 data set has a younger profile around policy adoption than the CPS-MORG cross-sectional data, so provides a useful, if somewhat inexact, validity check on the CPS-MORG analysis. I also am the first to incorporate into the analysis of the impact of wrongful discharge laws information on firm size contained within the NSLY79. Firm size is a relevant control variable because larger firms have qualitatively different workplace practices and cultures than smaller firms, often including more regularized and generous human resources policies. Larger firms may also provide a more favorable environment for workers to build group consciousness and workplace organization, as they are less typified by fractured and atomizing work processes. Finally, larger firms also have greater financial and economic resources to insulate profits from rising labor costs (i.e. increased firing costs caused by wrongful discharge laws) by raising output per worker through investment in capital, technology, and workers' skill-level.

Using difference in differences regression on the cross-sectional Current Population Survey Monthly Outgoing Rotation Group (hereafter CPS-MORG) wage data, I find that the good faith doctrine significantly increases average real wages by 2.34 percent for all private-sector workers, 3.33 percent for private-sector manufacturing workers, by 1.96 percent for private-sector nonmanufacturing workers, 2.45 percent for private transportation and warehousing industry workers, 2.32 percent for private-sector health care and social assistance industry workers, 3.25 percent for private-sector women workers, 2.37 percent for private-sector male workers, 3.93 percent for nonwhite private-sector workers, and 2.81 percent for white private-sector workers. Using unconditional quantile regression on the same data, I find that the good faith doctrine significantly increases median real wages of private-sector workers by 2.22 percent, of private-sector manufacturing workers by 3.29 percent, of private transportation and warehousing industry workers by 3.99 percent, and of private-sector male workers by 3.20 percent. I find that the good faith doctrine raises wages across the entire marginal distribution of private-sector women and white workers' wages by between 2 and 3 percent.

Using the National Longitudinal Survey of Youth 1979 (hereafter NLSY79), I find that the good faith doctrine raises private-sector workers' average wages by 8.12 percent, private-sector white workers' wages by 8.99 percent, and private-sector women workers' wages 13.20 percent. Event study results using the CPS-MORG and NLSY79 datasets confirm the causal assumption of parallel trends and time-order for the impact of the good faith doctrine on total private-sector workers' average wages of, respectively, roughly 2 percent and 9 percent. The larger magnitude of impact of results using NLSY79 data compared to those using the CPS-MORG data may reflect the fact that since the NLSY79 sample is composed of individuals who are primarily teenagers and young adults at the time of policy adoption, and have much lower

wages as is often the case for workers just entering the labor market. Wage gains of just a few dollars on a low starting wage pre-policy adoption may appear as much greater percent increases in wages following policy adoption in the NLSY79 analysis than in the CPS-MORG analysis. Even wage gains of the same absolute value would appear as smaller percent increases over the initial wage in the CPS-MORG analysis given that it reflects a nationally representative sample of the working age population at the time of most policy adoptions in the 1980s and 1990s.

Finally, I also find that the good faith doctrine lowers the probability by 5 percent that private-sector women workers have real wages that would bring a family of two (one adult and one child) an income less than or equal to the federal poverty level. I also find that the good faith doctrine lowers the probability by 7 percent that private-sector women workers have real wages that would bring a family of three (one adult and two children) an income less than or equal to 125 percent of the federal poverty level. This evidence that the good faith doctrine lowers the likelihood that women earn wages associated with annual incomes at or near the federal poverty level is particularly relevant given the large and growing share of households headed by single women. For instance, as a recent investigation by Pew (2015) found, 5 percent of all children were born to single female heads of households in 1960 while by 2014 this figure had grown to 40 percent. These families had median annual income of \$24,000 in 2014, while married families with male breadwinners had median annual income of \$84,500. In summary, my results show that wrongful discharge laws boost workers' wages, especially for low wage workers, women, and workers in the manufacturing and logistics industries, where unions have been traditionally strong and workers occupy key nodes in production and supply chains.

## II. Previous Literature

The standard supply-and-demand model of the labor market predicts that employment protection policies will cause a decrease in wages, provided the increase in firing costs is not offset by an increase in marginal productivity of labor. Labor demand shifts inward, so, all else equal, the equilibrium wage will decline. However, as Autor et al. (2006) and Blanchard and Portugal (2001) explain, by increasing workers' bargaining power vis-à-vis employers, employment protection can also allow workers to prevail in bargaining over wage hikes, especially in worksites paying non-competitive efficiency wages. Thus, in effect, labor supply might shift inward. Autor et al. (2006) find no statistically significant effect on wages following state adoption of wrongful discharge laws in the U.S. over the 1980s and 1990s<sup>3</sup>. The authors posit that their finding of reduced employment suggests an inward demand shift, and the lack of a negative wage effect reflects a countervailing upward supply shift driven by workers' rising bargaining power.

Van der Wiel (2010) uses a 1999 reform to Dutch labor law that increased the period of notice required for dismissal for younger and less tenured workers while decreasing that required for older and higher seniority workers, in order to analyze the effect of employment protection on wages. She proposes the standard prediction of falling wages from an inward shift in labor demand. However, she also posits that wages might increase because of rising worker bargaining power, citing Bertola (1990), representing an inward shift of labor supply, or because of rising labor productivity fueled by investment in capital or workers' skills, signifying an outward shift of labor demand.

<sup>3</sup> I replicate Autor et al. (2006)'s methodology and discuss these results in comparison to my main results in the conclusion below.

Van der Wiel performs a difference in differences regression to investigate the impact of policy change on real wages, and finds an increase of between 3% and 5%, with greater increases for low-skilled workers. She also performs a probit model analysis on the impact of policy adoption on the probability a worker enrolls in job training, and finds a roughly 7% significant decline. These results together suggest that, at least in the Dutch context of centralized collective bargaining over wages between organized labor and employer federations, the bargaining power, rather than skill or capital investment, explanation of wage hikes from employment protection seems most plausible.

Leonardi and Pica (2010), investigating a policy providing severance to small firms in Italy, estimate the effect of employment protection on wages for high and low bargaining power demographic groups and find negative effects on wages of younger, less tenured, blue-collar workers. The results in my paper contrast somewhat with those of Leonardi and Pica (2010) in so far as I find that women's wage gains outstrip those of men in both CPS-MORG and NLSY79 analyses and nonwhite workers' gains outstrip white workers' wage gains in the CPS-MORG analysis. However, the results in my paper conform to Leonardi and Pica (2010)'s hypothesis in so far as wage gains are larger for manufacturing workers compared to nonmanufacturing workers in the CPS-MORG analysis and for white workers compared to nonwhite workers in the NLSY79 analysis. One reason for the discrepancy in results by demographic group between my analysis and Leonardi and Pica (2010) may be that increases in wages brought by the good faith doctrine could reflect the role of employers' investment in worker training, i.e. Hoyt (2018b), and capital and technology, i.e. Autor et al. (2007), in response to policy adoption. This investment insulates profits from increased labor costs by boosting labor productivity, effectively shifting labor demand outwards and permitting an increase in wages and employment levels.



The bargaining power effect, on the other hand, as illustrated in Leonardi and Pica (2010), reflects an inward shift in labor demand experienced particularly for workers with less workplace clout, leaving wage gains (i.e. or a shielding from wage loss) to accrue to workers from more privileged demographic and occupational groups.

### **III. Data Sources**

#### **A. CPS-MORG**

My primary data source is the Current Population Survey Merged Outgoing Rotation Group files for 1979 to 2013. I construct my main outcome variable of real wages as the usual weekly earnings divided by usual weekly hours, adjusted by the Consumer Price Index for Urban Wage Earners and Clerical Workers to convert observations to real year 2000 U.S. dollars. I drop observations for wages below \$1.50 per hour and above \$100 per hour, as well as for self-employed and public-sector workers. I pull demographic data to construct dummies for gender (male vs. female), age (16-39 vs. 40-64), education (high school or less vs. at least some college), and race (white vs. nonwhite). I construct industry indicators for workers' primary employment in construction, manufacturing, transportation, communication, utilities, health care and social services, wholesale trade, and retail trade. I also pull geographic information to construct indicators for state and census region of workers' residence. Over the years 1979 through 2013, private-sector real year 2000 hourly wages in the CPS-MORG data have a mean of \$14.96, median of \$10.20, standard deviation of \$10.07, and variance of \$101.31.

#### **B. NLSY79**

My second data source is the National Longitudinal Survey of Youth 1979, a yearly panel of 12,682 men and women that were between the ages of 14 and 22 in the year 1979, and which follows this same group of workers until 2014. I construct my outcome variable of real hourly wage in one's primary job, using real year 2000 U.S. dollars and the Consumer Price Index for

Urban Wage Earners and Clerical Workers. I drop observations for wages below \$1.50 per hour or above \$100 per hour. I pull demographic information from the data set to construct indicator variables for gender (male vs. female), age (14-24 vs. 25-58), education (high school or less vs. at least some college), and race (white vs. nonwhite). I extract data on industry classification of workers' primary jobs to construct indicators for employment within construction, manufacturing, transportation, communication, utilities, health care and social services, wholesale trade, and retail trade industries. I create dummies for the size of the firm where workers' primary jobs reside, measured in terms of the total number of employees (0-19 vs. 20-49 vs. 50-99 vs. 100 and above) per firm. Finally, I construct indicators for census region and state of workers' residence from the restricted use geocode files I was given access to by the U.S. Bureau of Labor Statistics. I drop data for self-employed and public-sector workers, since wrongful discharge laws only apply to private-sector workers employed by an individual or entity other than themselves. Over the years 1979 through 2014, private-sector real year 2000 hourly wages in the NLSY79 data had a mean of \$12.18, median of \$9.79, standard deviation of \$8.39, and variance of \$70.41.

### **C. Legal Variables**

This paper uses state court decisions to construct explanatory variables on wrongful discharge doctrine adoptions. I employ the method of Morris (1995) by coding the first state supreme court or intermediate appellate court ruling that demonstrates a clear acceptance of each of the three wrongful discharge doctrines. I construct legal adoption variables on a monthly basis from the year 1979 through 2013 in order to match data available at the month-year-state-level for these years from the CPS-MORG data, and at the year-state-level from 1979 to 2014 to match data available at the year-state-level from the NLSY79 data. The year-state-level coding

of legal policy adoptions follows the method of rounding to the nearest calendar year, as exemplified in the dates of adoption contained in Table 1, while the month-year level of detail used for the CPS-MORG analysis codes the actual month and year in which the policy is implemented. The legal data set contains the sustained (i.e. at least five-year long) adoption of the implied contract doctrine by 36 states, the public policy doctrine by 36 states, and the good faith doctrine by 10 states over these years. As illustrated by Table 1, the first wrongful discharge law, the public policy doctrine, was adopted in 1959 in California, and the most recent adoption of a wrongful discharge law, in this instance the good faith doctrine, occurred in Wyoming in 1994. Florida, Georgia, Louisiana, and Rhode Island never adopted wrongful discharge doctrines. While Missouri repealed its implied contract doctrine in 1988, every other implied contract doctrine adopting state eventually (i.e. after an average of 4 years following initial adoption) restricted this policy, to greater or lesser degree, through endorsing disclaimers in employee handbooks that affirm workers' status as at-will employees. New Hampshire and Oklahoma repealed their good faith doctrines in, respectively, 1980 and 1989, while New Hampshire finally settled on readopting its good faith doctrine in 1990.

#### **IV. Econometric Models**

##### **A. Difference in Differences Regression**

My main specification is the following difference in differences regression:

$$w_{ist} = \gamma_s + \delta_t + \beta_{IC} IC_{st} + \beta_{PP} PP_{st} + \beta_{GF} GF_{st} + \pi_j + \kappa_d + \delta_t \times Region_t + \lambda_f + \theta_i + \alpha_i + \varepsilon_{ist} \quad (1)^4$$

where  $w_{ist}$  is 100 times the natural logarithm of the real hourly wage of individual  $i$ , in state  $s$ , at year  $t$ , in industry  $d$ , and, when using NLSY79 data, within a firm of size  $f$ . The variable  $\gamma_s$  is a state intercept that captures idiosyncratic, unobserved, and pre-existing features of each relevant

<sup>4</sup> The most complex version of this specification employed in each analysis also includes interactions for each state with a linear time trends,  $\gamma_{st}$ , as well as with a quadratic time trend,  $\gamma_{st2}$ . I also include interactions between demographic group dummies and linear time trends,  $\pi_{jt}$ , and industry dummies and linear time trends,  $\kappa_{dt}$ .

state impacting wages irrespective of the year of observation.  $\delta_t$  are fixed time effects controlling for state-invariant shifts in the regression intercept, accounting for common national shocks to wages. In the CPS-MORG data these occur at the month-year level, while in the NLSY79 dataset this variable captures yearly shocks.

The variables  $IC_{st}$ ,  $PP_{st}$ , and  $GF_{st}$  are standard difference in differences policy adoption variables that switch on for each wrongful discharge law in adopting states over the entire time period the policies are in effect, which in most cases lasts from adoption until the end of the sample in 2013 for the CPS-MORG dataset, or until 2014 for the NLSY79 data. The coefficients of interest  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$  estimate the pre-post change in real wages of private-sector workers in adopting states relative to the corresponding change in real wages of private-sector workers in non-adopting states. Identification of  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$  comes from variation in real wages of individuals in adopting and nonadopting states over the years leading up to and following policy change, within U.S. Census region, industry, demographic group, and, in the case of NLSY79 data, firm size groups.

$\pi_j$  is a vector of demographic group indicators for sixteen demographic groups [i.e. in the CPS-MORG dataset these are: (male vs. female) X (ages 16-39 vs. 40-64) X (high school or less vs. at least some college) X (white vs. nonwhite); in the NLSY79 dataset these are: (male vs. female) X (ages 14-24 vs. 25-58) X (high school or less vs. at least some college) X (white vs. nonwhite)].  $\kappa_d$  are indicator variables representing the industry a worker's primary employment resides within as defined by eight major industrial classifications (i.e. construction, manufacturing, transportation and warehousing, communication, utilities, health care and social services, wholesale trade, or retail trade industries).  $\delta_t \times Regions$  are interactions of the four U.S. Census regions with year fixed effects, and control for transitory regional shocks to wages.

In the NLSY79 dataset,  $\lambda_f$  represents dummies for four categories of firm size (i.e. total number of employees per firm of 0-19 vs. 20-49 vs. 50-99 vs. 100 and above);  $\theta_i$  is an indicator for whether an individual ever moves from one state of residence to another during the sample time period, and controls for unobservable characteristics of movers that impact wages; and  $\alpha_i$  is a worker fixed effect that controls for unobserved individual characteristics such as innate ability or motivation which impacts wages and may be correlated with policy adoption, say if states that adopt wrongful discharge laws attract more highly motivated workers.

Each regression performed on CPS-MORG data is weighted using CPS earnings weights and each regression using NLSY79 data employs NLSY79 sample weights. Huber-White robust standard errors are used to account for within-state error correlations. In regressions conducted across industry subsamples, the indicators for workers' industry of primary employment  $\kappa_d$  are necessarily dropped. In regressions using only data within demographic group subsamples, the vector of indicator variables for workers' demographic characteristics  $\pi_j$  are necessarily dropped. This specification gives an estimate of the causal effect of wrongful discharge policy adoption controlling for a variety of state, regional, national, industry, firm size, individual and year-specific characteristics that influence wages and are correlated with policy adoption.

## **B. Event Study Regression with Leads and Lags**

To give some picture of the dynamic effects of wrongful discharge doctrines on wages over the years leading up to and following policy adoption, I utilize an event study regression with yearly leads and lags. The following specification is the longest version, which I utilize in

<sup>s</sup> In regressions using only industry subsamples, I also drop the interactions between industry dummies and a linear time trend,  $\kappa_{dt}$ . In regressions using only demographic group subsamples, I drop the interactions between demographic indicators and a linear time trend,  $\pi_{jt}$ .

my analysis of CPS-MORG data, from three years prior to adoption to nine years after policy adoption<sup>6</sup>:

$$w_{ist} = \gamma_s + \delta_t + \sum_{q=-8}^3 \beta_{ICt+q} IC_{st+q} + \sum_{q=-8}^3 \beta_{PPt+q} PP_{st+q} + \sum_{q=-8}^3 \beta_{GFt+q} GF_{st+q} + \beta_{ICt-9} IC_{st-9} + \beta_{PPt-9} PP_{st-9} + \beta_{GFt-9} GF_{st-9} + \pi_j + \kappa_d + \delta_t \times Region_s + \gamma_{st} + \gamma_{st2} + \pi_{jt} + \kappa_{dt} + \varepsilon_{ist} \quad (2)$$

All variables are as in equation 1, aside from the dynamic wrongful discharge policy variables  $IC_{st+q}$ ,  $PP_{st+q}$ , and  $GF_{st+q}$  which indicate whether policy adoption occurs in year  $t+q$ . These policy variables switch on from zero to one during the year a state court adopts a wrongful discharge doctrine, permitting estimation of the transitory impact of each doctrine on real wages in adopting states relative to nonadopting states, captured by the parameters  $\beta_{ICt+q}$ ,  $\beta_{PPt+q}$ , and  $\beta_{GFt+q}$ . The variables  $IC_{st-9}$ ,  $PP_{st-9}$ , and  $GF_{st-9}$  control for the long-term effect of policy adoption. All dynamic coefficients are relative to the year four years prior to adoption, and help test the causal assumptions of time order and parallel trends in real wages between adopting and nonadopting states prior to policy change. Specifically, a causal pattern is one characterized by statistically significant coefficients associated with years following policy adoption (i.e.  $q=0, -1, \dots, -8$ ) and statistically insignificant coefficients associated with the years prior to policy adoption (i.e.  $q=3, 2, \text{ and } 1$ )<sup>7</sup>.

<sup>6</sup> In the NLSY79 data analysis I focus on two years before to two years after policy adoption. The exact dynamic specification I employ for the NLSY79 analysis is:

$$w_{ist} = \gamma_s + \delta_t + \sum_{q=-2}^2 \beta_{ICt+q} IC_{st+q} + \sum_{q=-2}^2 \beta_{PPt+q} PP_{st+q} + \sum_{q=-2}^2 \beta_{GFt+q} GF_{st+q} + \beta_{ICt-3} IC_{st-3} + \beta_{PPt-3} PP_{st-3} + \beta_{GFt-3} GF_{st-3} + \pi_j + \kappa_d + \delta_t \times Region_s + \gamma_{st} + \gamma_{st2} + \pi_{jt} + \kappa_{dt} + \lambda_f + \theta_i + \alpha_i + \varepsilon_{ist}.$$

Note that I include the variables  $\lambda_f$ ,  $\theta_i$ , and  $\alpha_i$  that I described above as based on firm and individual panel information only available in the NLSY79 data.

<sup>7</sup> This event study analysis is robust to varying time windows. While I first chose from two years prior to two years post adoption as performed within the NLSY79 analysis within Figure 3, I eventually decided upon a window from three years prior to nine years post adoption given the slow but steady development of positive wage effects following policy adoption within the CPS-MORG analysis, as seen in Figure 2 discussed below.

### C. Unconditional Quantile Regression

In order to investigate the impact of wrongful discharge laws on the marginal distribution of real wages, I employ unconditional quantile regression, as developed by Firpo et al. (2009), using a recentered-influence function (hereafter RIF) of the real wage dependent variable. The RIF for the  $\tau$ th quantile,  $Q_\tau$ , is defined as:

$$RIF(w_{ist}, Q_\tau) = \left[ Q_\tau + \frac{\tau}{f(Q_\tau)} \right] - \frac{1(w_{ist} \leq Q_\tau)}{f(Q_\tau)} = k_\tau - \frac{1(w_{ist} \leq Q_\tau)}{f(Q_\tau)}$$

I estimate the following regression for every quartile,  $Q_\tau = 0.25$  to  $Q_\tau = 0.75$ , using the CPS-MORG dataset and the same broad difference in differences methodology as employed in specification 1:

$$RIF(w_{ist}, Q_\tau) = \gamma_s + \delta_t + \beta_{IC} IC_{st} + \beta_{PP} PP_{st} + \beta_{GF} GF_{st} + \pi_j + \kappa_d + \delta_t \times Region_t + \gamma_{st} + \gamma_{st2} + \pi_{jt} + \kappa_{dt} + \varepsilon_{ist} \quad (3)$$

Equation 3 is identical in all respects to equation 1, aside from the implementation of the RIF methodology on the real wage dependent variable and the explicit dropping of the firm size, individual state mover and individual worker fixed effect indicators which are only possible when using NLSY79 data.

### D. Probit Model

I use the following reduced form probit model on the subsample of women from the NLSY79 dataset:

$$\Pr(y_{ist}, IC_{st}, PP_{st}, GF_{st}, \gamma_s, \gamma_{st}, \delta_t, \kappa_d, \kappa_{dt}, \lambda_f, \theta_i, \delta_t \times Region_s) =$$

$$\Phi(\beta_{IC} IC_{st} + \beta_{PP} PP_{st} + \beta_{GF} GF_{st} + \gamma_s + \gamma_{st} + \delta_t + \kappa_d + \kappa_{dt} + \lambda_f + \theta_i + \delta_t \times Region_s) \quad (4)$$

The dependent variable,  $y_{ist}$ , represents two separate but similar dichotomous outcomes measuring, respectively, whether a woman's real hourly wage is less than or equal to \$6.81 per hour in year 2000 U.S. dollars, the wage sufficient to provide a family of two (i.e. one parent and

one child) an income equal to the federal poverty level, and whether a woman's real hourly wage is less than or equal to \$9.94 per hour in year 2000 U.S. dollars, the wage sufficient to provide a family of three (i.e. one parent and two children) an income equal to 125 percent of the federal poverty level. This specification includes all of the same right-hand-side variables as equation 1, with the exception that in this instance,  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$ , the coefficients of interest, provide an estimate of the direct effect of wrongful discharge laws on the probability women earn poverty-level or near poverty-level wages. Since the regression is performed using the subsample of women workers, the vector of demographic group categories  $\pi_j$  is necessarily dropped. The specification is weighted by NLSY79 yearly sample weights, and uses Huber-White robust standard errors clustered at the state-level. Two small additional differences between this probit model and specification 1 are that the interaction between state and quadratic time trends is dropped since their inclusion prevents convergence during the regression analysis. The individual worker fixed effects are also dropped to permit convergence.

## **V. Results**

### **A. Industry Analysis using CPS-MORG data**

#### **1. Difference in Differences Regression by Major Industry Groups**

The first focus of my analysis using the CPS-MORG data centers on the pattern of impact of wrongful discharge laws on workers' wages across major industrial categories: the total private-sector, private-sector manufacturing industry, and private-sector nonmanufacturing industry. I further investigate two large and growing segments of private-sector nonmanufacturing: the transportation and warehousing industry and the health care and social assistance industry.



Table 2 shows the results of the difference in differences regression using specification 1 of the impact of wrongful discharge law adoption on real wages across major private-sector industry groups. Columns 1 and 2 show the results for the total private-sector, columns 3 and 4 for private-sector manufacturing, and columns 5 and 6 for private-sector nonmanufacturing. I include results of the baseline version of specification 1 (i.e. as shown in the text above) in columns 1, 3, and 5, and results of the more complicated version of specification 1 (i.e. including interactions for state and year linear and quadratic time trends, and interactions for demographic groups and linear time trend, as described in footnote 1) in columns 2, 4, and 6. The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$ .

Table 2 reveals that adoption of the good faith doctrine is associated with significant increases in real wages for all private-sector workers on average by 2.00 percent prior to inclusion of time trend variables, and 2.34 percent including time trends. It shows an increase of 2.73 percent and 3.33 percent in average real wages in private-sector manufacturing following adoption of the good faith doctrine, before and after accounting for time trends. Finally, Table 2 shows that the good faith doctrine is associated with a modest but still significant increase in average private-sector nonmanufacturing real wages of, respectively, 1.69 and 1.96 percent before and after accounting for time trend variables. The strong increase in manufacturing workers' real wages is particularly important given the broad decline in employment and working conditions in the industry since the late 1970s stemming from the downsizing of plant and facilities through automation, outsourcing, and the reorganization of work processes. One reason manufacturing workers may, despite rising obstacles, be better situated to rest wage gains

through utilizing the employment protection provided by the good faith doctrine is the history of substantial union presence and power within the industry.

Figure 2 shows the results of the event study, using the dynamic difference in differences regression in specification 2, of the impact of the good faith doctrine on private-sector workers' average real wages from three-years prior to eight-years following the year of policy adoption. Figure 2 shows the coefficient estimates  $\beta_{GFt+q}$  and their 95 percent confidence intervals<sup>8</sup>, illustrating the transitory effect of policy adoption on workers' real wages relative to four-years preceding policy adoption. This analysis tests whether the positive significant difference in differences regression results for private-sector workers found in Table 2 has a causal interpretation. Specifically, in order to satisfy the causal assumptions of time order and parallel pre-period trends Figure 2 must reveal that any significant increases in wages began only after policy adoption. In fact, Figure 2 does show a statistically insignificant and near-zero effect prior to policy adoption, and a noticeable increase beginning in the year of adoption which rises to significant positive wage effects in years 5 through 8 following the year of good faith doctrine adoption, matching in magnitude the total effect in Table 2 of just over 2 percent.

Table 3 shows the results of the same difference in differences regression performed on real wages in two nonmanufacturing industries which grew strongly over the period of analysis of the late 1970s to present: the transportation and warehousing industry (columns 1 and 2) and health care and social assistance industry (columns 3 and 4). Table 3 shows that the good faith doctrine is associated with increases in average real wages for transportation and warehousing industry workers of 2.45 percent after inclusion of time trend variables, and in the health care

<sup>8</sup> I also include the coefficient estimate and confidence interval for year nine following the year of adoption and greater to illustrate the long-term effects of policy adoption on real wages.

and social assistance industry by 1.99 percent and 2.32 percent, respectively, prior to and after inclusion of time trend variables.

While industries such as manufacturing experienced tremendous job losses over the 1980s and 1990s, transportation-warehousing and health care grew in importance in the economy. For instance, a 2015 investigation conducted by Quoc Trung Bui of National Public Radio, using data from the U.S. Census Bureau, found that truck driving, an expansive occupational category covering jobs as varied as long-distance over-the-road transportation of goods to local delivery of goods to businesses and households, emerged as the most common job across 23 U.S. states starting in 1990. By 1996, truck driving grew to be the most prevalent job across 29 U.S. states, a position it has maintained as of 2014. The health care industry has also grown in importance compared to easily outsourced industries like manufacturing. By its nature health care provision is highly labor intensive and difficult to automate. Given the steady aging of the U.S. population, the health care industry has been an important driver of employment growth in recent years. For instance, since the Great Recession the health care industry has accounted for 32% of all job growth, increasing its share of total national employment from 9 percent in 2007 to 12 percent in 2018 (Gascon 2018).

## **2. Unconditional Quantile Regression by Major Industry Groups**

Table 4 shows the results of the unconditional quantile regression using specification 3 of the impact of wrongful discharge law adoption on real wages across major private-sector industry groups. Columns 1 through 3 show the results for the total private-sector, columns 4 through 6 for private-sector manufacturing, and columns 7 through 9 for private-sector nonmanufacturing. All unconditional quantile regressions include interactions for state and year linear and quadratic time trends, and interactions for demographic groups and a linear time trend.

The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$  from specification 3 and their associated standard errors.

Table 4 shows that adoption of the good faith doctrine is associated with significant increases in real wages for all private-sector workers at the median of their marginal distribution by 2.22 percent. Table 4 reveals a strong increase of 3.29 percent in median real wages for private-sector manufacturing workers, and a marginally significant increase of 2.02 percent in median real wages of private-sector nonmanufacturing workers, associated with state adoption of the good faith doctrine. The strong increase in total private-sector and private-sector manufacturing workers' median real wages demonstrates that the good faith doctrine, by raising workers' bargaining power or increasing their labor productivity, benefits ordinary workers in particular, and the strong average results found from standard difference in difference regression are not driven by wage gains for only the most highly paid and privileged workers. One interpretation of these results could be that the good faith doctrine facilitates median workers' efforts to bargain for wage hikes vis-à-vis their employers. Workers who have the highest pre-adoption wages (i.e. those within the third quartile of the marginal distribution of real wages) might already hold significant power within their workplace, so they do not experience significant wage gains, while workers with the lowest wages (i.e. within the bottom quartile of the marginal wage distribution) are so disempowered within their workplaces that modest employment protection policies like the good faith doctrine do not have a measured effect on their ability to rest wage gains from their employers. Workers who earn near the median of the marginal distribution of real wages, on the other hand, have enough pre-existing clout within their workplaces to make use of the good faith doctrine in wage bargaining, while still possessing a clear interest in bidding up their wage rates as they are more likely to have been excluded from

wages increases in the past. This result, and process, appears especially strong in Table 5 at the median of transportation and warehousing workers' marginal distribution of real wages. The good faith doctrine is associated with a strong increase of 3.99 percent at the median of transportation and warehousing workers' marginal distribution of real wages.

## **B. Demographic Analysis using CPS-MORG data**

### **1. Difference in Differences Regression by Major Demographic Groups**

The second focus of my investigation using the CPS-MORG data centers on the pattern of impact of wrongful discharge laws on workers' real wages across major demographic groups within the private-sector: women, men, nonwhite, and white workers.

Table 6 gives the results of the difference in differences regression using specification 1 of the impact of wrongful discharge law adoption on real wages across major demographic groups. Columns 1 and 2 show the results for private-sector women workers, columns 3 and 4 for private-sector male workers, columns 5 and 6 for private-sector nonwhite workers, and columns 7 and 8 for private-sector white workers. I include results of the baseline version of specification 1 in columns 1, 3, 5, and 7, and results of the full version including interactions for state and year linear and quadratic time trends and industry linear time trends, in columns 2, 4, 6, and 8. The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$  and their associated standard errors.

Table 6 shows that the good faith doctrine is associated with significant increases in average real wages for private-sector women workers by 2.91 percent prior to and 3.25 percent after inclusion of time trend variables. Furthermore, it reveals an increase of 1.79 percent and 2.37 percent in average real wages for private-sector male workers following adoption of the good faith doctrine, before and after accounting for time trends. It shows that the good faith

doctrine is associated with significant increases in average real wages for private-sector nonwhite workers of, respectively, 3.36 and 3.93 percent before and after accounting for time trend variables. Finally, the good faith doctrine is associated with significant increases in average real wages of private-sector white workers of 2.36 percent prior to and 2.81 percent after inclusion of time trend variables. While the good faith doctrine appears to increase private sector workers' real wages across demographic groups, the strong impact on women workers' wages is especially relevant given their historic exclusion from well-compensated employment and relative lack of power within the workplace and society. Perhaps the women's movement which arose strongly over these same years and focused in particular on equal pay for comparable work, was aided, or found ways to utilize, the good faith doctrine in advocating for women to receive wage gains previously denied to them.

## **2. Unconditional Quantile Regression by Major Demographic Groups**

Tables 7 and 8 reveal the results of the unconditional quantile regression using specification 3 of the impact of wrongful discharge law adoption on real wages across major demographic groups. Columns 1 through 3 of Tables 7 show the results for private-sector women workers, and columns 4 through 6 for private-sector male workers. Columns 1 through 3 of Tables 8 show the results for private-sector nonwhite workers, and columns 4 through 6 for private-sector white workers. All unconditional quantile regressions in both tables include interactions for state and year linear and quadratic time trends, and interactions for industry and a linear time trend. The three main rows of the tables show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$  from specification 3 and their associated standard errors.

Table 7 shows that adoption of the good faith doctrine is associated with significant increases in real wages for private-sector women workers across every quartile of their marginal

distribution of wages, by 2.14 percent for the first quartile, 2.15 percent at the median, and 2.72 percent for the third quartile. Table 7 also reveals a strong increase of 3.20 percent in median real wages for private-sector male workers. The strong increase in total private-sector women workers' wage across all wage-levels may provide further evidence that the good faith doctrine helps redress gender pay disparities, helping to close the gap between men and women's wages across all skill and pay levels. The significant increase in median wages for private-sector male workers reflects the pattern of wage gains found at the aggregate private-sector industry level of analysis, providing further evidence that the wage gains of the good faith doctrine generally accrue to ordinary workers, rather than exclusively those at the very bottom or very top of the skill and pay hierarchy.

Table 8 reveals the good faith doctrine is associated with a marginally significant increase of 3.25 percent in median real wages for private-sector nonwhite workers, and strong increases for private-sector white workers across every quartile of their marginal distribution of wages, by 2.39 percent for the first quartile, 2.72 percent at the median, and 2.26 percent for the third quartile, though the increase at the median is the most statistically significant. The strong increase for white workers at the median of their marginal distribution of real wages mimics the general finding across industries, and may reflect the general finding that the good faith doctrine benefits the workers in the middle of the skill and pay hierarchy. For instance, the good faith doctrine has very muted effects for nonwhite workers who historically have been relegated to the lowest rungs of the labor market, while white wage workers, particularly with middling wage rates, appear most able to utilize this wrongful discharge law in bargaining over wages.

## C. NLSY79 Robustness Check Analysis

### 1. Difference in Differences Regression by Firm Size Categories

In Table 9, as a way to probe whether firm size is truly an important factor to incorporate within the analysis, I perform the standard difference in difference regression of specification 1, of necessity without firm size controls, but within subsamples based on broad firm size categories<sup>9</sup>: firms of all sizes (columns 1 and 2), firms with 50 or more workers (columns 3 and 4), and firms with less than 50 workers (columns 5 and 6). As in previous tables, I include results from the baseline specification 1 without state linear and quadratic time trends or demographic and industry time trends (columns 1, 3, and 5) as well as from the full specification that includes state linear and quadratic time trends and industry and demographic group linear time trends (columns 2, 4, and 6). I find that the good faith doctrine has a large and significant impact on average real wages for private-sector workers by 11.09 percent exclusively within firms with 50 or more workers.

One reason that wage gains associated with good faith doctrine adoption are concentrated in larger firms may be that only these employers have sufficient resources to compensate for rising firing costs by increasing labor productivity through investment in capital and job training, boosting wages by increasing labor demand. Another reason may be that larger firms provide an environment, less atomized and fissured than smaller workplaces, which fosters the aggregation of workers' shared consciousness and interests, permitting them to use the good faith doctrine in wage bargaining with their employers.

<sup>9</sup> As in all following NLSY79 regressions, I include indicators for whether a worker moves states at any point during the period 1979-2014,  $\theta_i$ , as well as an indicator that captures unobserved individual time invariant worker characteristics such as ability and motivation,  $\alpha_i$ .



## 2. Difference in Differences Regression by Major Industry Groups

Table 10 shows the impact of wrongful discharge laws on average real wages using NLSY79 data and the full difference in differences regression of specification 1 including firm size and individual worker controls. As in Table 2, columns 1 and 2 show the results for the total private-sector, columns 3 and 4 for private-sector manufacturing, and columns 5 and 6 for private-sector nonmanufacturing industry. I also include results without (columns 1, 3, and 5) and with (columns 2, 4, and 6) state linear and quadratic time trends and demographic group linear time trends.

Table 10 shows that the good faith doctrine is associated with a sizeable and significant increase in average real wages for all private-sector workers of 8.12 percent, and a marginally significant increase in average real wages for private-sector nonmanufacturing workers of 6.75 percent. Perhaps one reason for the lack of a significant impact on private-sector manufacturing workers' wages, in contrast to the results for all private-sector manufacturing workers in Table 2 using CPS-MORG data, is that the comparatively younger private-sector manufacturing workers within the NLSY79 sample may have less preexisting clout within the workplace to make use of the good faith doctrine in wage bargaining, especially during a period of intense downsizing, automation, and reorganization within their industry. Younger workers are often the first laid off during economic downturns, as they have the least seniority, so they may be less likely than older workers to risk their jobs by pressing for wage hikes.

Figure 3 shows the results of the event study, using specification 2, of the impact of the good faith doctrine on private-sector workers' average real wages over the five-year period surrounding policy adoption. The plot shows the coefficient estimates  $\beta_{GFt+q}$  and their 95 percent confidence intervals from two years prior to two years following the year of good faith doctrine

adoption<sup>10</sup>, illustrating the transitory effect of policy adoption on workers' real wages relative to three-years preceding policy adoption. This analysis tests whether the positive significant difference in differences regression results for private-sector workers' average wages found in Table 10 satisfies the causal assumptions of time order and parallel pre-period trends. It reveals a statistically insignificant and near-zero effect in the two years prior to policy adoption, and a noticeable increase beginning in the year of adoption and significant positive wage effects starting after two years that is comparable in magnitude to the total effect in Table 10 of roughly 9 percent.

### **3. Difference in Differences Regression by Major Demographic Groups**

Table 11 gives the results of the difference in differences regression using NLSY79 data and specification 1 investigating the impact of wrongful discharge law adoption on private-sector workers' real wages across major demographic groups. Columns 1 and 2 show the results for private-sector women workers, columns 3 and 4 for private-sector male workers, columns 5 and 6 for private-sector nonwhite workers, and columns 7 and 8 for private-sector white workers. I include results of the baseline version of specification 1 in columns 1, 3, 5, and 7, and results of the full version including interactions for state and year linear and quadratic time trends and industry linear time trends, in columns 2, 4, 6, and 8. The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$  and their associated standard errors.

Table 11 demonstrates that the good faith doctrine is associated with significant increases in average real wages for private-sector women workers by 11.61 percent prior to and 13.20 percent after inclusion of time trend variables. Table 11 also shows that the good faith doctrine

<sup>10</sup> I also include the coefficient estimate and its confidence interval for year three and up following good faith doctrine adoption to control for the long-term wages effects.

is associated, after inclusion of time trend variables, with significant increases in average real wages for private-sector nonwhite workers by 7.58 percent and private-sector white workers' real wages by 8.99 percent. As in Table 6 when using CPS-MORG data, the good faith doctrine has the strongest impact on the real wages of women and white workers. The increase is especially large for women workers, perhaps reflecting their especially low starting wages in the NLSY79 sample. Even relatively small dollar increases in their wage rates gained through bargaining with employers, buttressed by their state's adoption of the good faith doctrine, may result in sizeable percent increase in their average real wages.

#### **4. Probit Model Analysis: The Probability Young Women Are Low-Wage Workers**

Table 12 shows results from the probit model of specification 4 regarding the impact of wrongful discharge laws on the probability that female private-sector workers earn a real wage sufficient to bring a family of two (i.e. one parent and one child) to the federal poverty level, and a real wage sufficient to bring a family of three (i.e. one parent and two children) to 125% of the federal poverty level. Table 12 shows that the good faith doctrine is associated with a significant decline in the probability of the former by 5 percent and of the later by 7 percent. Table 12 further shows that the public policy doctrine is also associated with significant, but smaller, declines in both probabilities by 4 percent, while the implied contract doctrine has no impact on the probability female private-sector workers earn "poverty wages".

## **VI. Conclusion**

My analysis contributes to the sparse literature on the impact of wrongful discharge laws on wages. Since Autor et al. (2006) is, to my knowledge, the only analysis to date to investigate the impact of wrongful discharge laws on wages, I replicate Autor et al. 2006's five-year pre- and post-period difference in differences analysis, as shown in Table 13, using a subsample of

the CPS-MORG dataset consisting of workers under 40 years of age, as well as the NLSY79 panel dataset. Similar to Autor et al. (2006), I find no significant impact of any wrongful discharge law on wages. I also find no significant wage effects when using, as done in Autor et al. (2006), the full CPS-MORG dataset (results available upon request).

There are three main reasons for the discrepancy between my results and those using the methodology of Autor et al. (2006)'s. The first is that Autor et al. (2006) focus their analysis on two years before to three years following the year of policy adoption. As shown in Figure 2 from my analysis using CPS-MORG data, the good faith doctrine has a significant positive impact on workers' wages in this data set starting four years following policy adoption, reflecting that workers' increased bargaining power over wages may take time to develop and result in wage gains. By focusing on the shorter post-adoption time frame, Autor et al. (2006) may miss these slow developing wage dynamics. Secondly, Autor et al. (2006) do not control for firm size, in contrast to my analysis using NLSY79 data. My results show that positive wage effects of the good faith doctrine are concentrated within larger firms, likely reflecting that these firms have qualitatively different internal structures and cultures that may facilitate workers' group consciousness and organization, helping them to overcome the atomization that characterizes smaller and more fissured workplaces. Finally, unlike Autor et al. (2006), I include in my analysis state, industry, and demographic time trend variables, controlling against the possibility of preexisting trends in workers' wages which occur concurrently with, and could be falsely attributed to, policy adoption.

However, similarly to Autor et al (2006), I find no significant negative impacts of wrongful discharge law adoption on wages. My results provide further evidence contradicting standard labor market theory which predicts that employment protection policies will cause

unambiguous declines in employment and wages. Given the findings of Autor et al. (2007) that the good faith doctrine raises labor productivity, and my finding in Hoyt (2018b) that the good faith doctrine is associated with increases in the incidence and intensity of on-the-job training, it may be the case that wrongful discharge laws have the reverse effect on labor demand than standard theory predicts. In other words, wrongful discharge laws may have the potential to increase workers' employment and wages, either by raising firm output and profits such that market processes on their own result in employment and wage growth, or by providing increased leverage to workers in bargaining for wage increases and employment opportunities.

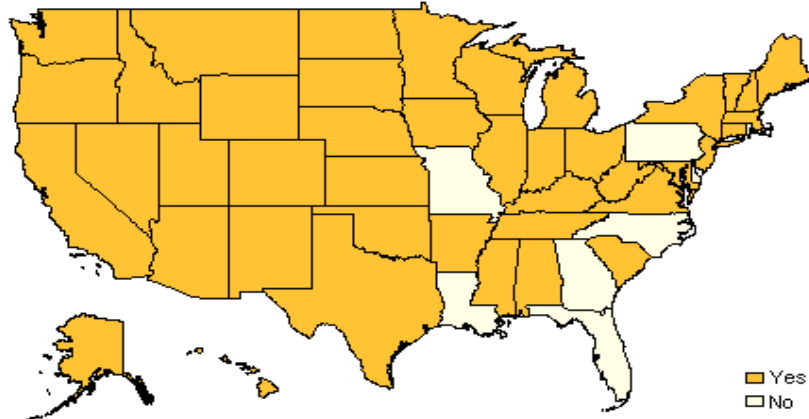
Wrongful discharge laws are an important factor shaping the new labor market that has emerged following the unraveling of private-sector collective bargaining in the United States. My results show that one of these policies in particular, the good faith doctrine, promotes wage growth among all private-sector workers, but especially for women, manufacturing workers, and workers in important and growing nonmanufacturing industries like logistics and health care. The evidence that the good faith doctrine lowers the likelihood of women earning poverty-level wages bodes well for efforts to reduce poverty and inequality, given that children and mothers in single-parent households make up the largest segment of individuals living in poverty in the United States. Wrongful discharge laws may help redress gender pay disparities, closing the gap between men and women's wages across all skill and pay levels. In the current context of a resurgent women's movement focused around workplace sexual harassment and pay equity, employment protection policy can serve as important tool in promoting growth and fairness in the economy.

## Works Cited

- Autor, David H. “Outsourcing at Will: The Contribution of Unjust Dismissal Doctrine to the Growth of Employment Outsourcing.” *Journal of Labor Economics*. Vol. 21, No. 1 (2003): 1-41.
- Autor, David H., John J. Donahue III, and Stewart J. Schwab. “The Costs of Wrongful-Discharge Laws.” *The Review of Economics and Statistics*. Vol. 88, No. 2 (2006): 211-231.
- Autor, David H., Adriana D. Kugler, and William R. Kerr. “Does Employment Protection Reduce Productivity? Evidence from US States.” *The Economics Journal*. Vol. 117. (2007): F189-F217.
- Blanchard, Olivier Jean, and Pedro Portugal. “What Hides Behind an Unemployment Rate: Comparing Portuguese and U.S. Labor Markets.” *The American Economic Review*. 91.1 (2001): 187-212.
- Bui, Quactrung. “Map: The Most Common Job In Every State.” *Planet Money*. NPR, 5 Feb. 2015, <https://www.npr.org/sections/money/2015/02/05/382664837/map-the-most-common-job-in-every-state>. Accessed 27 Jan. 2018.
- Gascon, Charles C. “Health Care Remains Important Job Engine in Eighth District.” *Regional Economist*. Federal Reserve Bank of St. Louis, 2018, <https://www.stlouisfed.org/publications/regional-economist/first-quarter-2018/health-care-job-engine>. Accessed 8 Oct. 2018.
- Hoyt, Eric. “Reasserting Employment-at-Will: The Impact of Repeal and Restriction of Wrongful Discharge Laws on Labor Markets.” (2018a).
- Hoyt, Eric. “The Effect of Wrongful Discharge Laws on Job Training: 1979-2014.” (2018b).

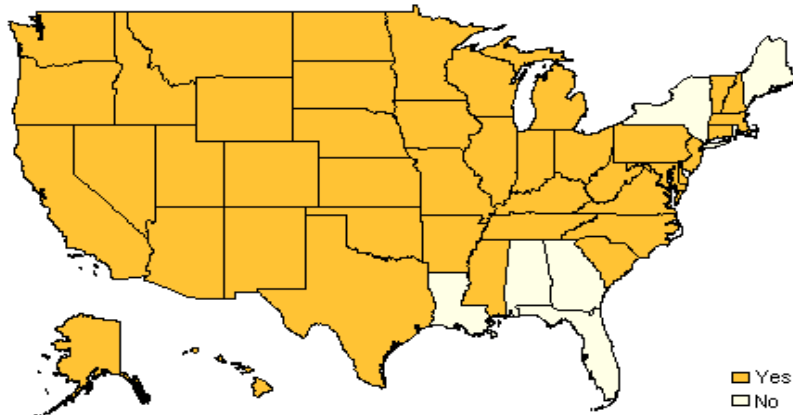
- Kugler, Adriana, and Gilles Saint-Paul. "How Do Firing Costs Affect Worker Flows in a World with Adverse Selection?" *Journal of Labor Economics*. 22:3 (2004), 553-584.
- Lazear, Edward P. "Job Security Provisions and Employment." *Quarterly Journal of Economics* 105:3 (1990), 699-726.
- Leonardi, Marco and Giovanni Pica. "Who Pays for It? The Heterogeneous Wage Effects of Employment Protection Legislation." *IZA Discussion Paper No. 5335*. November 2010. Print.
- Morris, Andrew P. "Developing a Framework for Empirical Research on the Common Law: General Principles and Case Studies of the Decline of Employment-at-Will." *Case Western Reserve Law Review*. 45 (1995), 999-1148.
- Nickell, Stephen and Richard Layard. (1999). Labor Market Institutions and Economics Performance. In O. Ashenfelter and D. Card (Eds.), *Handbook of Labor Economics, Vol. 3, Part C* (pp. 3029-3065). New York, NY: Elsevier.
- "Parenting in America: The American Family Today." *Social and Demographic Trends*. Pew Research Center, 17 Dec. 2015, <http://www.pewsocialtrends.org/2015/12/17/1-the-american-family-today/>. Accessed 9 Feb. 2018.
- Van der Wiel, Karen. "Better protected, better paid: Evidence on how employment protection affects wages." *Labour Economics*. Vol. 17. (2010): 16-26.

Map 1. Implied Contract Recognition by State: Dec. 2014



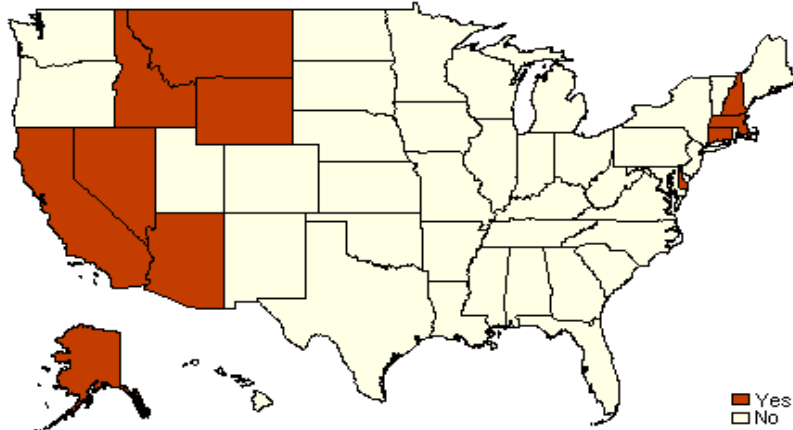
Source: Author's analysis of case law and secondary literature.

Map 2. Public Policy Recognition by State: Dec. 2014



Source: Author's analysis of case law and secondary literature.

Map 3. Good Faith Recognition by State: Dec. 2014



Source: Author's analysis of case law and secondary literature.

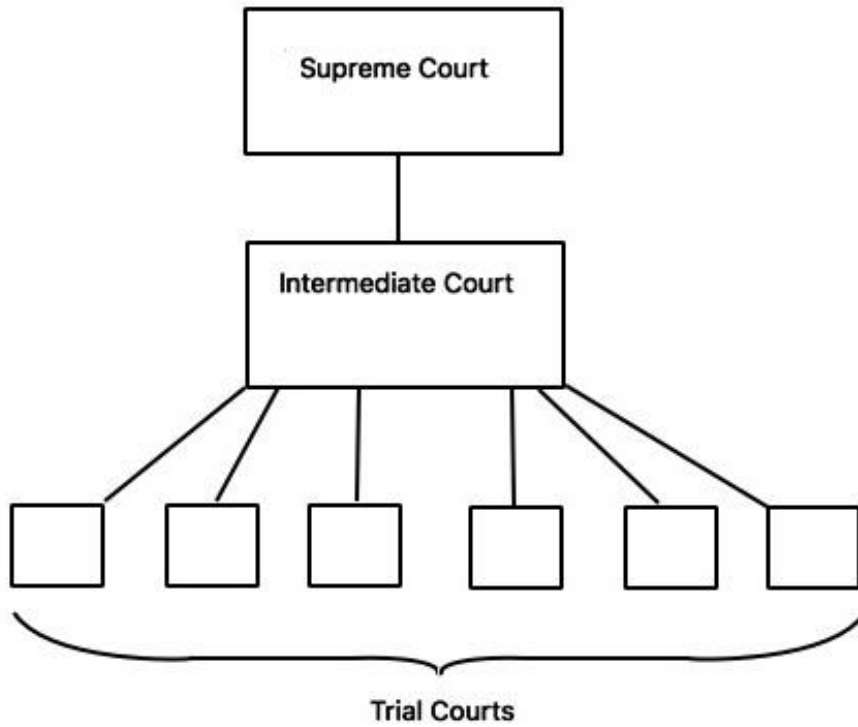


Table 1. --- Recognition of Wrongful Discharge Laws by State as of December 31, 2014 and Closest Calendar Year to Date of Policy Adoption, Restriction, and Repeal

State	Implied Contact					Public Policy			Good Faith			
	Y/N	Adopt	Repeal	Weak HD	Strong HD	Y/N	Adopt	Repeal	Y/N	Adopt	Repeal	Readopt
Alabama.....	Y	1988			1991	N			N			
Alaska.....	Y	1983			1990	Y	1986		Y	1983		
Arizona.....	Y	1983			1984	Y	1985		Y	1985		
Arkansas.....	Y	1984			1991	Y	1980		N			
California.....	Y	1972			1984	Y	1960		Y	1981		
Colorado.....	Y	1984		1987		Y	1986		N			
Connecticut.....	Y	1986			1987	Y	1980		Y	1980		
Delaware.....	N					Y	1992		Y	1992		
Florida.....	N					N			N			
Georgia.....	N					N			N			
Hawaii.....	Y	1987		1988		Y	1983		N			
Idaho.....	Y	1977			1988	Y	1977		Y	1990		
Illinois.....	Y	1975		1987		Y	1979		N			
Indiana.....	Y	1988			1998	Y	1973		N			
Iowa.....	Y	1988		1992		Y	1986		N			
Kansas.....	Y	1985		1987		Y	1981		N			
Kentucky.....	Y	1984			1987	Y	1984		N			
Louisiana.....	N					N			N			
Maine.....	Y	1978			1989	N			N			
Maryland.....	Y	1985		1987		Y	1982		N			
Massachusetts.....	Y	1988		1989		Y	1980		Y	1978		
Michigan.....	Y	1980			1980	Y	1976		N			
Minnesota.....	Y	1983			1987	Y	1987		N			
Mississippi.....	Y	1992			1992	Y	1988		N			
Missouri.....	N	1983	1988		1988	Y	1986		N			
Montana.....	Y	1987				Y	1980		Y	1982		
Nebraska.....	Y	1984		1993		Y	1988		N			
Nevada.....	Y	1984			1992	Y	1984		Y	1987		
New Hampshire.....	Y	1989			1994	Y	1974		Y	1974	1980	1990
New Jersey.....	Y	1985		1985		Y	1981		N			
New Mexico.....	Y	1980		1988		Y	1984		N			
New York.....	Y	1983			1987	N			N			
North Carolina.....	N					Y	1985		N			
North Dakota.....	Y	1984		1987		Y	1988		N			
Ohio.....	Y	1982		1984		Y	1990		N			
Oklahoma.....	Y	1977			1991	Y	1989		N	1985	1989	
Oregon.....	Y	1978			1993	Y	1975		N			
Pennsylvania.....	N					Y	1974		N			
Rhode Island.....	N					N			N			
South Carolina.....	Y	1987			1987	Y	1986		N			
South Dakota.....	Y	1983			1986	Y	1989		N			
Tennessee.....	Y	1982			1986	Y	1985		N			
Texas.....	Y	1985			1986	Y	1984		N			
Utah.....	Y	1986			1992	Y	1989		N			
Vermont.....	Y	1986		1994		Y	1987		N			
Virginia.....	Y	1984			1990	Y	1985		N			
Washington.....	Y	1978			1985	Y	1985		N			
West Virginia.....	Y	1986			1991	Y	1979		N			
Wisconsin.....	Y	1985		1991		Y	1980		N			
Wyoming.....	Y	1986			1989	Y	1990		Y	1994		
<b>Total</b>	<b>42</b>	<b>43</b>	<b>1</b>	<b>14</b>	<b>28</b>	<b>43</b>	<b>43</b>	<b>0</b>	<b>11</b>	<b>12</b>	<b>2</b>	<b>1</b>

Notes: Based on author's analysis of case law and secondary literature. "Y" denotes that a policy is recognized and "N" denotes that it is not recognized by a state as of December 31, 2014. Adoption, repeal, and restriction dates are rounded to the calendar year in which they occurred if the first full month following policy change was from January to May of that year, and are rounded forward to the following calendar year if the first full month following policy change is from June to December of the original year. "Strong HD" denotes state courts' adoption of a rule that a disclaimer in an employee handbook that states a worker is "at will" will unambiguously override any implied contractual obligations stemming from promises of just cause dismissal orally or in writing elsewhere in the handbook, while "weak HD" denotes state courts' adoption of a rule that sees disclaimers as creating a possible defense against implied contract protections of handbooks.

Figure 1. --- The General Structure of State Judicial Branches



Note: Author's analysis of institutional literature on state judicial systems.

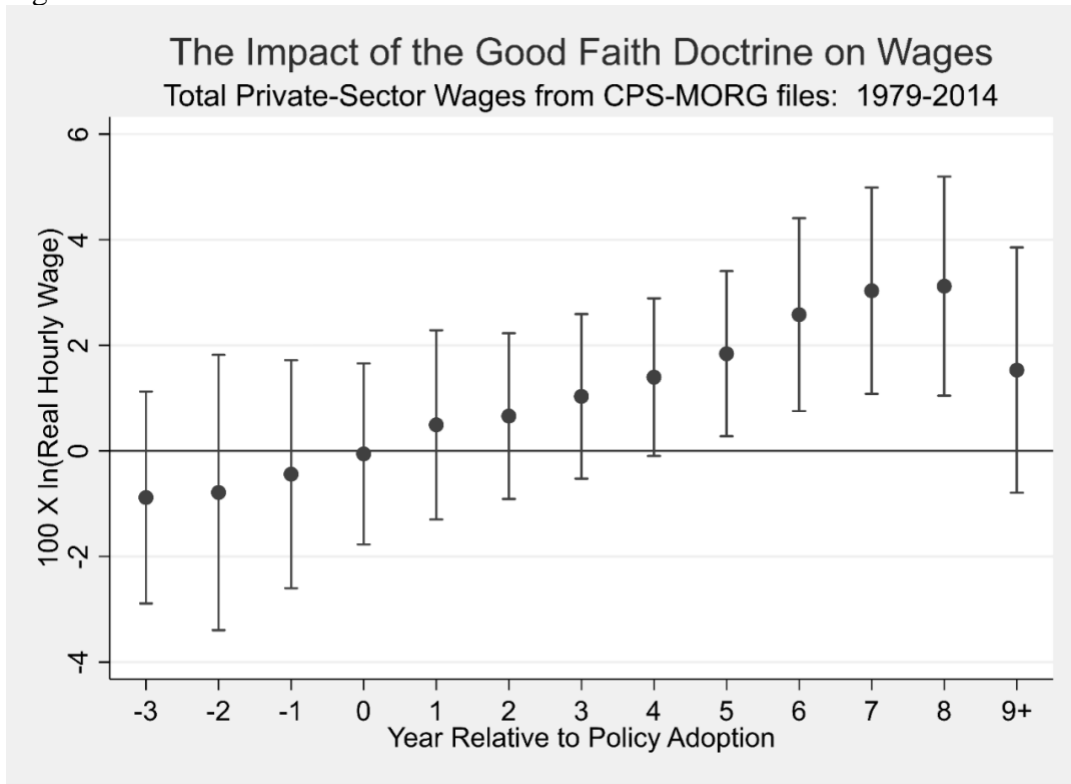
Table 2. --- Difference in Differences Estimates of the Impact of Wrongful Discharge Laws on Private-Sector Real Hourly Wages by Major Industry Categories using CPS-MORG files: 1979-2013

	<u>Total Private</u>		<u>Priv. Manufacturing</u>		<u>Priv. Nonmanufacturing</u>	
	D-D w/state, month-year, demo FEs, regXyr, (1)	Col. 1 w/ stateXt, stateXt2, demoXt (2)	Same as Col. 1 (3)	Same as Col. 2 (4)	Same as Col. 1 (5)	Same as Col. 2 (6)
Implied	0.33	0.27	-0.14	0.46	0.51	0.25
Contract	(1.14)	(0.95)	(1.29)	(0.97)	(1.24)	(0.94)
Public	-0.23	-0.61	0.38	0.44	-0.89	-1.08
Policy	(1.00)	(0.76)	(1.08)	(0.81)	(1.08)	(0.79)
Good	2.00**	2.34**	2.73*	3.33***	1.69+	1.96*
Faith	(0.64)	(0.86)	(1.36)	(0.85)	(0.86)	(0.85)
R-Sq	0.30	0.30	0.30	0.30	0.30	0.30
N	4,652,387	4,652,387	1,375,973	1,375,973	3,276,414	3,276,414

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, + p < 0.10.

Note: Each entry shows output from analysis using specification 1, which is a difference and differences regression in which the dependent variable is 100 times the natural logarithm of real U.S. year 2000 hourly wages of private-sector wage and salary employees in 50 U.S. states. Each entry in columns 1 and 2 show output for all private-sector workers, columns 3 and 4 for private-sector manufacturing workers, and columns 5 and 6 for private-sector nonmanufacturing workers. The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$ . The real U.S. year 2000 hourly wage data are taken from Current Population Survey Monthly Outgoing Rotation Group monthly files for the years 1979 to 2013. All models include state main effects and indicators for each month-year in the sample, indicators for individuals' demographic characteristics, as well as interactions between four Census-region dummies and calendar year dummies. Models in columns 2, 4, and 6 also include interactions between state and year linear and quadratic time trends, and interactions between workers' demographic characteristics and a linear time trend. Models are weighted using CPS earnings weights. Huber-White robust standard errors are used to allow for unrestricted error correlations across observations within states.

Figure 2.



Note: The figure shows the transitory effects of the good faith doctrine on average real wages of all private-sector workers using equation 2, which is a dynamic difference and differences regression with three years of leads and eight years of lags, as well as estimate of the long-term effect from nine years and beyond, in which all yearly coefficients,  $\beta_{GF+q}$  are evaluated relative to four years prior to policy adoption. The dependent variable is 100 times the natural logarithm of real U.S. year 2000 hourly wages of all private-sector wage and salary employees in the 50 U.S. states. The real U.S. year 2000 hourly wage data is taken from Current Population Survey Monthly Outgoing Rotation Group monthly files for the years 1979 to 2013. All models include state main effects and indicators for each month-year in the sample, indicators for individuals' demographic characteristics, interactions between four Census-region dummies and calendar year dummies, interactions between state and year linear and quadratic time trends, and interactions between workers' demographic characteristics and a linear time trend. Models are weighted using CPS earnings weights. Huber-White robust standard errors are used to allow for unrestricted error correlations across observations within states.

Table 3. --- Difference in Differences Estimates of the Impact of Wrongful Discharge Laws on Private-Sector Real Hourly Wages in Transportation-Warehousing and Health Care-Social Assistance Industries using CPS-MORG data: 1979-2013

	<u>Transportation-Warehousing</u>		<u>Health Care-Social Assistance</u>	
	D-D w/state, month-year, demo. FEs, regXyr, (1)	Col. 1 w/ stateXt, stateXt2, demoXt (2)	D-D w/state, month-year, demo. FEs, regXyr, (3)	Col.. 1 w/ stateXt, stateXt2, demoXt (4)
Implied Contract	2.24+ (1.19)	0.94 (1.11)	0.48 (0.97)	-0.64 (0.76)
Public Policy	-1.15 (1.10)	-0.88 (1.25)	-0.13 (0.99)	-0.08 (0.81)
Good Faith	1.05 (1.18)	2.45** (0.87)	1.99+ (1.03)	2.32* (1.00)
R-Sq N	0.22 138,190	0.22 138,190	0.27 553,725	0.28 553,725

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, + p < 0.10.

Note: Each entry shows output from analysis using specification 1, which is a difference and differences regression in which the dependent variable is 100 times the natural logarithm of real U.S. year 2000 hourly wages of private-sector wage and salary employees in 50 U.S. states. Each entry in columns 1 and 2 show output for private-sector transportation and warehousing industry workers, and columns 3 and 4 for private-sector health care and social assistance industry workers. The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$ . The real U.S. year 2000 hourly wage data are taken from Current Population Survey Monthly Outgoing Rotation Group monthly files for the years 1979 to 2013. All models include state main effects and indicators for each month-year in the sample, indicators for individuals' demographic characteristics, as well as interactions between four Census-region dummies and calendar year dummies. Models in columns 2 and 4 also include interactions between state and year linear and quadratic time trends, and interactions between workers' demographic characteristics and a linear time trend. Models are weighted using CPS earnings weights. Huber-White robust standard errors are used to allow for unrestricted error correlations across observations within states.

Table 4. --- Difference in Differences Estimates of the Impact of Wrongful Discharge Laws on the Distribution of Private-Sector Real Hourly Wages by Major Industry Groups using CPS-MORG files: 1979-2013

	Total Private			Priv. Manufacturing			Priv. Nonmanufacturing		
	UCQ w/state, year, demo. FEs, regXyr, stateXt, stateXt2, demoXt (1) Q(0.25)	UCQ w/state, year, demo. FEs, regXyr, stateXt, stateXt2, demoXt (2) Q(0.50)	UCQ w/state, year, demo. FEs, regXyr, stateXt, stateXt2, demoXt (3) Q(0.75)	UCQ w/state, year, demo. FEs, regXyr, stateXt, stateXt2, demoXt (4) Q(0.25)	UCQ w/state, year, demo. FEs, regXyr, stateXt, stateXt2, demoXt (5) Q(0.50)	UCQ w/state, year, demo. FEs, regXyr, stateXt, stateXt2, demoXt (6) Q(0.75)	UCQ w/state, year, demo. FEs, regXyr, stateXt, stateXt2, demoXt (7) Q(0.25)	UCQ w/state, year, demo. FEs, regXyr, stateXt, stateXt2, demoXt (8) Q(0.50)	UCQ w/state, year, demo. FEs, regXyr, stateXt, stateXt2, demoXt (9) Q(0.75)
Implied Contract	-0.61 (1.15)	0.19 (1.11)	0.01 (0.97)	-0.65 (1.22)	0.35 (1.34)	-0.09 (1.29)	-0.99 (1.20)	-0.14 (1.10)	0.12 (0.92)
Public Policy	-0.35 (0.87)	-0.70 (0.91)	-1.09 (0.88)	1.37 (0.90)	-0.35 (0.95)	-0.79 (1.26)	-0.77 (0.98)	-1.29 (0.99)	-1.54 (0.93)
Good Faith	1.72 (1.19)	2.22* (0.94)	1.62 (1.02)	0.59 (0.90)	3.29** (0.99)	2.91 (1.81)	2.00 (1.29)	2.02+ (1.02)	1.38 (0.96)
R-Sq N	0.18 4,652,387	0.22 4,652,387	0.18 4,652,387	0.18 1,375,973	0.22 1,375,973	0.18 1,375,973	0.18 3,276,414	0.22 3,276,414	0.18 3,276,414

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, + p < 0.10.

Note: Each entry shows output from analysis using specification 3, which is a difference in differences unconditional quantile regression in which the dependent variable is a recentered influence function of 100 times the natural logarithm of real U.S. year 2000 hourly wages of private-sector wage and salary employees in 50 U.S. states. Each entry in columns 1 through 3 show output for all private-sector workers, columns 4 through 6 for private-sector manufacturing workers, and columns 7 through 9 for private-sector nonmanufacturing workers. The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$ . Every three columns shows, respectively, the impact of policy adoption on the first, second, and third quartiles of the marginal distribution of real wages. The real U.S. year 2000 hourly wage data are taken from Current Population Survey Monthly Outgoing Rotation Group monthly files for the years 1979 to 2013. All models include state main effects and indicators for each year in the sample, indicators for individuals' demographic characteristics, interactions between four Census-region dummies and calendar year dummies, interactions between state and year linear and quadratic time trends, and interactions between workers' demographic characteristics and a linear time trend. Models are weighted using CPS earnings weights. Huber-White robust standard errors are used to allow for unrestricted error correlations across observations within states.

Table 5. --- Difference in Differences Estimates of the Impact of Wrongful Discharge Laws on the Distribution of Private-Sector Real Hourly Wages in Transportation-Warehousing and Health Care-Social Assistance Industries using CPS-MORG data: 1979-2013

	<u>Transportation-Warehousing</u>			<u>Health Care-Social Assistance</u>		
	UCQ w/state, year, demo FEs, regXyr, stateXt, stateXt2, demoXt (1) Q(0.25)	UCQ w/state, year, demo.FEs, regXyr, stateXt, stateXt2, demoXt (2) Q(0.50)	UCQ w/state, year, demo. FEs, regXyr, stateXt, stateXt2, demoXt (3) Q(0.75)	UCQ w/state, year, demo.FEs, regXyr, stateXt, stateXt2, demoXt (4) Q(0.25)	UCQ w/state, year, demo.FEs, regXyr, stateXt, stateXt2, demoXt (5) Q(0.50)	UCQ w/state, year, demo.FEs, regXyr, stateXt, stateXt2, demoXt (6) Q(0.75)
Implied Contract	1.85 (1.62)	2.24 (1.35)	2.15* (1.04)	-1.50 (1.08)	-0.45 (1.08)	0.38 (1.05)
Public Policy	-0.97 (1.36)	-1.06 (1.39)	-1.37 (1.05)	-0.05 (0.99)	-0.41 (1.10)	-0.37 (0.97)
Good Faith	2.56 (2.03)	3.99*** (1.05)	-0.04 (1.34)	1.09 (1.02)	0.57 (1.18)	2.17+ (1.17)
R-Sq N	0.12 138,190	0.15 138,190	0.12 138,190	0.16 553,725	0.21 553,725	0.17 553,725

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, + p < 0.10.

Note: Each entry shows output from analysis using equation 3, which is a difference in differences unconditional quantile regression in which the dependent variable is a recentered influence function of 100 times the natural logarithm of real U.S. year 2000 hourly wages of private-sector wage and salary employees in 50 U.S. states. Each entry in columns 1 through 3 show output for private-sector transportation and warehousing industry workers, and columns 4 through 6 for private-sector health care and social assistance industry workers. The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$ . Every three columns shows, respectively, the impact of policy adoption on the first, second, and third quartiles of the marginal distribution of real wages. The real U.S. year 2000 hourly wage data are taken from Current Population Survey Monthly Outgoing Rotation Group monthly files for the years 1979 to 2013. All models include state main effects and indicators for each year in the sample, indicators for individuals' demographic characteristics, interactions between four Census-region dummies and calendar year dummies, interactions between state and year linear and quadratic time trends, and interactions between workers' demographic characteristics and a linear time trend. Models are weighted using CPS earnings weights. Huber-White robust standard errors are used to allow for unrestricted error correlations across observations within states.

Table 6. --- Difference in Differences Estimates of the Impact of Wrongful Discharge Laws on Private-Sector Real Hourly Wages by Major Demographic Groups using CPS-MORG files: 1979-2013

	Female		Male		Nonwhite		White	
	D-D w/state, month-year, indust.FEs, regXyr, (1)	Col. 1 w/ stateXt, stateXtz, indXt (2)	Same as Col. 1 (3)	Same as Col. 2 (4)	Same as Col. 1 (5)	Same as Col. 2 (6)	Same as Col. 1 (7)	Same as Col. 2 (8)
Implied Contract	0.44 (1.17)	0.27 (0.76)	0.73 (1.36)	0.61 (1.09)	-0.67 (1.47)	0.44 (1.22)	0.68 (1.40)	0.42 (1.02)
Public Policy	-0.54 (1.07)	-0.37 (0.61)	-0.26 (1.25)	-0.54 (0.88)	-1.74 (1.76)	-0.09 (1.08)	0.05 (1.21)	-0.58 (0.80)
Good Faith	2.91** (1.05)	3.25*** (0.56)	1.79+ (0.95)	2.37* (0.91)	3.36* (1.66)	3.93* (1.62)	2.36* (0.93)	2.81*** (0.72)
R-Sq	0.11	0.11	0.07	0.07	0.11	0.12	0.09	0.09
N	2,176,253	2,176,253	2,476,134	2,476,134	616,698	616,698	4,035,689	4,035,689

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, + p < 0.10.

Note: Each entry shows output from analysis using specification 1, which is a difference and differences regression in which the dependent variable is 100 times the natural logarithm of real U.S. year 2000 hourly wages of private-sector wage and salary employees in 50 U.S. states. Each entry in columns 1 and 2 show output for private-sector women workers, columns 3 and 4 for private-sector male workers, columns 5 and 6 for private-sector nonwhite workers, and columns 7 and 8 for private-sector white workers. The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$ . The real U.S. year 2000 hourly wage data are taken from Current Population Survey Monthly Outgoing Rotation Group monthly files for the years 1979 to 2013. All models include state main effects and indicators for each month-year in the sample, indicators for individuals' industry of employment, as well as interactions between four Census-region dummies and calendar year dummies. Models in columns 2, 4, 6, and 8 also include interactions between state and year linear and quadratic time trends, and interactions between workers' industry of employment and a linear time trend. Models are weighted using CPS earnings weights. Huber-White robust standard errors are used to allow for unrestricted error correlations across observations within states.



Table 7. --- Difference in Differences Estimates of the Impact of Wrongful Discharge Laws on the Distribution of Private-Sector Real Hourly Wages by Gender using CPS-MORG files: 1979-2013

	Women			Men		
	UCQ w/state, year, indust.FEs, regXyr, stateXt, stateXt2, indXt (1) Q(0.25)	UCQ w/state, year, indust.FEs, regXyr, stateXt, stateXt2, indXt (2) Q(0.50)	UCQ w/state, year, indust.FEs, regXyr, stateXt, stateXt2, indXt (3) Q(0.75)	UCQ w/state, year, indust.FEs, regXyr, stateXt, stateXt2, indXt (4) Q(0.25)	UCQ w/state, year, indust.FEs, regXyr, stateXt, stateXt2, indXt (5) Q(0.50)	UCQ w/state, year, indust.FEs, regXyr, stateXt, stateXt2, indXt (6) Q(0.75)
Implied Contract	-0.78 (0.96)	-0.22 (0.96)	0.13 (0.98)	-0.03 (1.37)	0.52 (1.28)	0.10 (0.86)
Public Policy	-0.45 (0.72)	-0.55 (0.73)	-0.91 (0.93)	-0.12 (1.18)	-0.85 (0.95)	-1.48+ (0.87)
Good Faith	2.14* (1.04)	2.15* (0.82)	2.72** (0.80)	2.19 (1.47)	3.20** (1.17)	1.56 (0.97)
R-Sq N	0.08 2,176,253	0.07 2,176,253	0.05 2,176,253	0.07 2,476,134	0.05 2,476,134	0.03 2,476,134

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, + p < 0.10.

Note: Each entry shows output from analysis using equation 3, which is a difference in differences unconditional quantile regression in which the dependent variable is a recentered influence function of 100 times the natural logarithm of real U.S. year 2000 hourly wages of private-sector wage and salary employees in 50 U.S. states. Each entry in columns 1 through 3 show output for private-sector women workers, and columns 4 through 6 for private-sector male workers. The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$ . Every three columns shows, respectively, the impact of policy adoption on the first, second, and third quartiles of the marginal distribution of real wages. The real U.S. year 2000 hourly wage data are taken from Current Population Survey Monthly Outgoing Rotation Group monthly files for the years 1979 to 2013. All models include state main effects and indicators for each year in the sample, indicators for individuals' industry of employment, interactions between four Census-region dummies and calendar year dummies, interactions between state and year linear and quadratic time trends, and interactions between workers' industry of employment and a linear time trend. Models are weighted using CPS earnings weights. Huber-White robust standard errors are used to allow for unrestricted error correlations across observations within states.

Table 8. --- Difference in Differences Estimates of the Impact of Wrongful Discharge Laws on the Distribution of Private-Sector Real Hourly Wages by Race using CPS-MORG files: 1979-2013

	Nonwhite			White		
	UCQ w/state, year, indust.FEs, regXyr, stateXt, stateXt2, indXt (1) Q(0.25)	UCQ w/state, year, indust.FEs, regXyr, stateXt, stateXt2, indXt (2) Q(0.50)	UCQ w/state, year, indust.FEs, regXyr, stateXt, stateXt2, indXt (3) Q(0.75)	UCQ w/state, year, indust.FEs, regXyr, stateXt, stateXt2, indXt (4) Q(0.25)	UCQ w/state, year, indust.FEs, regXyr, stateXt, stateXt2, indXt (5) Q(0.50)	UCQ w/state, year, indust.FEs, regXyr, stateXt, stateXt2, indXt (6) Q(0.75)
Implied Contract	1.16 (1.79)	0.87 (1.44)	-0.12 (1.21)	-0.69 (1.17)	0.18 (1.22)	0.33 (1.07)
Public Policy	0.35 (1.14)	-0.43 (1.18)	-1.69 (1.12)	-0.54 (0.90)	-0.62 (0.99)	-1.12 (0.97)
Good Faith	2.24 (1.77)	3.25+ (1.82)	3.40 (2.05)	2.39* (1.17)	2.72** (0.89)	2.26* (1.01)
R-Sq N	0.07 616,698	0.06 616,698	0.04 616,698	0.09 4,035,689	0.07 4,035,689	0.04 4,035,689

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, + p < 0.10.

Note: Each entry shows output from analysis using equation 3, which is a difference in differences unconditional quantile regression in which the dependent variable is a recentered influence function of 100 times the natural logarithm of real U.S. year 2000 hourly wages of private-sector wage and salary employees in 50 U.S. states. Each entry in columns 1 through 3 show output for private-sector nonwhite workers, and columns 4 through 6 for private-sector white workers. The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_C$ ,  $\beta_{PF}$ , and  $\beta_{GF}$ . Every three columns shows, respectively, the impact of policy adoption on the first, second, and third quartiles of the marginal distribution of real wages. The real U.S. year 2000 hourly wage data are taken from Current Population Survey Monthly Outgoing Rotation Group monthly files for the years 1979 to 2013. All models include state main effects and indicators for each year in the sample, indicators for individuals' industry of employment, interactions between four Census-region dummies and calendar year dummies, interactions between state and year linear and quadratic time trends, and interactions between workers' industry of employment and a linear time trend. Models are weighted using CPS earnings weights. Huber-White robust standard errors are used to allow for unrestricted error correlations across observations within states.

Table 9. --- Difference in Differences Estimates of the Impact of Wrongful Discharge Laws on Private-Sector Real Hourly Wages by Firm-Size Categories using NLSY1979 panel data: 1979-2014

	<u>All Firm Sizes</u>		<u>50 or More Workers</u>		<u>Less Than 50 Workers</u>	
	D-D w/worker, state, year, demo, industry, regXyr (1)	Col. 1 w/ stateXt, stateXtz, demoXt, indXt (2)	Same as Col. 1 (3)	Same as Col. 2 (4)	Same as Col. 1 (5)	Same as Col. 2 (6)
Implied Contract	0.19 (1.67)	-0.19 (1.56)	0.25 (2.65)	1.92 (2.14)	0.11 (2.10)	1.41 (2.70)
Public Policy	-0.95 (1.49)	-0.36 (1.30)	2.52 (1.90)	0.28 (1.90)	2.02 (2.13)	3.83 (2.60)
Good Faith	0.88 (1.98)	1.92 (1.58)	6.84 (4.65)	11.09* (5.35)	3.06 (5.43)	8.12 (5.71)
R-Sq N	0.66 148,971	0.66 148,971	0.79 52,218	0.80 52,218	0.70 54,336	0.70 54,336

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, + p < 0.10.

Note: Each entry shows output from analysis using specification 1, which is a difference and differences regression in which the dependent variable is 100 times the natural logarithm of real U.S. year 2000 hourly wages of private-sector wage and salary employees in 50 U.S. states. Each entry in columns 1 and 2 show output for private-sector workers within firms of all sizes, columns 3 and 4 for private-sector workers in firms with 50 or more workers, and columns 5 and 6 for private-sector workers in firms of less than 50 workers. The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$ . The real U.S. year 2000 hourly wage data are taken from the National Longitudinal Survey of Youth 1979 files for the years 1979 to 2014. All models include state main effects and indicators for each year in the sample, indicators for individuals' demographic characteristics and their industry of employment, interactions between four Census-region dummies and calendar year dummies, an indicator for if workers' ever change state of residence, and an indicator for each individual worker that captures unobserved time-invariant characteristics such as motivation and ability. Models in columns 2, 4, and 6 also include interactions between state and year linear and quadratic time trends, interactions between workers' demographic characteristics and a linear time trend, and interactions between workers' industry of employment and a linear time trend. Models are weighted using NLSY79 sampling weights. Huber-White robust standard errors are used to allow for unrestricted error correlations across observations within states.

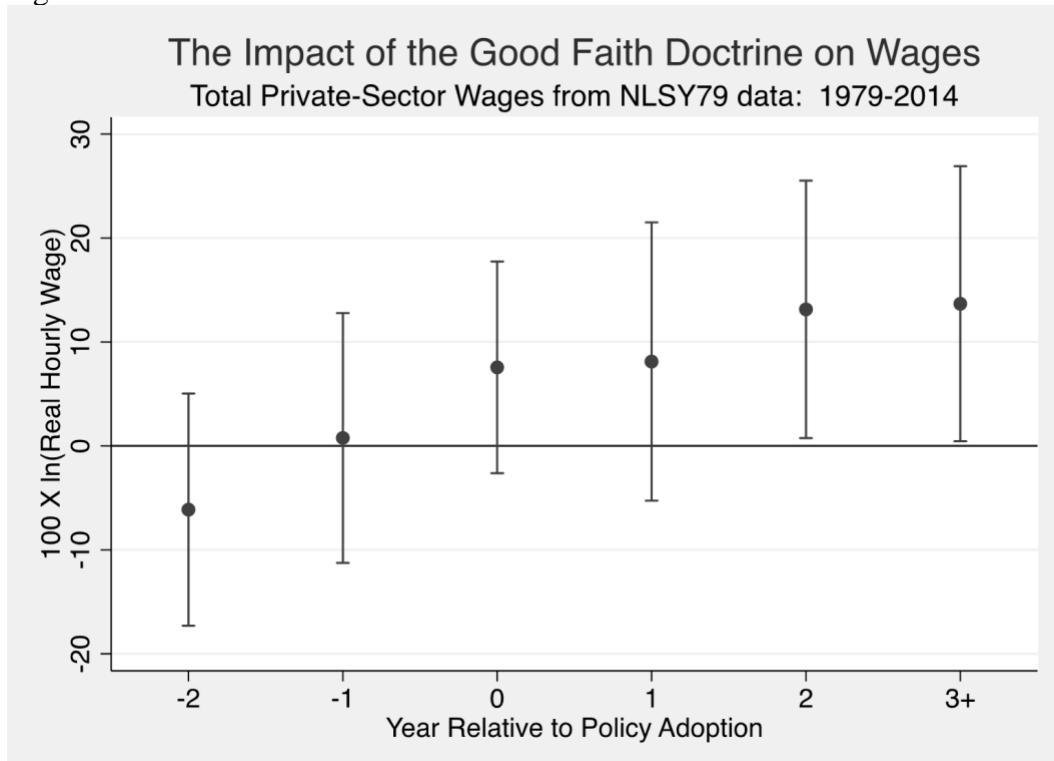
Table 10. --- Difference in Differences Estimates of the Impact of Wrongful Discharge Laws on Private-Sector Real Hourly Wages by Major Industry Categories using NLSY1979 panel data: 1979-2014

	<u>Total Private</u>		<u>Priv. Manufacturing</u>		<u>Priv. Nonmanufacturing</u>	
	D-D w/worker, state, year, demo FEs, regYyr, firm size (1)	Col. 1 w/ stateXt, stateXt2, demoXt (2)	Same as Col. 1 (3)	Same as Col. 2 (4)	Same as Col. 1 (5)	Same as Col. 2 (6)
Implied Contract	0.35 (2.01)	0.58 (1.64)	2.07 (2.76)	2.17 (2.97)	0.36 (2.02)	0.63 (1.95)
Public Policy	1.51 (1.55)	1.94 (1.54)	0.67 (1.89)	-0.44 (2.36)	1.65 (1.77)	1.32 (1.86)
Good Faith	3.70 (3.48)	8.12* (3.60)	4.31 (5.64)	1.13 (3.41)	2.89 (3.72)	6.75+ (3.77)
R-Sq N	0.71 106,554	0.71 106,554	0.84 18,093	0.85 18,093	0.72 87,714	0.72 87,714

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, + p < 0.10.

Note: Each entry shows output from analysis using specification 1, which is a difference and differences regression in which the dependent variable is 100 times the natural logarithm of real U.S. year 2000 hourly wages of private-sector wage and salary employees in 50 U.S. states. Each entry in columns 1 and 2 show output for all private-sector workers, columns 3 and 4 for private-sector manufacturing workers, and columns 5 and 6 for private-sector nonmanufacturing workers. The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$ . The real U.S. year 2000 hourly wage data are taken from the National Longitudinal Survey of Youth 1979 files for the years 1979 to 2014. All models include state main effects and indicators for each year in the sample, indicators for individuals' demographic characteristics, interactions between four Census-region dummies and calendar year dummies, indicators for the size of the firm in which workers' are employed, an indicator for if workers' ever change state of residence, and an indicator for each individual worker that captures unobserved time-invariant characteristics such as motivation and ability. Models in columns 2, 4, and 6 also include interactions between state and year linear and quadratic time trends, and interactions between workers' demographic characteristics and a linear time trend. Models are weighted using NLSY79 sampling weights. Huber-White robust standard errors are used to allow for unrestricted error correlations across observations within states.

Figure 3.



Note: The figure shows the transitory effects of the good faith doctrine on average real wages of all private-sector workers using a version of equation 2, a dynamic difference and differences regression, which in this case specifies two years of leads and two years of lags, as well as estimate of the long-term effect from three years and beyond, in which all yearly coefficients,  $\beta_{GFI+q}$  are evaluated relative to three years prior to policy adoption. The dependent variable is 100 times the natural logarithm of real U.S. year 2000 hourly wages of all private-sector wage and salary employees in the 50 U.S. states. The real U.S. year 2000 hourly wage data is taken from the National Longitudinal Survey of Youth 1979 files for the years 1979 to 2014. All models include state main effects and indicators for each year in the sample, indicators for individuals' demographic characteristics, interactions between four Census-region dummies and calendar year dummies, indicators for the size of the firm in which workers' are employed, an indicator for if workers' ever change state of residence, an indicator for each individual worker that captures unobserved time-invariant characteristics such as motivation and ability, interactions between state and year linear and quadratic time trends, and interactions between workers' demographic characteristics and a linear time trend. Models are weighted using NLSY79 sampling weights. Huber-White robust standard errors are used to allow for unrestricted error correlations across observations within states.

Table 11. --- Difference in Differences Estimates of the Impact of Wrongful Discharge Laws on Private-Sector Real Hourly Wages by Major Demographic Groups using NLSY1979 panel data: 1979-2014

	Female		Male		Nonwhite		White	
	D-D w/worker, state, year, indust. FEs, regXyr, firm size (1)	Col. 1 w/ stateXt, stateXt2, indXt (2)	Same as Col. 1 (3)	Same as Col. 2 (4)	Same as Col. 1 (5)	Same as Col. 2 (6)	Same as Col. 1 (7)	Same as Col. 2 (8)
Implied Contract	0.75 (2.41)	0.50 (2.03)	0.76 (2.90)	1.17 (1.94)	-0.62 (1.82)	2.43 (1.94)	0.87 (2.75)	0.57 (1.78)
Public Policy	4.38+ (2.01)	3.54 (2.17)	-2.15 (1.91)	-0.68 (1.86)	0.97 (2.06)	1.24 (2.66)	0.50 (1.83)	1.16 (1.55)
Good Faith	11.61** (3.69)	13.20*** (2.39)	-3.35 (4.27)	3.63 (4.67)	-0.45 (3.36)	7.58+ (3.99)	4.75 (4.19)	8.99* (3.75)
R-Sq N	0.68 50,431	0.68 50,431	0.70 56,451	0.71 56,451	0.68 46,008	0.68 46,008	0.71 60,874	0.71 60,874

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, + p < 0.10.

Note: Each entry shows output from analysis using specification 1, which is a difference and differences regression in which the dependent variable is 100 times the natural logarithm of real U.S. year 2000 hourly wages of private-sector wage and salary employees in 50 U.S. states. Each entry in columns 1 and 2 show output for private-sector women workers, columns 3 and 4 for private-sector male workers, columns 5 and 6 for private-sector nonwhite workers, and columns 7 and 8 for private-sector white workers. The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$ . The real U.S. year 2000 hourly wage data are taken from the National Longitudinal Survey of Youth 1979 files for the years 1979 to 2014. All models include state main effects and indicators for each year in the sample, indicators for individuals' industry of employment, interactions between four Census-region dummies and calendar year dummies, indicators for the size of the firm in which workers' are employed, an indicator for if workers' ever change state of residence, and an indicator for each individual worker that captures unobserved time-invariant characteristics such as motivation and ability. Models in columns 2, 4, and 6 also include interactions between state and year linear and quadratic time trends, and interactions between workers' industry of employment and a linear time trend. Models are weighted using NLSY79 sampling weights. Huber-White robust standard errors are used to allow for unrestricted error correlations across observations within states.

Table 12. --- Estimates of the Impact of Wrongful Discharge Laws on the Probability Single Female Heads of Households in the Private-Sector Are Low-Wage Workers using NLSY79 panel data: 1979-2014

	1 Parent, 1 Child 100% Federal Poverty Level	1 Parent, 2 Children 125% Federal Poverty Level
Implied Contract	0.01 (0.01)	-0.01 (0.02)
Public Policy	-0.04* (0.02)	0.01 (0.02)
Good Faith	-0.08* (0.03)	-0.10*** (0.03)
Pseudo R-Sq	0.16	0.16
N	49,263	49,263

Note: Each entry in columns 1 and 2 shows output from analysis using equation 4, which is a difference and differences probit model, in which the dependent variable is, respectively, a dummy that indicates if female private-sector wage and salary employees in 50 U.S. states are paid, respectively, a wage less than or equal to an amount sufficient to bring a family of two (i.e. one parent and one child) a yearly income equivalent to the federal poverty level, or a wage less than or equal to an amount sufficient to bring a family of three (i.e one parent and two children) a yearly income equivalent to 125% of the federal poverty level. These dichotomous dependent variables are constructed from the data in National Longitudinal Survey of Youth 1979 on real U.S. year 2000 hourly wages, for the years 1979 through 2014. All models include state main effects and indicators for each year in the sample, indicators for individuals' industry, the size of the firm they work in, if they ever change state of residence, interactions between four Census-region dummies and calendar year dummies, interactions between state and a linear time trend, interactions between workers' industry of employment and a linear time trend, as well as an individual worker indicator which captures unobserved time-invariant characteristics such as motivation and ability. Models are weighted using NLSY79 sample weights. Huber-White robust standard errors are used to allow for unrestricted error correlations across observations within states.

Table 13. --- Difference in Differences Estimates of the Impact of Wrongful Discharge Laws on Private-Sector Real Hourly Wages by Major Industries using NLSY1979 panel data and CPS-MORG files for Workers Aged 16 to 39: Contrasting Outcomes in Years 1 Through 3 Following Adoption with Years 1 and 2 Preceding Adoption, 1979-2014

	NLSY79 full panel			CPS-MORG Aged 16 to 39 yrs.		
	Private	Manufact.	Nonman.	Private	Manufact.	Nonman.
D-D w/worker state, year, demo FEs, regXyr	Same as Col. 1 (1)	Same as Col. 1 (2)	Same as Col. 1 (3)	Col. 1 w/o worker FEs (4)	Col. w/o worker FEs (5)	Col. 1 w/o worker FEs (6)
Implied	1.66	2.72+	1.88	0.41	1.02	0.28
Contract	(1.26)	(1.48)	(1.38)	(0.72)	(0.69)	(0.77)
R-Sq	0.68	0.84	0.68	0.31	0.34	0.30
N	82,420	17,489	64,334	1,212,548	258,777	953,771
Public	-1.19	2.29	-1.80	-0.39	0.45	-0.73
Policy	(1.11)	(1.47)	(1.31)	(0.67)	(0.58)	(0.74)
R-Sq	0.68	0.85	0.68	0.30	0.34	0.30
N	79,744	17,033	62,046	1,139,432	243,051	896,381
Good	1.96	4.08	0.14	-1.35	-0.72	-1.53
Faith	(1.19)	(3.72)	(1.28)	(1.57)	(1.26)	(1.75)
R-Sq	0.68	0.85	0.69	0.30	0.33	0.30
N	74,859	15,781	58,514	1,068,397	222,330	846,067

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, + p < 0.10.

Note: Each entry shows output from analysis using the main specification from Autor et al. 2006, which is a difference and differences regression that estimates the average change over the three years following policy adoption in comparison to the two years preceding adoption, creating a five-year period window over which an average causal effect of wrongful discharge laws is calculated. The dependent variable is 100 times the natural logarithm of real U.S. year 2000 hourly wages of private-sector wage and salary employees in 50 U.S. states. Each entry in columns 1 through 3 show output for all private-sector workers, in the entire private-sector, in private-sector manufacturing, and private-sector nonmanufacturing, all constructed from the National Longitudinal Survey of Youth 1979 data, while the output in columns 4 through 6 show the comparable output constructed from the subset of younger, aged 16 to 39, workers from the Current Population Survey Monthly Outgoing Rotation Group earnings files. The three main rows of the table show, respectively, the estimates for the regression coefficients  $\beta_{IC}$ ,  $\beta_{PP}$ , and  $\beta_{GF}$ . The real U.S. year 2000 hourly wage data are taken from the National Longitudinal Survey of Youth 1979 files for the years 1979 to 2014 and the U.S. year 2000 hourly wage data are taken from the Current Population Survey Monthly Outgoing Rotation Group data for the years 1979 to 2013. All models include state main effects and indicators for each year in the sample, indicators for individuals' demographic characteristics, and interactions between four Census-region dummies and calendar year dummies. The only difference between the specification underlying columns 1 through 3 and that underlying columns 4 through 6 is that the former contains an indicator for each individual worker that captures unobserved time-invariant characteristics such as motivation and ability. Models are weighted using NLSY79 sampling weights and CPS earnings weights respectively. Huber-White robust standard errors are used to allow for unrestricted error correlations across observations within states.



