Pay Secrecy and the Gender Wage Gap in the United States

Abstract: Legislators and advocates claim that pay secrecy perpetuates the gender wage gap and that the FLSA should be amended to outlaw these practices. Using a difference-in-differences fixed effects human capital wage regression, I find that women with higher education levels who live in states that have outlawed pay secrecy have higher earnings, and that the wage gap is consequently reduced. State bans on pay secrecy and federal legislation to amend the FLSA to allow workers to share information about their wages may improve the gender wage gap, especially among higher-educated women.

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There has been a sea-change in the workforce since the Fair Labor Standards Act (FLSA) was passed in 1938. One of the more notable changes is that few women worked for pay when the law was passed, while today, most do.[1] To address the needs of the modern workforce, legislation has amended the FLSA to account for these changes. These include the Equal Pay Act of 1963, which mandates equal pay for equal work, regardless of sex. But there have been other proposed amendments that purport to meet the needs of working women. This paper examines one of the least known policy proposals -- amending the FLSA in order to outlaw pay secrecy.

In this paper, I discuss pay secrecy, its extent, proposed legislation to amend the FLSA in order to prohibit these practices, and the likely effect of amending the FLSA to outlaw pay secrecy on earnings and the gender wage gap. Using a natural experiment of states that prohibit pay secrecy compared to those that do not, I examine whether states that outlaw pay secrecy reduce the gender wage gap. I find that in states that have outlawed pay secrecy, earnings for college educated women are greater, reducing the gender pay gap.

Pay Secrecy, Its Prevalence, and the Law

Pay secrecy includes rules, policies and practices that prohibit workers from discussing or sharing information about their earnings (Gely and Bielman, 2003; Bielman and Gely, 2004; Edwards, 2005). These include formal policies written in employee handbooks and informal policies conveyed to workers sometime during their employment (Gely and Bielman, 2003). Advocates and legislators who have proposed to amend the FLSA by outlawing pay secrecy argue that pay secrecy perpetuates the gender wage gap: if women don't know what other workers are paid, gender discrimination in earnings can continue.

Lilly Ledbetter illustrates this argument. For twenty years, Ledbetter was the only female supervisor among sixteen male supervisors for Goodyear Tire in Alabama. She earned less than

all these men, including some who had less seniority. Yet she did not know that she was underpaid because her workplace prohibited employees from discussing their pay. It was only after she received an anonymous note that revealed the earnings of some of these male managers that she realized she was underpaid (Greenhouse, 2007; National Women's Law Center, 2013).

Ledbetter is not alone. In the United States, most employees are prohibited from discussing their earnings. According to a survey conducted in 2010, 61 percent of private sector workers are either formally forbidden or informally discouraged from discussing their pay with their colleagues (Institute for Women's Policy Research, 2010). About one-third of private sector workers are explicitly forbidden from doing so because of formal rules or policies not to discuss their pay, with another third informally discouraged from doing so (Bielman and Gely, 2004; Colella et al., 2007; Edwards, 2005; Gely and Bielman, 2003; Bamberger and Beloglolovsky, 2010).

Yet, for most of these workers, these pay secrecy policies are illegal. Section 7 of the National Labor Relations Act (NLRA) protects workers in "concerted activities for the purpose of collective bargaining or other mutual aid or protection."[2] The National Labor Relations Board (NLRB), which enforces the NLRA, has consistently ruled that discussions of wages are a form of "protected concerted activity" and thus prohibiting discussions of earnings is illegal (Bielman and Gely, 2004; Gely and Bielman, 2003). It views sharing information about pay as integral to organizing workers into unions, even if a union organizing campaign is not in progress.[3]

> Dissatisfaction due to low wages is the grist on which concerted activity feeds. Discord generated by what employees view as unjustified wage differentials also provides the sinew for persistent concerted action. (Jeannette Corp v. NLRB, 532 F.2d 916, 919 (3d Cir. 1976), cited in Gely and Bierman, 2003: 128).

Thus, the NLRB has ruled very broadly that employers are in violation of the law if they discourage or prohibit workers from sharing information about their pay (Bielman and Gely,

2004; Gely and Bielman, 2003). Such prohibitions include informal or formal pay secrecy policies, even if not enforced. Policies that in any way restrict employees from sharing information about their earnings is forbidden, including employers' preventing employees from opening their paychecks among other workers. The NLRB has ruled that these prohibitions hamper employee's rights under the NLRA (Bielman and Gely, 2004; Gely and Bielman, 2003).[4] These protections extend to both unionized and non-union workers.

Why is pay secrecy so widespread if it is illegal? First, many employees are not covered by the NLRA: supervisors and managers are excluded. Hence if Lilly Ledbetter had violated her company's policy and had asked how much her male counterparts earned, she could have been fired with no legal recourse. Second, most employees do not know that pay secrecy is illegal (Gely and Bierman, 2003). Third, the penalties from violating the NLRA are mild, so that employers commonly break the law (Gely and Bierman, 2003; Freeman and Medoff, 1984; Brofenbenner, 1984). Fourth, many employees favor pay secrecy policies, in part because the culture in the US dictates that one does not discuss one's earnings (Colella et al., 2007).

Fifth, employers favor pay secrecy (Gely and Bierman, 2003). They believe that morale and productivity would decline, relationships among workers would be strained, and conflict will occur if workers knew how much others earned (see Colella, 2007, for a review of this literature). As one employer states, "jealously and strife among employees" would prevail if employees knew what others were paid but not the justifications for these wage differentials (Bierman and Gely, 2004). Pay secrecy may also prevent employees from leaving their employers for better paid companies (Danziger and Katz, 1997; Colella, 2007). Thus, since most managers believe that pay secrecy is a good policy, the unwritten rule in most workplaces is that

employees must keep their mouths shut about their pay (Bierman and Gely, 2004; Gely and Bierman, 2003).

Pay Secrecy and the Gender Wage Gap

Some scholars argue that pay secrecy can contribute to the gender pay gap (Eisenberg, n.d.) since it can "avoid perceptions of unfairness when pay inequities do exist and can minimize claims of discrimination" (Colella et al., 2007). Hence, lack of knowledge about what others earn can contribute to the existence of pay discrimination and thus to the gender wage gap. Eisenberg (n.d.) argues that pay transparency is important so that the employer is motivated to establish fair pay systems, and so that employees can monitor, complain about and remedy any unfair pay. Although market wages are supposed to discipline both workers and employers in compensation, much information is unavailable to workers (such as what their colleagues earn), so market discipline may not work. Instead, without standard salary scales, and with salaries based on previous salary, the gender pay gap can perpetuate (Eisenberg, n.d.). In addition, with salaries open to negotiation, women may be underpaid because they do not negotiate as hard as men for higher salaries, in part because if they do, they are seen as too demanding and unpleasant to work with. Thus, for a woman, negotiating over salary may lead to loss of a job offer. Men, however, are able to negotiate for higher salaries without such adverse consequences (Eisenberg, n.d.).

With salaries based on previous earnings, and with women earning less than men on average and unable to negotiate for higher pay, women will continue to earn less than men (Eisenberg, n.d.). Salary transparency, however, would enable women to know what others are earning and to negotiate for similar pay. It would also allow women to know if they are

underpaid compared to similar men and to correct these disparities, either informally or through the court system (Eisenberg, n.d.).

Federal Legislation to Outlaw Pay Secrecy: Amending the FLSA

Recognizing the importance of sharing information on pay for women's earnings, Congress has introduced 22 pieces of legislation that would amend the FLSA to outlaw pay secrecy. None of these have passed. These include the Paycheck Fairness Act (introduced 17 times), the Fair Pay Act of 2001 and 2011, the Enhancing Economic Security for America's Working Families Act in 2001, the Fairness and Individual Rights Necessary to Ensure a Stronger Society: Civil Rights Act of 2004, and the Wage Awareness Protection Act in 2000.[5] The Wage Awareness Protection Act was the only bill in which pay secrecy was the sole content; all the other bills included broader legislation to reduce the gender wage gap (such as mandating comparable worth or harsher penalties for findings of discrimination). These bills would have amended Section 15 of the FLSA—the Prohibited Acts—to make unlawful any policies or actions against employees who share information about their earnings.

For example, the Wage Awareness Protection Act would have prevented employers from taking any adverse employment action against employees who inquire about or discuss wages, or to "make or enforce a written or oral confidentiality policy that prohibits an employee from inquiring about, discussing, or otherwise disclosing the wages of the employee or another employee." (Bierman and Gely, 2004: 186). Various Paycheck Fairness Acts introduced in Congress, most recently in January 2013, would amend Section 15 so that it would be unlawful for any person:

> "to discharge or in any other manner discriminate against, coerce, intimidate, threaten, or interfere with any employee or any other person because the employee inquired about, discussed, or otherwise disclosed the wages of the employee or another employee." (See S. 3772, 9/13/2000; S. 182 4/19/2005; HR 12 1/6/2009).

The motivation for federal legislation was to reduce the gender wage gap (see FDCH Press, 2009; Gely and Bierman, 2003). For example, Congresswoman Eleanor Homes Norton states that it is important

> To keep employers from gagging employees by threatening them with sanctions for freely discussing and learning the wages of their coworkers, enabling women to engage in self-help to demand wage increases where appropriate….(cited in Gely and Bierman, 2003: 132)

Because repeated attempts to outlaw pay secrecy at the federal level failed, on April 8, 2014, President Obama issued an Executive Order banning pay secrecy for federal contractors. Only one out of five workers are covered by this provision, however,[6] but managers and supervisors are included.

State Laws on Pay Secrecy

Seven states have passed their own laws banning pay secrecy: Michigan (1982), California (1984), Colorado (2008), Illinois (2004), Maine (2009), Vermont (2005) and most recently, New Jersey (2013). These laws vary in terms of which employees are covered and under which circumstances (see Table 1). In general, states that prohibit pay secrecy through their labor laws (such as California, Michigan, and Colorado) commonly include only private sector workers, with Colorado further limiting employees to those covered by the NLRA (so that supervisors and managers are excluded from these protections). In contrast, states that prohibit pay secrecy in their Equal Employment laws, such as Illinois, New Jersey and Maine, do so for both public and private sector workers but only when employees are investigating unequal pay claims. Vermont is the only exception to this pattern, covering both private and public sector workers without limiting them to investigating unequal pay claims. Vermont also allows workers to file claims anonymously, by sending in employee manuals that reveal an employer's

pay secrecy policy. (See Table 1 for a summary of state pay secrecy laws.) Although New York State has introduced legislation several times that would ban pay secrecy, this legislation has never passed.

In states without laws prohibiting pay secrecy, little is known about the extent to which workers face reprisals for sharing information about their earnings. However, research suggests that workers don't seem to share information about their wages out of fear of such punishment (Bierman and Gely, 2004; Gely and Bierman, 2003). In the states that have outlawed pay secrecy, not much is known about the extent to which workers avail themselves of these laws or know about them. Interviews in some states indicate that few charges are filed regarding pay secrecy violations (Deputy Labor Commissioner, 2011; Hernandez, 2011; Moy, 2011; Bass, 2011; Maine Department of Labor, 2011), and that few workers may know about these laws (Bass, 2011; Moy, 2011), so that more needs to be done about publicizing them (Bass, 2011).

However, others discuss workers who, knowing that they were protected by these laws, inquired about their colleagues' pay, and when they discovered they were underpaid because of their gender, they complained to their human resource departments and demanded higher pay (Meric, 2011; Everett, 2011). Of course, it could be that in some states the laws are not publicized adequately and that many workers do not know about them, but that those who are informed use the laws to investigate their pay and remedy any discrepancies, if warranted.

** Table 1 about here **

The motivation for passing these state laws was the same as with the federal proposals--to close the wage gap. Legislators and activists claim that for women's earnings to increase, women need to be able to discover if they are underpaid (Hayden, 2011; Meric, 2011, Bass, 2011; Harris, 2011; Donovan, 2011). As one advocate elaborates:

"As part of pay equity, workers need to know how their pay compares to other workers in order to understand if they are paid fairly, and if not, take action. Few workers know that sharing their wages is a "concerted activity" protected by the NLRA. We wanted a clear statement in Colorado law so that employees knew they could share wage information without reprisals." (Meric, 2011)

For Maine, the Lilly Ledbetter case was also a motivating factor in passing legislation (Bass, 2011). But was Lilly Ledbetter the exception, or are women indeed underpaid like these advocates and legislators believe--because women simply don't know that they are paid less than men?

Pay Secrecy and Wages: An Overview and the Data

If advocates and legislators are correct in that women feel empowered to inquire and remedy any gender differences in pay, state laws outlawing pay secrecy would increase wages for women and reduce the gender wage gap.   I use the March Supplement of the Current Population Survey (CPS), also known as the Annual Social and Economic Supplement, from IPUMS, to investigate this. Data included 1977 to 2012 because prior to 1977, not all the variables were available.   Civilian workers between 25 and 64 years of age, who were wage and salary workers, and who earned positive earnings (and worked positive numbers of weeks) were included in the sample. With these restrictions, the sample contained over 2.1 million observations: approximately 1.1 million men and 1 million women.

A cross sectional examination of the data in 2011 and 2012, when pay secrecy had been outlawed in six of these seven states,[7] indicates that women's wages are higher in states that have outlawed pay secrecy—but men's wages are higher, too. As Table 2 shows, men earn an average of $30.56/hour in states that ban pay secrecy, compared to $28.45 in states without these bans. Similarly, women earn $24.18 in states that ban pay secrecy, and a lower amount, $22.10/hour, in states that do not have such bans (these differences are statistically significant).

Of course, there are two possible reasons for these outcomes. First, employers' worst fears may be realized when pay secrecy is illegal: wages may creep higher once employees know what others earn, because employers increase wages that are too low. Second, however, is that workers in these states are quite different, leading to higher wages.

*** Table 2 about here ***

Notice that the gender wage gaps persist whether one is in a state with or without laws banning pay secrecy. These gender wage differences are all statistically significant at the 1% level. Most likely, these persistent gender gaps result from many factors (more on this later). The gender wage gap is smaller in states that have banned pay secrecy, although these differences are not statistically significant. The statistical insignificance may be due to the low sample size (six each year) or to other factors that are influencing wage rates (more on this below).

Obviously, however, many factors can explain these findings. Workers living in states that have banned pay secrecy may be different than workers in other states, for example, with higher education or work experience levels. States that have banned pay secrecy may also have passed other laws that can increase wages, such as higher minimum wages or laws that allow advocating for labor unions. As Table 3 shows, those living in states that have outlawed pay secrecy are more likely to live in metropolitan areas and in central cities. These states also have fewer African American workers, more Hispanic and Asian American workers, and fewer workers with less than high school degrees. These differences are likely to explain the higher wage rates of both men and women in these states.

** Table 3 about here **

Similarly, the smaller (albeit insignificant) wage gaps in states with laws that ban pay secrecy may be due to two entirely different factors. First, it may be true that states with pay secrecy laws increase the pay for women and thus lower the gender pay gap because women are informed if they are underpaid compared to men and remedy this problem. In this scenario, the law is working as proponents claim.

A second explanation, however, may be self-selection. States that pass pay secrecy laws may care more about non-discrimination and thus have greater enforcement about workplace discrimination. They may also be more aggressive in other areas that affect the gender wage gap, such as in affirmative action and gender neutral education. In this scenario, the gender pay gap may be lower compared to states without such laws, but this may be due to other factors besides the pay secrecy law, including a culture more supportive of working women and ending employment discrimination, a legislature more supportive of women's rights, stronger laws on gender pay discrimination, or stronger enforcement of such laws. Thus, banning pay secrecy may not be what increases pay for women, but rather a larger culture that supports women. In this scenario, passing pay secrecy laws in other states would not lower the gender pay gap; instead, changing the social climate around women's pay may be effective.

Research Methods

In order to examine these competing explanations, control for factors that may explain these patterns, and increase the sample size, I ran a difference-in-difference-in-difference (DDD) human capital wage regression. Human capital regressions are commonly run to examine gender wage differentials, since this allows for key variables to be measured separately from the effect of other characteristics that affect wage rates, such as higher education levels, work experience, race, and ethnicity (see Kim, 2013). Difference-in-difference-in-difference (DDD) analysis is

used to examine the effect of policy changes on specific groups of people—in this paper, women (see Pischke, 2005; Imbens and Woodridge, 2007). Following Pischke (2005), the DDD specification I ran was:

1. $Ln(w_{i,s,t}) = \alpha_1 X_{i,s,t} + \alpha_2 f_{i,s,t} + \alpha_3 I_t + \alpha_4 I_s + \alpha_5 (ps_{s,t}*f_{i,s,t}) + \alpha_6 (f_{i,s,t}*I_s) + \alpha_7 (f_{i,s,t}*I_t) + \alpha_8 (I_s*I_t) + e_{i,s,t}$

For each individual i in state s and time t, the dependent variable is the natural log of the real (in 2012 dollars) hourly wage, $w_{i,s,t}$.[8] Independent variables ($X_{i,s,t}$) were included to account for factors other than gender that may affect wages. These include educational attainment, race, potential work experience, its square, living in a metropolitan area or central city, and marital status, all which are typical controls in wage regressions. The number of children, the presence of children under age 5, and broad industry and occupational dichotomous variables were also included, since differences in wages by gender can be explained by these.[9] A female dummy variable, $f_{i,s,t}$, is also included to capture the effect of underpaying women workers, controlling for all these other factors.

A matrix of fixed effects by year (I_t) controls for economic conditions that vary over time, such as the business cycle. A matrix of state effects (I_s) controls for variations in the cost of living, economic conditions, business climates, and state laws. This matrix interacted with the female dummy variable ($f_{i,s,t}*I_s$) captures political climates toward women or other state laws that may affect the pay for women and the gender pay gap across states. A dichotomous variable, $ps_{s,t}$, indicates those living in a state s in which pay secrecy laws were in effect in year t. This pay secrecy variable is interacted with the female dummy variable ($ps_{s,t}*f_{i,s,t}$) to measure the effect of outlawing pay secrecy on women's wages in particular. The coefficient of interest is α_5.

Interacting the female dummy variable with year effects ($f_{i,s,t}*I_t$) controls for trends particular to women, such as the general tendency for the wage gap to decline over time. Interacting state and year effects (I_s*I_t) controls for unobservable factors by state-year cells. The last argument in equation 1 is the individual specific error term. All reported standard errors are clustered at the state level.

Pay secrecy probably affects some workers more than others. Those with higher educations are more likely to work in professional jobs in which negotiating pay is more common. These jobs are more likely to have wider variation in skill levels and that also allows for more discretion in pay-setting by employers. Research confirms that college educated workers have higher variation in their pay (Lemieux, 2006; Chay and Lee, 2000), and that this variation has increased over the time period examined in this study (Lemieux, 2006). Thus, separate regressions are also run on those with college degrees and those without, to see the effects of outlawing pay secrecy by educational differences. The expectation is that laws outlawing pay secrecy will have a greater effect on higher educated workers.[10]

Definitions of the variables and their means and standard deviations are included in Appendix A.

Research Results

To assess the effects of outlawing pay secrecy, Table 4 first shows the regression results using a simpler difference-in-difference specification. Here, only human capital variables (including gender) and state and year fixed effects are included, omitting all interaction variables.[11] The policy variable is shown without any interactions with gender in order to see if the policy had any effect at all. As specification #1 in this table indicates, the policy does not

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seem to affect wages, as the results are statistically insignificant. Separate regressions by gender also yield insignificant results.

This confirms that the higher average wages in the states that outlawed pay secrecy in Table 2 results from the different characteristics of workers in these states: their higher education levels, more likelihood of living in metropolitan areas, and fewer African-Americans. Enacting pay secrecy laws does not appear to increase wages for all employees, as employers feared.

The next row (#2) in Table 4 keeps the previous specification, but adds the policy interacted with being female. Here, the policy by itself is once again insignificantly different from zero. The coefficient on the interaction term of this policy and being female is positive and statistically significant, however. On average, women's wages increased 4-5 percent after pay secrecy laws were passed, leading to an increase in the gender wage ratio (the ratio of women's to men's pay) of 3 to 3.5 percentage points.[12]

The next results (#3) uses the DDD specification in equation 1 for all education levels. Notice that in this specification, the effect on outlawing pay secrecy for women is much smaller. Women's wages increase by only one percent, and this is not even statistically significant for full-time year-round workers. But when examined by education level, the results are quite different: Wage increases for women with low education levels, although positive, are statistically insignificant (see #4). In contrast, women with college degrees increased their pay 3 percent. Thus these results show some support for the claims of advocates that laws outlawing pay secrecy increase pay for women, especially those with college degrees.

** Table 4 about here **

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As a check on these results, I use a method to measure race or gender discrimination (see Verdugo, 1992; for examples, see McGuire and Reskin, 1993; Green and Ferber, 2005; Yamane, 2002; Mar 2000; Kim, 2009) and calculate the gender wage gap in states with and without pay secrecy laws in effect. I then use a difference-in-difference (DD) model to see if this gender wage gap is lower in states in which pay secrecy is outlawed.

To do this, first, a wage regression was run only for men from 1977 to 2012, using the same human capital controls, X, in equation 1 and state fixed effects:

2. $Ln(w_{i,s,t}) = \beta_1 X_{i,s,t} + \beta_2 I_s + e_{i,t}$

This regression provides estimates of the coefficients for men, β_1^m and β_2^m, after controlling for the same education attainment, geography variables, and demographic variables as in equation 1. Using these estimated coefficients, a predicted wage, p, was estimated for every women by using the characteristics of each of the women (the X's) but the estimated coefficients (β_1^m and β_2^m) from the regression of men:

3. $p_{i,s,t} = \beta_1^m X_{i,s,t} + \beta_2^m I_s$

This predicted wage is the wage that women would earn if they had the same returns to their characteristics as do men. It is often a measure of a non-discriminatory wage—i.e. what women would earn in the absence of discrimination, because it measures their earnings as if they were treated as men (Verdugo, 1992). The actual real log wage of each woman was then subtracted from this predicted wage to estimate the amount of discrimination in wages each woman faced—i.e. what they would have earned as a man minus what they actually did earn:

4. $D_{i,s,t} = p_{i,s,t} - ln(w_{i,s,t})$

where i is the ith woman in year t and state s. This discrimination variable, D, measures the adjusted gender wage gap (adjusted for human capital and other characteristics). I used a

difference-in-difference specification to examine if laws outlawing pay secrecy policies reduced this wage gap:

$$5. \qquad D_{i,s,t} = \gamma_1 \, pse_s \, + \gamma_2 I_t \, + \gamma_3 ps_{s,t} \, + e_{i,s,t}$$

Whether or not a state ever had prohibited pay secrecy at any time is now a control (pse), as these states may be different from those that never passed such laws. Year effects are included in this specification. The coefficient of interest is γ_3, which measures the effect of the policy on lowering the pay gap for women.

The first three rows in Table 5 show the results from equation 5. Notice that although the adjusted wage gap, or D, is indeed lower for women in states in which pay secrecy laws are in effect, these are not statistically significant. But these effects are once again very different by education level. Those with college degrees receive 5-6 percent reductions in the gender wage gap. In contrast, those without college degrees have statistically insignificant changes in the wage gap.

A variation of this specification was run with state fixed effects instead of the pse variable in equation 5. The measure of discrimination, D, was constructed similarly in equations 2 and 3 but using year instead of state fixed effects.[13] Rows 4-6 in Table 5 indicate that in this specification, the effects are even greater, with reductions of the adjusted wage gap of 8-11 percent. The results by education level are also consistent with previous findings: Women with college degrees face much higher declines in the gender wage gap—12-15 percent. In comparison, women without such degrees experienced 6-8 percent decreases in the wage gap, and these are statistically significant.

Taken together, these results show support that state laws that outlaw pay secrecy increase earnings for women relative to men, especially among college educated women, and

that the gender wage gap falls among this population as well. Thus pay secrecy laws appear to help women determine if they are underpaid compared to men and may be useful to reduce the gender wage gap, especially among the higher educated.

Conclusion

When the FLSA was first passed, gender differences in wages were accepted and perfectly legal (Kim, 1999). But to be relevant, the FLSA may need to be amended from time to time in order to meet the needs of the current workforce. Today, the labor force is vastly different than in 1938, in that it is comprised of many more women. Currently, women earn 82% of what men earn,[14] and although the gender wage gap has narrowed over several decades, advocates feel that with women now attending college at higher rates than men, the gender wage gap should be much smaller.

Although much research has been conducted on various policies to see how pay can increase for women, no one has examined the effect of pay secrecy on women's earnings. Using a natural experiment of states that have outlawed employment practices that prevent workers from discussing pay, I find that wages are higher for women in states that have outlawed pay secrecy, especially among those with college degrees. These women increase their earnings 3 percent in states that have outlawed pay secrecy. Additional analyses finds that those with college degrees reduce the gender wage gap by 5-6 percent, or by 12-15 percent, depending on the specification and population of workers examined.

These results provide support for state laws outlawing pay secrecy. Thus prohibiting pay secrecy in other states is likely to benefit college-educated women, increasing their pay and lowering the gender wage gap.   National legislation has been introduced to amend the FLSA, including the Paycheck Fairness Act, to outlaw pay secrecy on a national level, but this has never

been passed by Congress. The results in this paper indicate that such legislation is likely to improve women's pay.

Thus, outlawing pay secrecy in the Fair Labor Standards Act and in state legislation should be considered as another tool to lower the gender wage gap among higher educated women. In this way, the Fair Labor Standards Act can be amended to address a problem that was not seen as critical when it was first passed: the underpayment of women workers.

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Table 1. State Legislation on Pay Secrecy

State	Date Passed	Effective	Scope of Law	Workers Covered
California	1984	Jan. 1985	Policies and retaliation; Wage disclosure only	Private sector
Colorado	April 2009	August 2008	Policies and retaliation; wage inquiry, disclosure, Comparisons, discussions	Private sector workers covered by the NLRA
Illinois	May 2003	Jan. 2004	Cannot prohibit wage Disclosure or inquiry but Only when exercising Equal Pay laws.	private and public sector
Maine	June 2009	Sept. 2009	Cannot prohibit wage disclosure or inquiry but Only when exercising Equal Pay laws	private and public sector
Michigan	1982	March 1983	Policies and retaliation; wage disclosure only	private sector
Vermont	2005	July 2005	Policies and retaliation; wage disclosure only	private and public sector
New Jersey	2013	2013	Retaliation for wage sharing And inquiries	Investigation of discrimination only

Table 2: Hourly Earnings for Full-Time Year-Round Workers, 2011-12

(Standard errors are in parentheses)

	In the States	
	Banning Pay Secrecy	No Ban in States
A. Hourly Earnings		
Men	30.15***	28.32
	(.2906)	(.1291)
N	11,388	46,396
Women		
	24.20***	21.97
	(.2355)	(.0962)
N	8892	39,053

B. Women's Earnings Compared to Men's Hourly Earnings

Ratio of Women's/Men's Earnings	**0.**7985	**0.**7783
	(.0111)	(.00544)
N	12	90

Note: Data are from the Current Population Survey, March Supplement 2011-2012 data. Full-time year-round workers.   Wages are in 2012 dollars.

Statistically different between states with and without laws banning pay secrecy at the:
*10% level; **5% level; ***1% level

Table 3	Means by States With and Without Pay Secrecy Laws					
	No Pay Secrecy Laws			Pay Secrecy Outlawed		
	Mean	s.d.		Mean	s.d.	
Ln real wage	2.8997632	0.6747491		2.9789798	0.6876831	
number of children	1.0198004	1.1864069		1.037327	1.2225702	
metroarea	0.7686778	0.4216779		0.8935097	0.3084642	
central city	0.2391953	0.4265922		0.3104914	0.4626948	
Hispanic	0.0788398	0.2694886		0.1699448	0.3755843	
female	0.4718978	0.4992096		0.4566614	0.4981182	
black	0.1242244	0.3298374		0.0823992	0.2749719	
Other race	0.038352	0.1920446		0.0814843	0.2735774	
high school	0.220942	0.4148815		0.1851082	0.3883853	
some college	0.2404129	0.4273342		0.2690724	0.4434777	
college	0.2133254	0.4096556		0.2327202	0.4225654	
advanced degree	0.0690064	0.2534649		0.0704794	0.2559533	
never marry	0.1726349	0.3779313		0.1989451	0.3992067	
married	0.6610127	0.4733655		0.6384964	0.480436	
sep/div/wid	0.1663524	0.3723966		0.1625585	0.3689624	
pay secrecy	0	0		0.6238283	0.4844239	
female*pay secrecy	0	0		0.2862372	0.4520016	
Work experience	23.6157704	10.7683		23.2651797	10.6324109	
Work experience^2	673.660898	556.689613		654.316749	545.627074	
Child under 5	0.1517406	0.3587692		0.1589455	0.3656252	
Number of observations	1,685,259			419,730		

Table 4. Regression Results: Difference-in-Difference and DDD results

(clustered standard errors are in parentheses)

	All workers	Full-time, year-round workers
1. DD model: state and year F.E.		
Policy in effect (PS)	-0.00502 (.02338)	-.00710 (.02327)
2. Policy in effect (PS)	-0.02735 (.02090)	-0.02408 (.01779)
Policy in effect*female	0.04810** (.02090)	0.04045** (.0186)

DDD model: (see equation #1 in text) includes all interaction terms (female*state, female*year, year*state)

Coefficient on pay secrecy policy in effect (PS) * female for

	All workers	Full-time, year-round workers
3. All education levels	0.01267** (.00578)	0.0102 (.008)
4. No College Degree	0.00958 (.0235)	0.0116 (.02195)
5. College Degree	0.02665* (.01318)	0.02469*** (.0095)

Note: Regressions are on log of real (2012) hourly earnings, 1977-2012. Data are from March CPS, Annual Social and Economic Supplement, 1977-2012 from IPUMS. Sample includes wage and salary earners with positive earnings and weeks worked, between 25-64 years of age. See text for control variables used. N=1,540,179 for the full sample (1,094,816 men and 99,605 women) and 2,083,421 (892,921 men and 647,258 women) for full-time year-round earners.

*significant at 10% level; **significant at 5% level; *** significant at 1% level

Table 5: Coefficient Estimates for Pay Secrecy Laws in Effect (PS)

(Dependent Variable is the Adjusted Gender Wage Gap; clustered standard errors are in parentheses)

		All Workers	Full-time Year-Round
Model with pse variable in equation 5 **(ever had pay secrecy outlawed in state)**			
1	All Education Levels	-.0232 (.0232)	-.0217 (.0212)
2	No College Degree	-.0086 (.0209)	-.0089 (.0203)
3	College Degree	-.0578** (.0273)	-.0485*** (.0209)
Model with state fixed effects instead of pse variable			
4.	All Education levels	-.1068*** (.0304)	-.0830*** (.0312)
5.	No College Degree	-.0785*** (.0224)	-.0561** (.0282)
6.	College Degree	-.1468*** (.0550)	-.1198*** (.0418)

Note: See text for an explanation of variables used.

*Significant at 10% level; **significant at 5% level; *** significant at 1% level

Appendix A. Variable Definitions and Means

Variable	Definition		All Workers			Full-Time	Year-Round
			Men	Women		Men	Women
			Mean (S.D.)	Mean (S.D.)		Mean (S.D.)	Mean (S.D.)
Ln real wage	ln of (2012) real wage		3.0599 (0.67)	2.7554 (0.651)		3.1196 (0.616)	2.836 (0.574)
number of children	Number of own children		1.0053 (1.222)	1.0445 (1.162)		1.0529 (1.223)	0.9255 (1.100)
metroarea	1 if metro area		0.7962 (0.403)	0.7961 (0.403)		0.8026 (0.398)	0.8106 (0.392)
central city	1 if central city		0.2535 (0.435)	0.2565 (0.437)		0.2471 (0.431)	0.2677 (0.443)
Hispanic	1 if Hispanic		0.1104 (0.313)	0.0859 (0.28)		0.1048 (0.306)	0.0857 (0.2799)
Female	1 if female		n/a	.4685[1] (.499)		n/a	0.4171[1] (0.493)
Black	1 if black		0.1013 (0.302)	0.1306 (0.337)		0.0955 (0.294)	0.1407 (0.348)
other race	other race		0.0476 (0.213)	0.0482 (0.214)		0.0469 (0.211)	0.0506 (0.219)
high school	1 if high school ed		0.2125 (0.409)	0.2136 (0.41)		0.2117 (0.409)	0.2193 (0.414)
some college	1 if some college		0.2315 (0.422)	0.264 (0.441)		0.2352 (0.424)	0.2702 (0.444)
College	1 if college degree		0.2207 (0.415)	0.2141 (0.41)		0.2362 (0.425)	0.2258 (0.418)
advance degree	1 if advanced degree		0.0683 (0.252)	0.0704 (0.256)		0.0733 (0.261)	0.0777 (0.268)
never married	1 if never married		0.192 (0.394)	0.163 (0.369)		0.1704 (0.376)	0.1807 (0.385)
Married	1 if married		0.6877 (0.463)	0.6202 (0.485)		0.7171 (0.451)	0.5856 (0.493)
sep/div/wid	1 if separated, divorced, or widowed		0.1203 (0.325)	0.2168 (0.412)		0.1124 (0.316)	0.2337 (0.423)
pay secrecy	1 if in state where pay secrecy is outlawed		0.1399 (0.347)	0.1345 (0.341)		0.137 (0.344)	0.1337 (0.340)
Work experience	potential work experience		23.422 (10.79)	23.671 (10.68)		23.664 (10.572)	23.8562 (10.557)
Work experience^2	above squared		664.94 (558.5)	674.47 (549.6)		671.75 (547.04)	680.569 (539.73)
Child under 5	1 if presence of child under 5		0.1706 (0.376)	0.1337 (0.34)		0.1762 (0.381)	0.1074 (0.310)

[1]Mean and s.d. for female is computed across both gender groups.

Endnotes

[1] In 1948, 32% of women were in the labor force; in 1938, even fewer were (Smith, 1979; Federal Reserve Board of St. Louis, 2013). In contrast, in 2012, 58% of women participated in the labor force (US Bureau of Labor Statistics, 2013b).

[2] 29 U.S.C. § 157 (2003).

[3] An NLRB Board member confirms that "The right of employees to talk to each other about pay is as fundamental as any activity intended to receive NLRA protection, given that pay discussions among disgruntled employees are often at the heart of unionization activity." (Bielman and Gely, 2004: 169, citing John E. Higgins, an NLRB Board member.)

[4] The only employer prohibitions the NLRB has allowed involve revealing the entire pay structure, since pay structures are viewed as proprietory. See Gely and Bierman (2003) and Bierman and Gely (2004)

[5] See for example, S. 71: Paycheck Fairness Act. 105th Congress (introduced 1/21/1997) http://www.gpo.gov/fdsys/pkg/BILLS-105s71is/pdf/BILLS-105s71is.pdf; H.R. 2023 : Paycheck Fairness Act (introduced 6/24/1997) http://www.gpo.gov/fdsys/pkg/BILLS-105hr2023ih/pdf/BILLS-105hr2023ih.pdf; S 74, 106 Congress Paycheck Fairness Act (introduced 1/19/1999) http://www.gpo.gov/fdsys/pkg/BILLS-106s74is/pdf/BILLS-106s74is.pdf; H.R. 541 Paycheck Fairness Act (introduced 2/3/1999) http://www.gpo.gov/fdsys/pkg/BILLS-106hr541ih/pdf/BILLS-106hr541ih.pdf; H.R. 2397 Paycheck Fairness Act (introduced 6/30/1999) http://www.gpo.gov/fdsys/pkg/BILLS-106hr2397ih/pdf/BILLS-106hr2397ih.pdf; S. 77 Paycheck Fairness Act (introduced 1/22/2001) http://thomas.loc.gov/cgi-bin/query/z?c107:S.77; S. 8 Enhancing Economic Security for America's Working Families Act (introduced 1/22/2001) http://www.gpo.gov/fdsys/pkg/BILLS-107s8is/pdf/BILLS-107s8is.pdf; H.R. 781 Paycheck Fairness Act (introduced 2/28/2001) http://www.gpo.gov/fdsys/pkg/BILLS-107hr781ih/pdf/BILLS-107hr781ih.pdf; S. 76 Paycheck Fairness Act, 108th Congress (introduced 1/7/2003) http://www.gpo.gov/fdsys/pkg/BILLS-108s76is/pdf/BILLS-108s76is.pdf; 10. H.R. 1688 Paycheck Fairness Act (introduced 4/9/2003) http://www.gpo.gov/fdsys/pkg/BILLS-108hr1688ih/pdf/BILLS-108hr1688ih.pdf; H.R. 1687 Paycheck Fairness Act (introduced 4/19/2005) http://www.gpo.gov/fdsys/pkg/BILLS-109hr1687ih/pdf/BILLS-109hr1687ih.pdf; S. 841 Paycheck Fairness Act (introduced 4/19/2005) http://www.gpo.gov/fdsys/pkg/BILLS-109s841is/pdf/BILLS-109s841is.pdf; H.R. 1338 Paycheck Fairness Act (introduced 3/6/2007) http://www.gpo.gov/fdsys/pkg/BILLS-110hr1338ih/pdf/BILLS-110hr1338ih.pdf; H.R. 12 Paycheck Fairness Act (introduced 1/6/2009) http://www.gpo.gov/fdsys/pkg/BILLS-111hr12ih/pdf/BILLS-111hr12ih.pdf; 15. S. 182 Paycheck Fairness Act (introduced 4/19/2005) http://www.gpo.gov/fdsys/pkg/BILLS-109s841is/pdf/BILLS-109s841is.pdf and http://www.gpo.gov/fdsys/pkg/BILLS-111s182pcs/pdf/BILLS-111s182pcs.pdf; S. 3772 Paycheck Fairness Act (introduced 9/13/2010) http://www.gpo.gov/fdsys/pkg/BILLS-111s3772pcs/pdf/BILLS-111s3772pcs.pdf; S. 2966 Wage Awareness Protection Act (introduced 7/27/2000) http://www.gpo.gov/fdsys/pkg/BILLS-106s2966is/pdf/BILLS-106s2966is.pdf; Fair Pay Act of 2011. Introduced as HR 1493 in the House of Representatives on April 12, 2011 http://www.gpo.gov/fdsys/pkg/BILLS-112hr1493ih/pdf/BILLS-112hr1493ih.pdf and as S 788 on April 12, 2011 in the Senate: http://www.gpo.gov/fdsys/pkg/BILLS-112s788is/pdf/BILLS-112s788is.pdf; Fair Pay Act of 2001. Introduced as HR 1362 on April 3, 2001 http://www.gpo.gov/fdsys/pkg/BILLS-107hr1362ih/pdf/BILLS-107hr1362ih.pdf and S684, on April 3, 2001 . http://www.gpo.gov/fdsys/pkg/BILLS-107s684is/pdf/BILLS-107s684is.pdf; Fairness and Individual Rights Necessary to Ensure a Stronger Society: Civil Rights Act of 2004. Introduced on February 11, 2004 as HR 3809: http://www.gpo.gov/fdsys/pkg/BILLS-108hr3809ih/html/BILLS-108hr3809ih.htm and on Feb 12, 2004 as S 2088 in the Senate: http://www.gpo.gov/fdsys/pkg/BILLS-108s2088is/html/BILLS-108s2088is.htm.

[6] See https://www.hrc.org/resources/entry/an-important-step-toward-workplace-equality-an-executive-order-on-federal-c; http://thinkprogress.org/economy/2014/04/06/3423399/obama-secrecy-salary/.

[7] Since the data end in 2012, I could not include New Jersey.

[8] This was calculated as the annual wage or salary earnings in the previous year divided by the product of the usual hours worked per week and the number of weeks worked in the previous year.

[9] Men usually have positive coefficients on these children variables, while women usually have negative coefficients. The explanation for this difference varies from women not working as hard as men (O'Neill, 2004) to discrimination against mothers (Correll et al., 2007; Budig and England, 2001). In addition, some explain the occupational and industry variables as accounting for job preferences or unmeasured worker or job characteristics (O'Neill, 2004); while others explain these variables as capturing job segregation by gender (Hegewisch and Liepmann, 2013). Thus including these variables may underestimate wage penalties for women if job segregation by gender and the coefficients on the children variables are in part determined by employer discrimination rather than the qualifications, productivity and preferences of workers.

[10] Those covered by unions are also more likely to have standardized pay and less room to negotiate pay than those without unions, consequently having lower variance in earnings (Freeman and Medoff, 1984). However, data on union coverage begins only in 1990, which would omit the effect of two states that implemented their laws before this time period. In addition, not all surveyed respondents were asked about being covered by a union, leaving much of the sample in the "missing variable" category even after 1990.

[11] The regression results for the control variables (not shown) are consistent with previous findings in the research literature. Those living in metropolitan areas, who are not racial or ethnic minorities, and who had more potential work experience earn more. Higher education levels and being married (as opposed to never married) also earn more, and women earn less.

[12] With average wages of $19.41 for women and $27.33 for men in the data, the wage ratio is 71.02%. For full-time year round workers, average wages were $19.74 for women and $27.17 for men, for a wage ratio of 72.65%. If wages increased 4% for full-time year round female workers and 5% for all workers, the wage ratios would be 74.57% for all and 75.56% for FTYR workers, for an increase of 3.55 and 3 percentage points, respectively. Wages were calculated as real wages, 2012=100.

[13] Thus for this specification, $D_{i,s,t} = \phi_1 I_s + \phi_2 I_t + \phi_3 ps_{s,t} + e_{i,s,t}$ (similar to equation 5),

equation 2 is now: $\ln(w_{i,s,t}) = \psi_1 X_{i,s,t} + \psi_2 I_t + e_{i,t}$, and

equation 3 is now $p_{i,s,t} = \psi_1^m X_{i,s,t} + \psi_2^m I_t$.

D is still calculated as $D_{i,s,t} = p_{i,s,t} - \ln(w_{i,s,t})$ in equation 4.

[14] Author's calculations from US Bureau of Labor Statistics, 2013a. The third quarter in 2013 reports weekly earnings of $860 for men and $706 for women for full-time workers.