Union Power and the Labor Market: Short-Run Effects of Chile's 2016 Labor Reform

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Vicente Castillo Palma

[a]*Universidad de Chile,*

Abstract

The labor reform implemented in Chile in August 2016 significantly strengthened the power of trade unions by expanding both their coverage and the scope of collective bargaining to include issues such as work–family balance and gender equality. This study analyzes the effects of this reform on the Chilean labor market, focusing specifically on wages and employment. Using a Differences-in-Differences methodology, the results show that the reform increased the wages of women working in unionized firms by 10.2 percentage points. This effect is particularly strong among women in the highest income quintile, who experienced an increase of 20.3 percentage points. In contrast, men did not exhibit a statistically significant increase in their wages. In addition, the reform had a positive and significant effect on job stability for women in unionized firms, increasing by 5 percentage points the probability of remaining employed after the implementation of the reform, an effect that was not observed for men. Finally, the results indicate that this positive effect is concentrated among workers with higher education, who experienced a wage increase of 12.6 percentage points.

1. Introduction

Chile's August 2016 labor reform, regulated by the law expanding the coverage of collective bargaining, represented a major change in labor relations in the country. This reform strengthened unions by broadening both bargaining coverage and the topics that can be negotiated. Among the main changes, key areas such as work–family balance and gender equality were incorporated. In addition, collective bargaining procedures were facilitated, allowing greater inclusion of topics in bargaining agendas and strengthening workers' rights. Overall, these measures aimed to modernize and rebalance labor relations, fostering a fairer and more productive environment for both workers and employers.

Understanding the impact of unions on the labor market is crucial from both theoretical and practical perspectives. Labor economics, particularly bargaining power theories, suggests that unions can affect wages and job security through different channels (Freeman and Medoff, 1984; Blanchflower and Bryson, 2003; Card, 1996). On the one hand, collective bargaining can deliver better wages and working conditions for union members (Freeman and Medoff, 1984). On the other hand, stronger union power may reduce labor market flexibility and potentially affect employment rates (Hirsch, 2004).

By granting more power to unions, one might expect improvements in working conditions, benefiting workers and potentially overall firm productivity (Bryson & Forth, 2017). For workers, union power can translate into higher wages, greater job security, and improved working conditions, as unions bargain collectively on their behalf (Hirsch, 2004; Freeman, 1980). This may increase job satisfaction and reduce turnover.

For firms, although labor costs may initially increase, improved working conditions can lead to a more motivated and committed workforce, increasing productivity (Kahn, 2000). In addition, lower turnover and greater employment stability can reduce hiring and training costs, improving operational efficiency and overall firm productivity (Hirsch, 2004).

This study aims to empirically analyze the effects of stronger union power—defined as a union's ability to negotiate better working conditions, wages, and benefits for its members, exerting pressure on employers through collective action—on labor market outcomes. It focuses on the impact of the 2016 labor reform on workers' outcomes, such as wages and weekly hours worked.

More specifically, this study pays special attention to potential differential effects by gender, which is central to understanding and addressing gender inequalities in labor markets. Women often face additional barriers in employment and are concentrated in sectors with lower union power (Jalisatgi, 2022). Studying heterogeneous effects can help identify whether union power reduces the gender wage gap, improves women-specific working conditions, and increases job stability. This evidence can inform the design of more equitable and effective union and labor policies, ensuring that the benefits of union action are fairly distributed across genders.

It is important to note that this paper does not address potential effects of stronger union power on firms and investment. While the main focus is on labor outcomes such as wages and employment, it is crucial to recognize that stronger union power may increase costs for firms, for instance through higher wages, additional benefits, and improved working conditions, poten-

tially affecting profitability and competitiveness. Stronger bargaining could also lead to more frequent or longer labor disputes, negatively affecting productivity. Future research should explore these aspects to provide a more complete view of the reform's implications for both workers and firms.

The paper is organized as follows: Section 2 summarizes empirical evidence on union effects in Latin America. Section 3 synthesizes the law expanding collective bargaining coverage. Section 4 describes the dataset and key variables. Section 5 discusses the legislation and the treatment definition. Section 6 introduces the identification strategy and the methodology used to evaluate the reform. Section 7 presents the main results and heterogeneous effects. Section 8 performs robustness checks. Section 9 provides public policy suggestions and concludes.

2. Literature Review

The economic literature specifically evaluating the effects of Chile's 2016 labor reform is scarce. Given this, and since the reform aimed to strengthen unions and improve collective bargaining between workers and employers, this section reviews the literature on union effects on labor markets in Latin America.

Landerretche, Lillo, and Puentes (2011) analyze the effect of unions on wages using panel data in Chile for 2004–2009. They employ panel methods and a two-step probit model to correct for endogeneity in unionization decisions. They find that unionization is associated with a significant wage premium, meaning unionized workers earn higher wages than non-unionized workers. They also show that union status is influenced by past union status, indicating persistence over time.

In Brazil, Cardoso and Lage (2007) use longitudinal data to evaluate union effects on wages and the income distribution. They find positive and significant effects on wages, especially in the formal sector. Unionization not only raises wages for unionized workers but also helps reduce wage inequality, benefiting lower-income workers and narrowing wage gaps. The study highlights the role of sectoral structure and institutional context, showing that union effects are stronger in sectors with high union density and strong institutional support for collective bargaining.

Cassoni, Labadie, and Fachola (2002) analyze the impact of unionization and bargaining centralization on wages and firm economic performance in Uruguay, using a panel of manufacturing establishments from 1988 to 1995. They find unionization significantly raises wages and encourages investment as firms substitute labor with capital. However, they do not find a significant effect on total employment, suggesting unions improve wages and encourage investment without reducing the number of jobs.

Back to Chile, Patricio Frías (2010) evaluates the role of unionism and collective bargaining in labor market efficiency and equity, using macroeconomic data and an analysis of recent labor reforms. The study finds that collective bargaining and unionism improve labor market efficiency by fostering more effective and participatory labor relations. They also contribute to equity by reducing wage inequalities and improving working conditions for unionized employees. However, it also notes weaknesses in unions' ability to adapt to new labor institutions, highlighting the need for a labor system that favors modern labor relations.

In sum, the existing literature highlights positive effects of unionization on wages and labor equity, especially where institutional support is strong. Still, more work is needed to understand the specific effects of reforms that strengthen unions. This research contributes to filling that gap by studying the differentiated impacts of Chile's 2016 labor reform across worker types, including variation by gender, income level, and education.

3. Law Expanding Collective Bargaining Coverage

The Law on the Expansion of Coverage of Collective Bargaining (Law 20,940) in Chile introduces several significant reforms in the labor sphere, strengthening workers' rights and their bargaining capacity. This law extends the possibilities of collective bargaining to workers who were previously excluded, including those hired for specific projects or temporary tasks under a special procedure.

In addition, the law allows trade unions to negotiate new benefits, which will be granted to all workers in the firm, thereby ensuring a general improvement in working conditions. The right to information is also expanded, requiring large firms to provide their unions annually with audited financial statements and other relevant public information. Collective bargaining is simplified through the recognition of the principle of good faith, allowing it to take place either through regulated or unregulated procedures, with the guarantees of job protection (fuero) and the right to strike applying in the former case.

With respect to the right to strike, the law prohibits employers from replacing workers who are on strike, establishing significant fines for non-compliance. Unions are required to provide emergency teams to maintain the firm's minimum services during a strike. At the same time, employers are allowed to make the necessary adjustments so that workers not involved in the strike can continue performing their duties, without this being considered an unfair practice or a violation of the prohibition on replacement.

In summary, this law strengthens the bargaining capacity of trade unions and expands workers' rights, promoting greater transparency and fairness in labor relations. By improving access to information and establishing clear rules for strikes and collective bargaining, the law seeks to rebalance power dynamics between employers and employees, fostering a fairer and more equitable working environment.

4. Data Description

4.1. Social Protection Survey (EPS)

To analyze the effect of the labor reform—which increased unions' bargaining power—on wages and hours worked, this study uses data from Chile's Social Protection Survey (Encuesta de Protección Social, EPS). The EPS is designed to assess the socioeconomic and labor conditions of the Chilean population. Specifically, this paper uses the 2016 and 2020 rounds.[1] The EPS collects detailed information on labor market participation, job characteristics, labor trajectories, social security access and coverage, and other relevant socioeconomic variables.

4.2. Data used

This survey makes it possible to examine the employment spell of each individual job, as well as its duration, average wage, and, especially, whether a union existed in the firm. By leveraging the data collected in the 2012, 2016, and 2020 survey waves, it is possible to obtain complete information on workers' labor histories from January 2001 to March 2020. As shown in Figure 1, the 2012 wave provides data covering 2001–2012, the 2016 wave covers 2012–2016, and the 2020 wave covers 2016–2020.

Within the framework of this study, I use the last job reported by workers in 2016. The duration of this job varies across individuals. However, it is important to emphasize that I specifically consider the job each individual was working at in 2016, prior to the implementation of the labor reform. In addition, for the 2020 wave, I consider only the first job reported after the reform. In this way, I construct a dataset that includes information on workers' last pre-reform job and their first post-reform job. The final dataset contains 3,936 observations (1,968 workers observed in two periods), which are described in detail in Section 4.

Naturally, in most cases one would expect this last job to be the same, which ensures a precise empirical specification. This is crucial because the survey allows us to observe the average monthly earnings from employment and, therefore, to capture average monthly earnings before and after the reform, which facilitates estimating the effect of the reform on monthly wages. In addition, in terms of employment status, it is possible to observe whether individuals who were employed before the reform remain in the labor market afterward or instead become unemployed. In summary, the timeline of the data and the research question are shown in Figure 1.

[1]The 2019/2020 survey was not fully completed due to COVID-19. Fieldwork was initially conducted in person from December 14, 2019 to March 22, 2020, with 8,656 interviews completed. The pandemic forced an early interruption of in-person fieldwork, leading to a new strategy to complete the EPS through phone interviews. For this research, I only consider interviews conducted before March 22, 2020 (i.e., pre-pandemic). This decision is based on two reasons: (1) later information could be influenced by the pandemic, making it difficult to disentangle reform effects from the health crisis; and (2) phone interviews may be less precise than in-person interviews.

It is important to highlight that the effects observed in this study are conditional on workers having been employed prior to the labor reform. Therefore, the results presented in Section 6 should be interpreted as effects for those already employed, rather than for the population as a whole. This distinction is crucial for understanding the implications of the findings, since they focus on individuals who were already part of the labor market and do not include those who entered employment after the reform.

4.3. Limitations of the data used

One limitation of this paper is the relatively small number of observations. A limited sample size can affect the precision of the estimates. With a smaller sample, the ability to detect statistically significant effects is reduced, which may lead to less precise or less reliable conclusions. With a larger number of observations, for example, it would be possible to analyze the effects of the reform across different industries. This type of analysis is relevant because some industries in Chile—such as mining, construction, and manufacturing—have higher unionization rates (Dirección del Trabajo, 2013). These industries could benefit more from the reform due to the structure and organization of their unions, which would make it possible to observe sector-specific impacts in terms of wages, working conditions, and employment stability. Therefore, future studies should consider collecting a larger number of observations to strengthen the validity and applicability of the results.

Another limitation is that the analysis does not impose a fixed pre-reform job tenure period for workers, since some individuals began their jobs only a few months before the labor reform, while others started as far as four years earlier. This feature only allows identifying an average nominal effect on wage increases. As is well known, wages in 2012 are not the same as wages in 2020; therefore, not accounting for the real (inflation-adjusted) component of wages is a significant limitation. In addition, it is possible that unionized firms have contracts with their workers that are indexed to the UF.[2] This could imply that the observed wage effects for our treated group are higher than those for the control group merely because of inflation indexation, rather than because of the labor reform itself.

To examine this issue more closely, I calculated the average duration of employment before and after the labor reform. This calculation yields approximately 2 years before the reform and 3 years after the reform, for an average employment spell of 5 years in total (2 years before and 3 years after). Taking the average wage of the treated group (workers in unionized firms) before the reform—397 thousand pesos—and adjusting it by the CPI (IPC) for the four-year period between 2014 and 2019, the inflation-adjusted wage would be 445 thousand pesos. This amount is substantially lower than the wage observed for women after the reform, which is 478 thousand pesos. This result suggests that while part of the wage increase may be due

[2]The UF (*Unidad de Fomento*) is an inflation-indexed unit of account widely used in Chile.

to unionized firms adjusting wages to the CPI, this factor alone is not sufficient to explain the full increase. The labor reform appears to have played an important role in raising women's wages.

5. Treatment Definition and Legislation

5.1. Definition of the pre- and post-treatment periods

For the main estimations, data from the periods 2012–2016 and 2016–2020 are used. The period from January 2012 to August 2016 is defined as the pre-treatment period, while the period from January 2017 to March 2020 is defined as the post-treatment period. Previous evidence suggests that the effects of labor market reforms take at least five months to materialize,[3] and therefore this threshold is used to capture the earliest effects of the reform while minimizing the influence of other variables on the measurement of its impact.[4] This methodological approach allows for a more precise evaluation of the direct effects of the 2016 labor reform, providing a clear understanding of how this policy has affected wages and job stability among workers in Chile.

The availability of data for these two distinct periods makes the difference-in-differences (DiD) methodology an appropriate choice for the analysis. This approach enables comparison of changes in the variables of interest between the treatment group (workers affected by the reform) and the control group (workers not affected by the reform), before and after the implementation of the labor reform. By doing so, it is possible to isolate the causal effect of the reform, controlling for temporal and structural factors that could influence the results.

In addition, to ensure the robustness of the results, data from periods prior to 2012 are also considered. These additional data are used to conduct robustness checks and to verify that the changes observed between the pre- and post-treatment periods are not driven by pre-existing trends. By including this longer time horizon, it is possible to identify and control for potential external factors that could affect the results, thereby ensuring that the effects attributed to the labor reform are indeed a consequence of the reform itself.

5.2. Treated and control groups

For this study, the treatment group is defined as those workers employed in firms with a union in 2016, before the implementation of the labor reform (pre-RL). These "treated" workers are those who are expected to benefit from the labor reform. On the other hand, the control group is composed of individuals who work in firms that did not have any union prior to the reform (pre-RL).

[3] See Klinger, S., and Rothe, T. (2012).

[4] In addition, the same model is estimated using thresholds of 2, 4, 6, and 8 months, showing that the results are robust across these alternative threshold specifications.

As shown in Table 1 of descriptive statistics, both groups are similar in several important variables, which supports the validity of the control group in comparison to the treatment group. However, there are significant differences in the percentage of workers who attained only primary education, higher education and/or postgraduate education, as well as among workers from the regions of Antofagasta, Maule, and Aysén. This highlights the importance of controlling for these variables when estimating our main model.

Figures 2 and 3 summarize average wages by treatment group, gender, and level of education. When comparing both graphs, we observe that women in unionized firms without higher education benefited significantly from the reform, showing a notable increase in their wages. This increase was not observed for men without higher education, thus maintaining the wage gap between treated and untreated men.

On the other hand, women with higher education who worked in unionized firms experienced an increase of 20,000 pesos in their wages compared to those who worked in firms without unions. Finally, men with higher education maintained the wage gap between the treatment and control groups, with no significant changes.

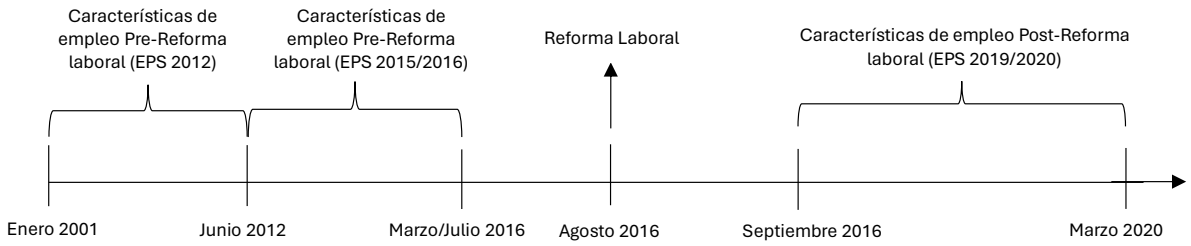
Another relevant point is that women show a larger wage increase than men after the reform. This is evident when considering both educational groups (with and without higher education) and the variation in their monthly earnings. These results highlight the need to analyze in greater detail the effects of the labor reform across different groups of workers, disaggregated by gender, income level, and education.

Table 1: Descriptive statistics for 2016 (Pre labor reform)

	Controls Mean	Treated Mean	Difference Mean	Std. Dev.
Gender (woman = 1)	0.49	0.51	-0.02	(0.014)
Age (years)	39.79	40.43	-0.64	(0.571)
Weekly hours worked	42.77	43.08	-0.31	(0.482)
Experience (years)	22.02	22.50	-0.47	(0.735)
No schooling	0.00	0.00	-0.00	(0.003)
Primary only	0.20	0.11	0.09***	(0.017)
Academic high school	0.34	0.33	0.02	(0.023)
Technical-professional high school	0.17	0.19	-0.02	(0.018)
Technical higher education	0.16	0.21	-0.04***	(0.019)
University and graduate studies	0.14	0.19	-0.05***	(0.017)
Region 1 (Arica and Tarapacá)	0.01	0.01	-0.00	(0.004)
Region 2 (Antofagasta)	0.03	0.05	0.02***	(0.009)
Region 3 (Atacama)	0.03	0.03	-0.00	(0.008)
Region 4 (Coquimbo)	0.02	0.04	-0.01	(0.008)
Region 5 (Valparaíso)	0.07	0.06	0.01	(0.012)
Region 6 (O'Higgins)	0.05	0.03	0.02	(0.010)
Region 7 (Maule)	0.05	0.03	0.02**	(0.009)
Region 8 (Biobío)	0.13	0.15	-0.02	(0.017)
Region 9 (Araucanía)	0.03	0.02	0.01*	(0.007)
Region 10 (Los Lagos)	0.08	0.09	-0.01	(0.013)
Region 11 (Aysén)	0.00	0.01	-0.00*	(0.003)

Note: Statistical significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Figure 1: Timeline of the data



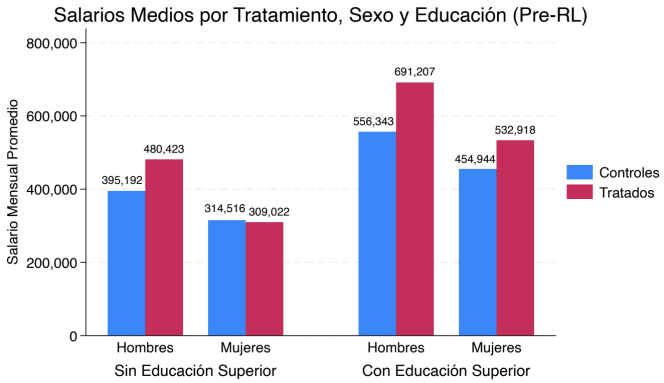


Figure 2: Wages prior to the labor reform

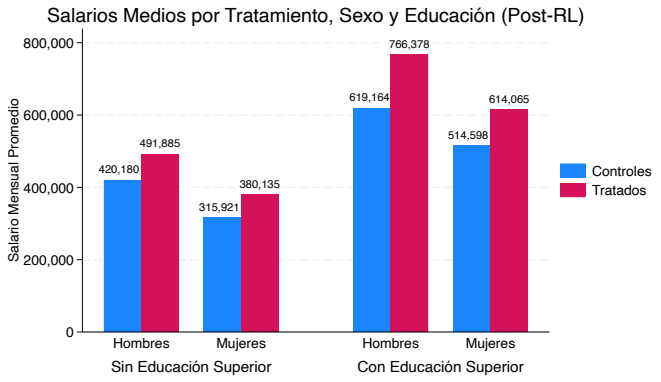


Figure 3: Wages after the labor reform

5.3. Union legislation and endogeneity

A common issue when defining treatment as individual union membership is endogeneity. Union affiliation is likely not random and may correlate with unobservable worker characteristics (motivation, job security preferences, political interest, labor relations history). These unobservables can affect both the probability of joining a union and labor outcomes, biasing estimated union effects.

Under Chilean legislation, the extension of the benefits of a collective agreement requires an agreement signed by the parties, establishing application conditions and the percentage of union dues to be paid by the beneficiary worker. This means benefits negotiated by unions are not automatically restricted to union members. Therefore, defining treatment as being employed at a firm with a union is useful for this analysis and less prone to endogeneity than defining treatment purely as individual membership (which also suffers from low response in the EPS membership question).

6. Model

I use a Difference-in-Differences model to estimate the impact of the labor reform. This approach compares changes in outcomes before and after the reform between the treated and control groups. I also include a vector of controls that may influence outcomes, such as sociodemographic and economic characteristics. The DiD approach is useful because it can isolate the causal effect of the reform by removing bias due to time trends and unobserved differences between groups.

$$E(Y_{it} \mid \mathbf{X}_{it}, D_{it}, E_{i0}) = \alpha + \beta_1 p_t + \beta_2 d_i + \beta_3 (p_t d_i) + \mathbf{X}'_{it}\gamma + \epsilon_{it} \quad (1)$$

Where Y_{it} is the outcome of interest for individual i at time t. In this version, outcomes include: (i) monthly wages in pesos, (ii) log monthly wages, and (iii) employment (1 if employed, 0 otherwise). $D_{it} = 1$ if the worker is employed in a firm with a union (treated). $E_{i0} = 1$ if the worker is employed prior to the reform. p_t is a post-reform indicator, d_i indicates treatment group membership, and $p_t \times d_i$ captures the reform effect. $\mathbf{X}_{it}$ includes controls such as age, gender (woman=1), tenure in current job, education dummies, health status, and region dummies. The coefficient β_3 is of particular interest as it measures the causal effect of the reform.

A key point is to study heterogeneous effects of the 2016 reform to understand how different groups of workers were affected. In particular, I analyze differences by gender, income quintile, and education level.

7. Results

7.1. Main results

The estimates of the coefficients on the interaction term are presented in Table 2. These results show a varied picture of the impact of the labor reform on different labor market outcomes. First, there is a positive and statistically significant relationship for wages measured in pesos, where the reform increased wages by an average of 58 thousand pesos for workers in unionized firms when controls are included. In addition, Column 4 shows an increase of 5.7 percentage points in wages, which is statistically significant at the 10% level. With respect to employment, Column 6 shows a positive effect on the probability of remaining employed after the labor reform. This effect is statistically significant in models both with and without controls, showing an average increase of 2.5% in the probability of remaining employed for the treated group. These results are robust both when controls are excluded and when sociodemographic controls are included in the model.

The results reported in Table 2 are consistent with what would be expected when trade unions are given greater tools to negotiate better working conditions. The ability of unions to bargain collectively not only improves workers' direct wage conditions, but can also increase job stability. This increase in job security may be linked to unions' capacity to negotiate more favorable working conditions, which include not only wages, but also additional benefits and working conditions that promote employee retention.

7.2. Results by gender

When the data are disaggregated by gender, the results reveal significant differences. Table 3 shows that for women in unionized firms, the labor reform had a notable effect. A statistically significant increase was found in their wages of approximately 69 thousand pesos and 10.2 percentage points on average, with statistical significance at the 5% level (Columns 2 and 4). In addition, the probability that these women remained employed increased by 5%, and this result is statistically significant at the 1% level (Column 6). By contrast, the effects of the labor reform on men were different. The impact on men's wages measured in pesos was smaller and not statistically significant, and it also showed an almost null effect in percentage points. Likewise, there was a small and positive increase in the probability that men in unionized firms remained employed, but this result did not reach statistical significance either.

These findings are consistent with the new provisions introduced by the labor reform. Given that the law emphasized work–family balance and gender equality, it is reasonable that women experienced greater benefits. The higher job security and wage increases for women may reflect the success of the reform in addressing pre-existing gender inequalities in the Chilean labor market. In contrast, the lack of significant effects for men suggests that the benefits of the reform were more relevant for women, possibly due to its focus on issues such as work–family balance and equality, which have traditionally affected female workers more strongly.

7.3. Results by income quintiles

When analyzing the results by income quintiles (Table 4), additional significant variations are identified. Women in the highest income quintile (quintile 5) working in firms with union representation experienced a significant and positive increase in their wages, with an increase of approximately 20.3 percentage points, statistically significant at the 5% level (Panel A, Column 5). In contrast, when the effects of the reform on men are disaggregated by income quintiles, they are mostly small and not statistically significant (Panel B).

These results suggest that the labor reform had a more pronounced and beneficial impact on women overall, especially in terms of wage increases. However, it is crucial to emphasize that these benefits were not distributed uniformly among all women. Higher-income women, particularly those in the top income quintile, were the ones who experienced the most significant wage gains. By contrast, women in the lower income quintiles did not experience increases of the same magnitude, which suggests that pre-existing inequalities in the labor market may have limited the benefits of the reform for lower-income female workers.

7.4. Results by education

Table 5 presents the results of the labor reform for workers with and without higher education. Panel A shows that the labor reform increased the wages of workers with higher education who work in unionized firms by 109 thousand pesos and 12.6 percentage points. This effect is smaller in magnitude and not statistically significant for workers without higher education. However, an interesting result is that workers with lower levels of education were more likely to remain employed, although this result is not statistically significant.

These findings suggest that the labor reform primarily benefited workers with higher education in terms of wage increases. The ability to negotiate higher wages may be linked to the greater capacity of these workers to take advantage of the opportunities created by the reform. In contrast, workers without higher education did not experience significant wage increases, which may indicate that structural barriers and limitations in human capital continue to affect their ability to fully benefit from improvements in collective bargaining.

Despite the lack of statistical significance, the higher probability of remaining employed among workers with lower education suggests that the reform may have provided some degree of job stability for this group, albeit to a lesser extent. This result highlights the importance of designing labor policies that not only focus on improving wages, but also on ensuring employment stability and security across all educational levels.

Table 2: Effects of the labor reform

	Monthly wage (pesos)		Log(wage)		Employment	
	No controls (1)	Controls (2)	No controls (3)	Controls (4)	No controls (5)	Controls (6)
DD	46,330.52*	57,802.87**	0.022	0.055*	0.024*	0.026**
	(25,151.86)	(22,985.68)	(0.038)	(0.032)	(0.013)	(0.013)
Observations	3,826	3,826	3,826	3,826	3,936	3,936
R^2	0.02	0.18	0.04	0.32	0.05	0.06

Note: This table reports estimates of the effect of the 2016 labor reform. Robust standard errors are in parentheses. Statistical significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Table 3: Effects by gender

	Monthly wage (pesos)		Log(wage)		Employment	
	No controls (1)	Controls (2)	No controls (3)	Controls (4)	No controls (5)	Controls (6)
Panel A. Women						
DD	58,050.14**	68,915.64**	0.066	0.102**	0.049**	0.050**
	(29,581.29)	(29,469.25)	(0.052)	(0.044)	(0.021)	(0.020)
Observations	1,866	1,866	1,866	1,866	1,949	1,949
R^2	0.02	0.17	0.04	0.36	0.07	0.09
Panel B. Men						
DD	33,066.26	46,165.29	-0.019	0.009	0.010	0.010
	(41,589.7)	(38,470.4)	(0.052)	(0.047)	(0.015)	(0.015)
Observations	1,960	1,960	1,960	1,960	1,987	1,987
R^2	0.02	0.17	0.05	0.24	0.03	0.04

Note: This table reports estimates of the effect of the 2016 labor reform by gender. Robust standard errors are in parentheses. Statistical significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Table 4: Effects by income quintile

	Quintile I (1)	Quintile II (2)	Quintile III (3)	Quintile IV (4)	Quintile V (5)
Panel A. Women (Log wage)					
DD	0.09	-0.002	0.026	-0.012	0.203**
	(0.072)	(0.012)	(0.016)	(0.027)	(0.099)
Observations	559	374	381	325	211
R^2	0.30	0.09	0.07	0.11	0.08
Controls	Yes	Yes	Yes	Yes	Yes
Panel B. Men (Log wage)					
DD	0.045	0.004	-0.007	0.019	0.110
	(0.147)	(0.015)	(0.015)	(0.021)	(0.076)
Observations	295	334	443	534	383
R^2	0.24	0.05	0.03	0.02	0.16
Controls	Yes	Yes	Yes	Yes	Yes

Note: This table reports estimates of the effect of the 2016 labor reform by income quintile (defined using pre-reform income). Robust standard errors are in parentheses. Statistical significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

8. Robustness analysis

It is important that our results do not depend on any specific construction. One of the standard ways to assess the robustness of our findings is to perform a placebo test, which consists of applying our methodology to a period prior to the implementation of the labor reform. Specifically, to do this we use the

Table 5: Effects by education level

	Wage (pesos) (1)	Log(wage) (2)	Employment (3)
Panel A. With higher education			
DD	109,246.2**	0.126*	0.01
	(48,903.29)	(0.064)	(0.017)
Observations	1,215	1,215	1,236
R^2	0.023	0.32	0.03
Controls	Yes	Yes	Yes
Panel B. Without higher education			
DD	35,256.44*	0.040	0.027
	(20,392.72)	(0.035)	(0.017)
Observations	2,609	2,609	2,698
R^2	0.09	0.22	0.07
Controls	Yes	Yes	Yes

Note: This table reports estimates of the effect of the 2016 labor reform by education level. Panel A shows results for workers with higher education, and Panel B for those without higher education. Robust standard errors are in parentheses. Statistical significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

EPS 2012 and the EPS 2016, where the same estimation carried out previously is replicated, but now defining the post-treatment period between 2012 and 2015 (whereas before this period was 2016–2020). The results of this estimation are reported in Table 6.

Table 6 shows effects that are smaller in magnitude than those found in the main model, and none of them are statistically significant. Note that, after the placebo intervention, there are no significant estimates for β_3; in other words, this false increase in union power has no significant effects on either monthly wages or log(monthly wages) for men or women. This, at least partially, helps to ensure that the estimates in Section 7 capture the effect of "something" that actually occurred around August 2016.

9. Discussion and conclusions

9.1. Implications for public policy

From a public policy perspective, the results show that the 2016 labor reform in Chile had promising effects. The regulation aimed at strengthening unions' bargaining capacity on topics such as work–family balance and gender equality is associated with positive labor market outcomes. However, these effects are not uniform across groups, and the largest gains appear among women, particularly those in higher-income groups.

These results suggest that policy should consider how to improve working conditions for all workers while promoting gender equality. First, it is important to promote unionization in sectors and firms with low union representation to extend collective bargaining benefits to more women. Second, it is a priority to implement measures that support lower-income women to avoid creating new inequalities between women in different income groups and between women who are union-covered and those who are not.

Alongside regulatory changes, information campaigns about the benefits of unionization and collective bargaining could increase interest and motivation among women to join unions, contributing in the long run to a more equitable and inclusive labor market.

Finally, it is crucial to analyze why the reform generates differentiated effects by income level. Labor policy aims not only to rebalance power between workers and firms, but also to improve working conditions for everyone without generating new inequalities by gender, income, or education.

9.2. Conclusions

The goal of this paper is to contribute to understanding how labor reforms—particularly those that strengthen union power—affect worker well-being and labor market dynamics. This study helps fill an understudied area in Chile by providing quantitative evidence that can inform policy and academic debates.

The main contribution is an empirical evaluation of the 2016 reform's impact on wages and employment, using a Difference-in-Differences approach. The results show positive and statistically significant effects on employment and on wages in several specifications, with larger and more robust gains for women. The heterogeneity analysis by gender, income, and education provides a nuanced perspective on how different groups are impacted by changes in labor legislation.

This paper provides a foundation for future research on aspects not covered here, such as impacts on firm productivity and effects across industries. Ultimately, the findings can contribute to designing more balanced and effective labor policies that maximize benefits for workers while recognizing and mitigating potential adverse effects.

Table 6: Table 6: Union Effects Using EPS 2012–2016

	Monthly wage (pesos)			Log(wage)		
	All	Men	Women	All	Men	Women
	(1)	(2)	(3)	(4)	(5)	(6)
DD	42,444.81	46,632.68	44,652.97	0.037	0.018	0.047
	(61,041.69)	(99,628.79)	(34,670.10)	(0.071)	(0.102)	(0.092)
Observations	1,507	824	683	1,507	824	683
R^2	0.06	0.06	0.34	0.39	0.25	0.53
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports Difference-in-Differences (DD) estimates of union effects using EPS 2012–2016. Standard errors are reported in parentheses. All specifications include control variables.

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