
Gender-Differentiated Impacts of the 2016 El Khomri Labor Reform on Overtime Work in France

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Abstract

This study examines whether the 2016 El Khomri law, a very controversial flexibility-enhancing labor reform in France, had differential impacts on male and female workers' overtime work. Using rich matched employer–employee administrative data (DADS) from 2013 to 2019, we construct a balanced panel of private-sector firms to track changes in intensive overtime use by gender. Exploiting variation in reform exposure along three dimensions (firm size, sector, and pre-reform overtime intensity), we implement a difference-in-differences strategy to estimate the causal effect of the reform on gender gaps in overtime work and earnings. Our results show that the reform significantly widened the gender gap in intensive overtime in firms and sectors most affected by the changes. This divergence also translated into higher male–female wage gaps, suggesting that flexibility-enhancing reforms may exacerbate existing inequalities in work conditions and pay.¹

1 Introduction

In 2016, France adopted a major labor market reform known as the El Khomri law (or Loi Travail), which aimed at modernizing the country's labor code by increasing flexibility for employers, particularly around working time. Among its provisions, the law allowed company-level agreements to reduce the pay premium on overtime work and gave smaller firms more room to adjust weekly hours over longer periods. While the reform was intended to boost competitiveness and employment, it sparked significant protests and debates over potential risks to worker protections and inequalities. Labor market reforms that increase workplace flexibility often aim to boost employment and productivity, but they may also have unintended distributional consequences. A substantial body of research has examined how flexibility-enhancing reforms affect aggregate outcomes like employment or firm performance (e.g. Cahuc et al. (2016); Hijzen and Martin (2013)). However, far fewer studies have investigated whether such reforms might deepen existing gender inequalities. This paper seeks to address that gap by focusing on the 2016 El Khomri law in France and its effects on the distribution of overtime work between men and women.

Prior research indicates that gender disparities in the labor market remain persistent, particularly in aspects such as working hours, overtime, and associated pay. A rich literature highlights how the structure of work, especially the requirement for long or inflexible hours, contributes to the gender wage. In many industries, workers (often men) who work extended hours or accept short-notice overtime are rewarded with higher pay or faster advancement, whereas those seeking flexibility (often women) may incur penalties. Goldin (2014) argues that the gender pay gap is driven largely by “the incentive to disproportionately reward individuals who labor long hours”, suggesting that reducing the premium on overwork could narrow the gap. Similarly, Cha and Weeden (2014) show that the rising prevalence and wage premium of “overwork” (50+ hours per week) in the United States has slowed progress toward gender wage convergence. They estimate that the growing rewards for overwork, which more men than women engage in, widened the U.S. gender wage gap by about 10%. Even in uniform pay settings, gender differences in overtime uptake persist: Bolotnyy and Emanuel (2022) find that in a unionized transit workforce with identical base pay for men and women, male operators worked 83% more overtime hours and were twice as likely to accept short-notice overtime shifts than their female counterparts.

¹All replication codes are in the following repository : <https://github.com/eleroux46/Overtime-work-and-gender>

Such evidence underlines that when workplace systems implicitly reward longer or less predictable hours, gender disparities can be reinforced.

In this context, labor market reforms aimed at increasing flexibility may have unintended gender-differentiated effects. This paper investigates the 2016 El Khomri law in France, and asks: Has the reform affected men and women differently in terms of overtime work? More specifically, are women less likely to take up overtime work after the reform compared to men, thereby limiting their potential earnings gains and contributing to the persistence or widening of gender pay gaps? We explore whether the increased flexibility in overtime provisions provided by this law led to a rise in overtime hours and whether that rise was concentrated among male workers relative to female workers. Our study brings a gender perspective to the evaluation of a major labor law reform which sparked intense public debate, but whose ex-post impacts remain under-studied.

2 Context: The 2016 El Khomri Law and Overtime Flexibility

The El Khomri law, enacted in August 2016, aimed to enhance labor market flexibility in France. Passed amid widespread protests, it marked the most substantial reform of the 35-hour workweek since its introduction. The law sought to give firms greater control over working time arrangements, especially regarding overtime regulation.

Overtime Pay: Prior to the reform, overtime hours were compensated with a +25% premium for the first eight hours and +50% thereafter, unless a sectoral agreement stipulated otherwise (with a legal minimum of +10%). The reform allowed company-level agreements to override sector-level ones and set lower premiums, down to the legal floor. This reduced the cost of overtime for firms, especially small ones, and created stronger incentives to rely on it.

Workweek Modulation: The law also expanded firms' ability to spread work hours over time. Small firms (under 50 employees) could now unilaterally schedule working time over a 9-week period, compared to just 4 weeks for larger firms. This gave smaller employers more flexibility to manage overtime without triggering extra compensation.

3 Data and Descriptive Statistics

3.1 Data description

We use administrative panel data from the French Déclarations Annuelles de Données Sociales (DADS) "Postes" dataset, which provides matched employer–employee information on hours worked, earnings, occupation, gender, and firm identifiers. While DADS does not directly report overtime hours, we infer them by comparing each worker's annual hours to the INSEE threshold for full-time work (1,807 hours): hours beyond this benchmark are classified as overtime. We focus on full-time private-sector employees, exclude temporary work agencies, and drop single-employee firms.

Our sample covers 2013–2019 to investigate the long-run effects of the reform. We construct a balanced panel of firms, resulting in a sample of approximately 500,000 firms. The unit of observation is the firm-year.

We compute firm-level measures of overtime intensity: for each year and firm, we calculate the share of male and female employees exceeding X weeks of overtime, with thresholds ranging from 1 to 6 weeks (e.g., 35 to 210 hours). These indicators capture not just average overtime hours but the prevalence of heavy overtime work, an important distinction, as the reform's effects might manifest more strongly in the upper tail of the overtime distribution, enabling some workers to accumulate many weeks of overtime that they previously could not.

Importantly, due to a shift in DADS reporting practices from 2016 onward, absolute counts may be inconsistent. We therefore rely on relative measures (shares by gender) and focus primarily on the within-firm gender gap (i.e., the difference between male and female overtime shares), which is less likely to be affected by reporting changes.

3.2 Treatment and Control Groups

We exploit three sources of variation to define treatment and control groups based on firms' likely exposure to the reform. First, we classify firms according to their pre-reform overtime usage. Following Harasztosi and Lindner (2019) in their minimum wage study, we rank firms by the share of employees working more than 5 weeks of overtime before 2016. Firms in the bottom 40% are labeled "low-overtime" and considered treated, as they had

more room to expand overtime after the reform reduced costs. Firms in the top 40% (“high-overtime”) serve as a control group with limited adjustment margin.

Second, we leverage the legal threshold at 50 employees: firms with 11–49 employees gained additional flexibility to modulate working hours unilaterally, unlike larger firms (Droit-Travail-France, 2016). We treat smaller firms as exposed to the reform, with larger firms (51–299 employees) as controls.

Third, we compare sectors with differing overtime intensity. Before the reform, accommodation and food services (NAF 55–56) relied more heavily on overtime than wholesale and retail trade (NAF 46–47). We treat NAF 55–56 firms as overtime-intensive, and NAF 46–47 as a lower-intensity comparison group.

3.3 Descriptive Trends

Due to changes in the DADS reporting system after 2016, which may have affected the consistency of overtime data, we focus on gender gaps in intensive overtime within firm-year observations rather than on levels taken independently. Our descriptive analysis thus centers on whether the relative participation of men and women in heavy overtime (more than 6 weeks per year) evolved following the reform.

At the aggregate level, as shown in Figure 1, men are consistently more likely than women to work intensive overtime throughout the period. While overall overtime shares appear to decline over time, a trend that may partly reflect reporting artifacts, the gender gap remains visible and may even widen slightly in the post-reform years. This motivates a closer look at heterogeneity across firm characteristics.

We first examine whether the share of employees doing heavy overtime evolved differently across firms more exposed to the reform. As shown in Figure 2, a divergence appears between small and large firms after 2016, with smaller firms maintaining higher overtime intensity. A similar pattern is observed across sectors, with accommodation and food services (NAF 55–56) rebounding more strongly than wholesale and retail trade (NAF 46–47). These descriptive differences suggest that treatment and control groups are well chosen, though causal interpretation requires more rigorous analysis.

Additional gender-disaggregated trends are included in the Appendix. While some suggestive differences appear, they are difficult to interpret due to potential confounders. We turn next to regression analysis to examine heterogeneous effects more formally.

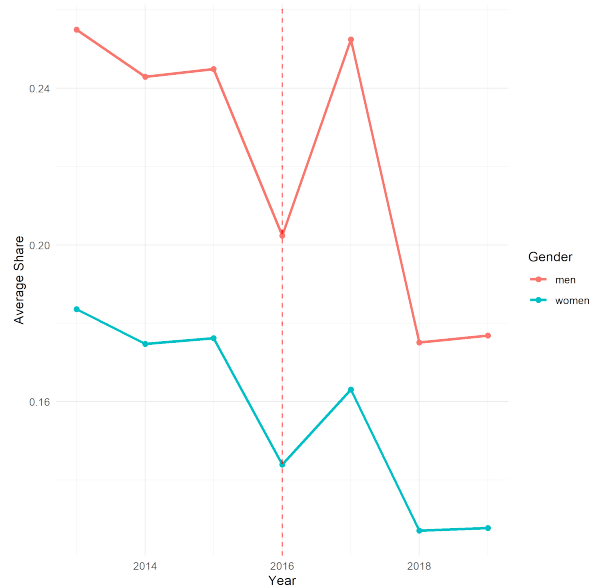


Figure 1: Share of employees working more than 6 weeks of overtime, by gender (global sample)

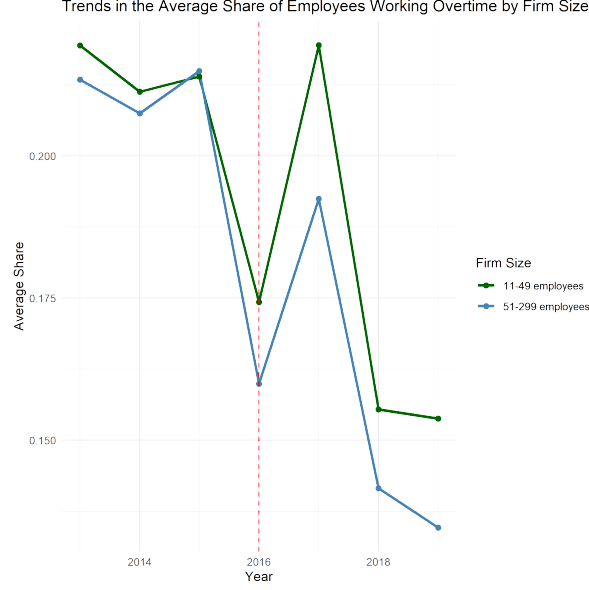


Figure 2: Share of employees working more than 6 weeks of overtime, by firm size

4 Empirical Strategy: Difference-in-Differences Design

The baseline identification strategy that we follow is a Difference-in-Differences (DiD) where τ is the treatment effect of the policy and we add firm and time fixed-effects. Our outcomes of interest (Y) are the gender gap in the share of people doing more than 6 weeks of overtime work, the gender gap in average hours worked, and the gender gap in average wages at the level of the firm. We also estimate equation 1 adding control variables X_{it} such as the average age of employees in the firm, the number of employees (total and only full-time), the average hourly wage in the firm, the average number of women, the sector and the department of the firm.

$$Y_{it} = \tau T_t + \alpha_i + \lambda_t + \epsilon_{it} \quad (1)$$

We also estimate event studies, following equation 2, where D_{t-k} is an indicator for the time relative to event time.

$$Y_{it} = \tau T_t + \sum_{k=-3}^3 \gamma_k D_{t-k} + \alpha_i + \lambda_t + \epsilon_{it} \quad (2)$$

This event study is useful to check whether the parallel trend assumption between the treatment and the control group is credible or not by checking if the γ_k before the introduction of the treatment are not significantly different from zero. This condition is verified in all our specifications, making our design credible.

To isolate the effect of the reform on our outcomes of interest, we consider the three treatment definitions presented in section 3.2. This allows us to find control groups of firms that are not or less affected by an aspect of the reform. It also allows us to test the robustness of our results.

One limit of this econometric approach of the reform is that it is difficult to infer global effects on gender inequalities in hours worked or wages because of potential general equilibrium effects. We can conclude on the effects of the reform for the firms that we follow, but the sample selection is such that we exclude firms that are not present during the whole period, meaning that we exclude younger firms and firms that went bankrupt. Moreover, the fact that this is a national reform means that our control groups (except the one composed of larger firms) are exposed and could react to the treatment.

5 Results

Effects of the reform on the gender gap in overtime work : Firstly, we show that the simplification of use of overtime work introduced by the law had an impact on actual overtime work done by employees and the gender inequalities that result of this phenomenon.

The event study estimated in Figure 3 shows that after the reform, the difference between the share of men and women doing more than 6 weeks of overtime work in firms in the accomodation and food services (NAF 55/56) increased significantly relative to the one in firms in the retail sector (NAF 46/47). Therefore, by increasing the share of employees working many overtime hours (as seen in Figure 5), the reform increased the gender gap in hours worked by almost 2 percentage points (see Table 1 in Appendix).

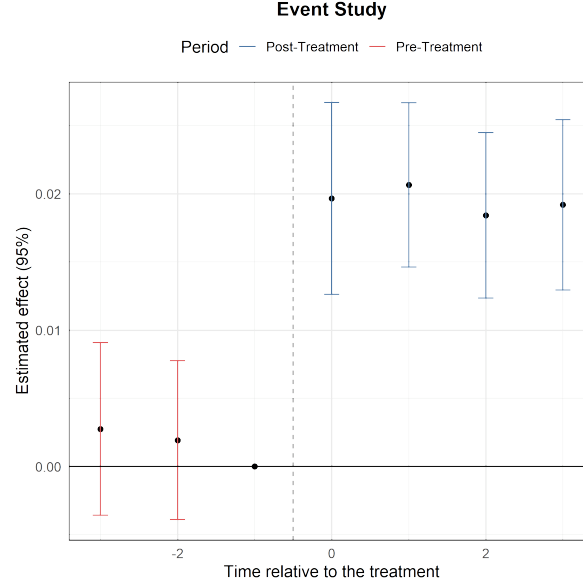


Figure 3: Effect of the reform on the difference in the share of men and women working more than 6 weeks of overtime (NAF 46–47 vs. 55–56)

This increase in gender inequalities in overtime work is consistent across the treatment specifications. We estimate an increase of around 1.5 percentage points of the gender gap in heavy overtime work when considering the overtime-intensity treatment definition used previously (Figure 8, Table 2 in Appendix). When considering the effect of the part of the reform that applied only to small firms, we find a smaller effect of 0.5 percentage points (Table 3, Figure 9 in Appendix), which can be due to the different nature of the reform, even if it had a similar objective. Interestingly, this could be interpreted more as a mitigation of the decreasing trend of inequalities between men and women working more than 6 weeks of overtime (Figure 10). If smaller firms had followed the same trend as larger firms, the gender gap could have decreased more than it did with the reform.

This reform also had some effect on the gender gap in the average number of hours worked. This effect is less consistent across specifications. First, we study the treatment defined as the intensity of overtime work used pre-reform. We find an increase of 9 hours by year of the difference between men and women in the average number of hours worked (Table 4). Contrarily to the effect on 6-week overtime work, this effect only manifests itself in 2017 (Figure 11). This could be due both to a real delay effect of the reaction to the reform or to imprecision due to the modification of the reporting of the data. When focusing on the treatment defined with the sector of firms, we find a similar effect after 2017 but a very imprecisely estimated decreasing effect on the gender gap in 2016 (Figure 12). Finally, both estimates applied to the size definition of the treatment are not significantly different from zero (Figure 13 and Table 6), which can be explained by the different design of the reform evaluated by this treatment definition.

Effects of the reform on the gender gap in wages : The reform increased the difference between the firm-average wages of men and women. This can be seen as a mechanical consequence of the increase of the gender gap in overtime work. For instance, the effect estimated on the sectoral treatment is an increase of the gender gap of 400€/year (Table 7) that is stable in time after the reform (Figure 4).

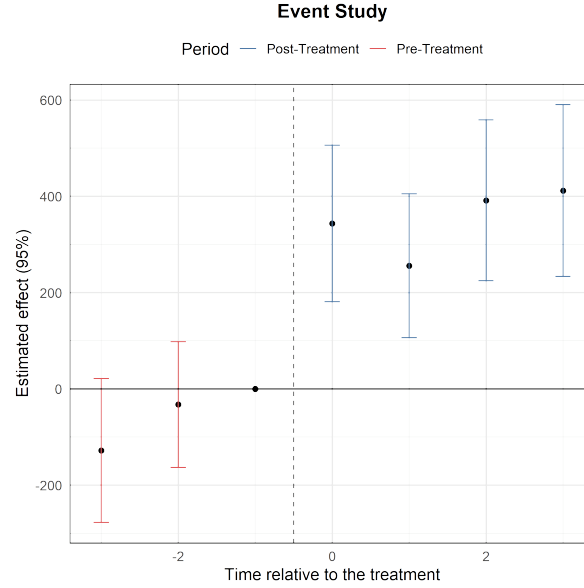


Figure 4: Effect of the reform on the difference in the firm-average wage of men and women (NAF 46–47 vs. 55–56)

The effect is of similar magnitude for the overtime-intensity treatment (Table 8, and Figure 14), which is making our estimation more robust. On the opposite, the effect is not different from zero after 2017 for the firm-size treatment, which is coherent with the absence of effect on the gender gap in average hours worked for this part of the reform (Figure 15).

Finally, for the overtime-sensitivity treatment, we estimate an effect of the reform on the gender gap in hourly wages. The reform increased the difference in average hourly wages between men and women by around 0.3€ (Figure 16) after 2017. Although the effect is relatively small, this could hint at the fact that there are some firms in which the increase in overtime work is rewarded by promotions. This is perhaps less the case in accommodation and food services or in small firms, where the effect is either imprecisely estimated (Figure 18) or not significantly different from zero (Figure 17).

6 Conclusion

This study provides new evidence on the gender-differentiated effects of labor market reforms that enhance flexibility. Using matched employer–employee data and a difference-in-differences approach, we study the 2016 El Khomri law in France, which relaxed rules around overtime compensation and workweek scheduling.

We show that the reform significantly widened the gender gap in intensive overtime work, particularly in firms and sectors more exposed to the new flexibility. These changes in working time patterns also translated into higher wage gaps, suggesting that gains from flexibility were not equally distributed. While the law aimed at boosting firm adaptability and competitiveness, our results highlight that it also exacerbated pre-existing gender inequalities in hours worked and earnings.

These findings underscore the importance of considering distributional consequences, especially along gender lines, when designing or evaluating labor market reforms.

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APPENDIX

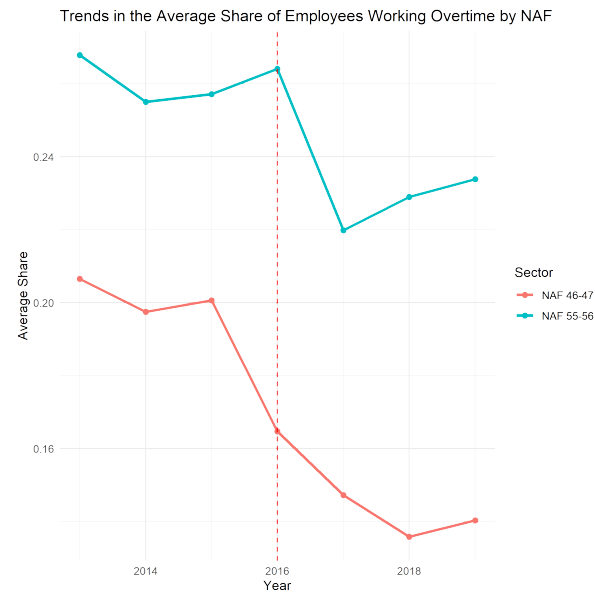


Figure 5: Share of employees working more than 6 weeks of overtime, by sector (NAF 46–47 vs. 55–56)

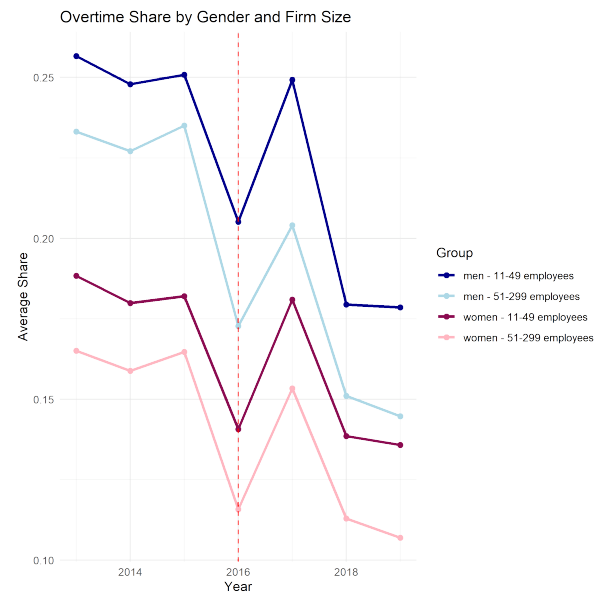


Figure 6: Share of employees working more than 6 weeks of overtime, by gender and firm size

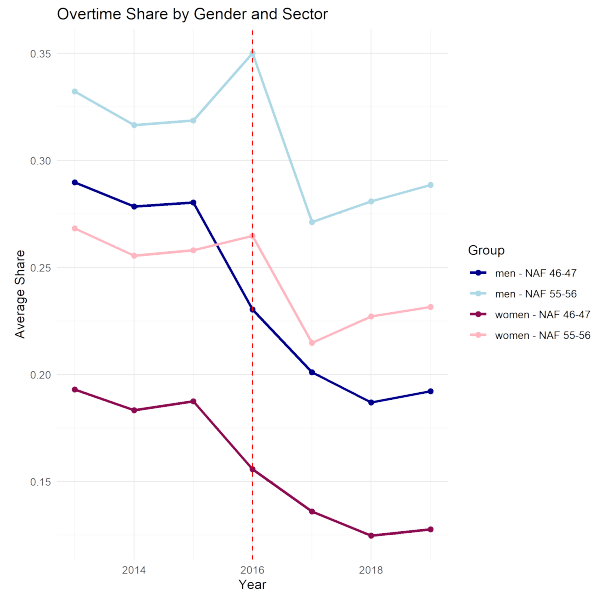


Figure 7: Share of employees working more than 6 weeks of overtime, by gender and firm size

Dependent Variable: Gender gap in > 6 weeks of overtime work	
<i>Variables</i>	
DID	0.0180*** (0.0020)
<i>Fixed-effects</i>	
SIREN	Yes
YEAR	Yes
<i>Fit statistics</i>	
Observations	399,973
R ²	0.51177
Within R ²	0.00174
<i>Clustered (SIREN) standard-errors in parentheses</i>	
<i>Signif. Codes: ***: 0.01, **: 0.05, *: 0.1</i>	
<i>Treatment group : NAF 55/56, control group : NAF 46/47</i>	

Table 1: DiD estimate of the effect of the reform on the difference between the share of men and women working more than 6 weeks of overtime.

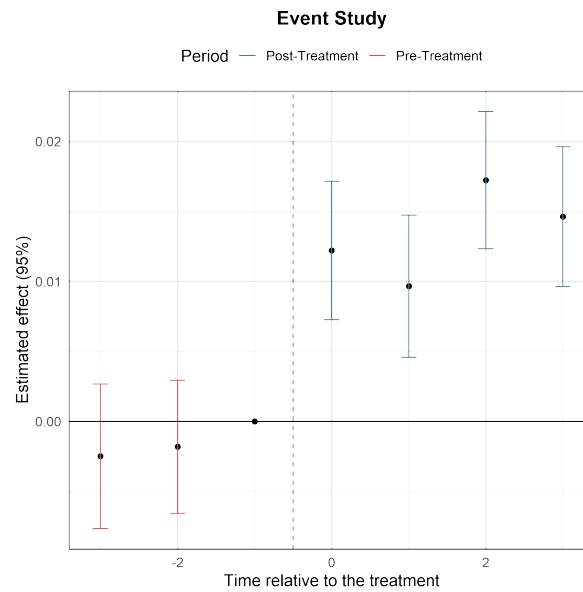


Figure 8: Effect of the reform on the difference in the share of men and women working more than 6 weeks of overtime (overtime intensity treatment)

Dependent Variable: Gender gap in > 6 weeks of overtime work	
<i>Variables</i>	
DID	0.0147*** (0.0016)
<i>Fixed-effects</i>	
SIREN	Yes
ANNEE	Yes
<i>Fit statistics</i>	
Observations	597,411
R ²	0.52360
Within R ²	0.00207
<i>Clustered (SIREN) standard-errors in parentheses</i>	
<i>Signif. Codes: ***: 0.01, **: 0.05, *: 0.1</i>	
<i>Treatment group : low-overtime intensity</i>	
<i>Control group : high-overtime intensity</i>	

Table 2: DiD estimate of the effect of the reform on the difference between the share of men and women working more than 6 weeks of overtime.

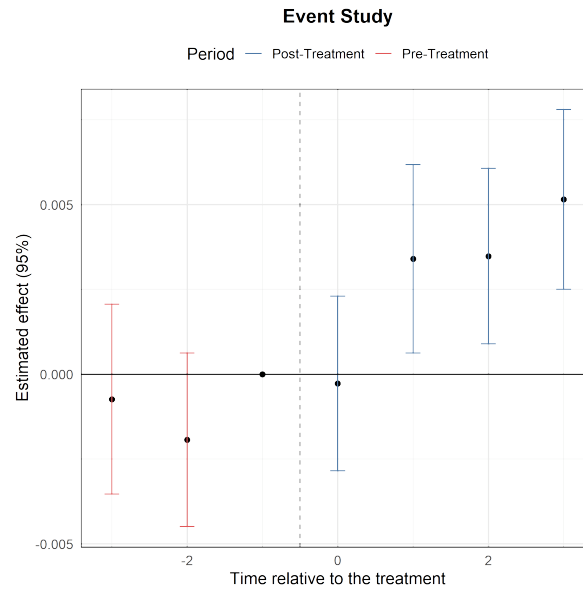


Figure 9: Effect of the reform on the difference in the share of men and women working more than 6 weeks of overtime (less/more than 50 employees)

Dependent Variable:	Gender gap in > 6 weeks of overtime work
<i>Variables</i>	
DID	0.0050*** (0.0011)
<i>Fixed-effects</i>	
SIREN	Yes
ANNEE	Yes
<i>Fit statistics</i>	
Observations	707,165
R ²	0.54613
Within R ²	0.00273

Clustered (SIREN) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Treatment group : 10-49 employees, control group : 51-299 employees

Table 3: DiD estimate of the effect of the reform on the difference between the share of men and women working more than 6 weeks of overtime.

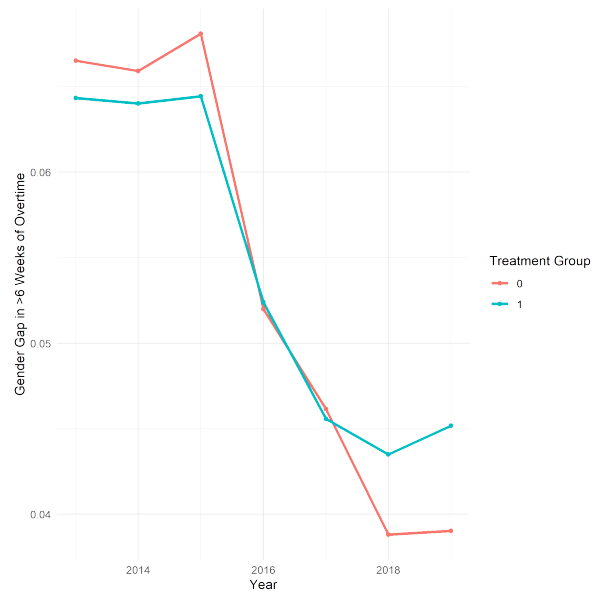


Figure 10: Difference in the share of men and women working more than 6 weeks of overtime (less/more than 50 employees)

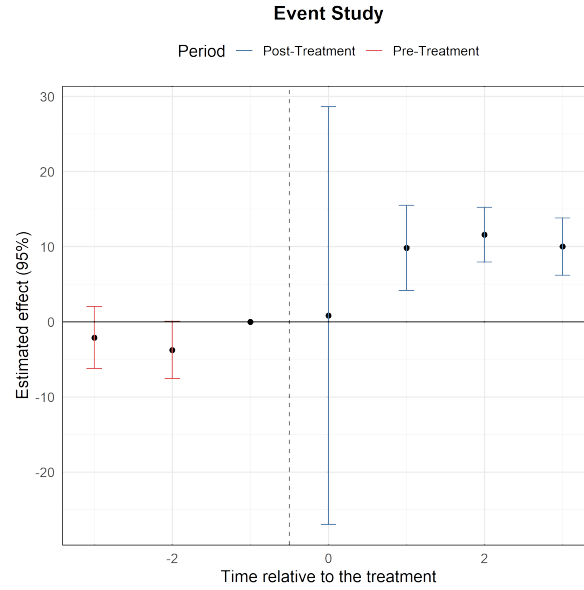


Figure 11: Effect of the reform on the difference in the average number of hours worked in a year by men and women (overtime intensity treatment)

Dependent Variable: Gender gap in average hours worked	
<i>Variables</i>	
DID	9.965*** (3.428)
<i>Fixed-effects</i>	
SIREN	Yes
ANNEE	Yes
<i>Fit statistics</i>	
Observations	1,076,073
R ²	0.17996
Within R ²	0.00034

Clustered (SIREN) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Treatment group : low-overtime intensity

Control group : high-overtime intensity

Table 4: DiD estimate of the effect of the reform on the difference in the average number of hours worked in a year by men and women.

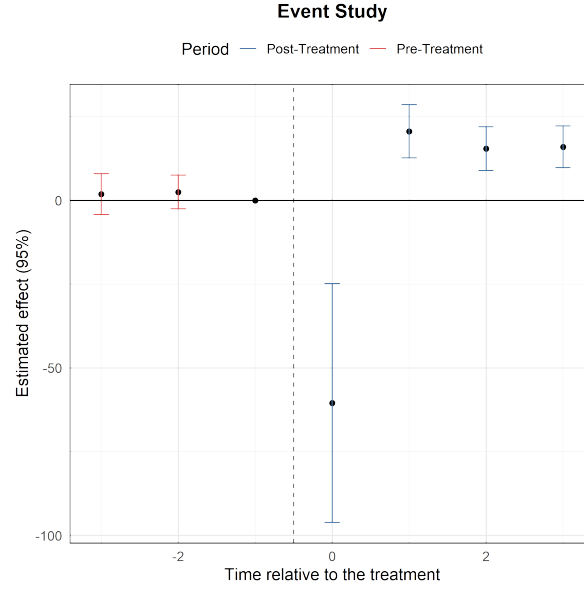


Figure 12: Effect of the reform on the difference in the average number of hours worked in a year by men and women (NAF 46–47 vs. 55–56)

Dependent Variable: Gender gap in average hours worked	
<i>Variables</i>	
DID	-1.091 (4.526)
<i>Fixed-effects</i>	
SIREN	Yes
ANNEE	Yes
<i>Fit statistics</i>	
Observations	670,916
R ²	0.18845
Within R ²	0.00037
<i>Clustered (SIREN) standard-errors in parentheses</i>	
<i>Signif. Codes: ***: 0.01, **: 0.05, *: 0.1</i>	
<i>Treatment group : NAF 55/56, control group : NAF 46/47</i>	

Table 5: DiD estimate of the effect of the reform on the difference in the average number of hours worked in a year by men and women.

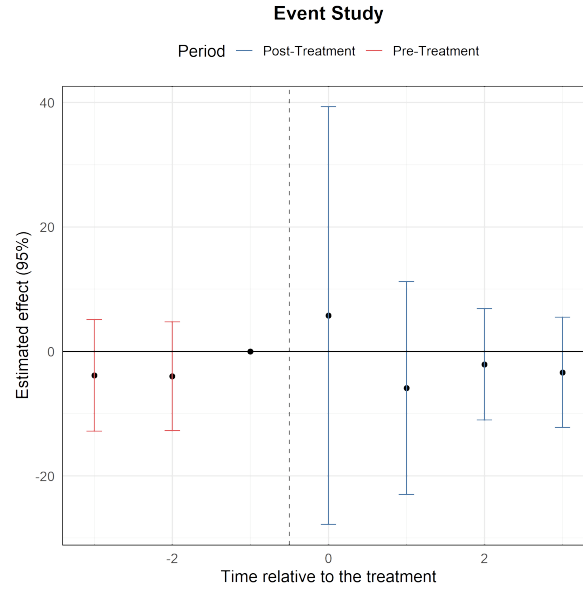


Figure 13: Effect of the reform on the difference in the average number of hours worked in a year by men and women (less/more than 50 employees)

Dependent Variable:	Gender gap in average hours worked
<i>Variables</i>	
DID	4.036 (4.886)
<i>Fixed-effects</i>	
SIREN	Yes
ANNEE	Yes
<i>Fit statistics</i>	
Observations	908,491
R ²	0.29945
Within R ²	0.00093

Clustered (SIREN) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Treatment group : 10-49 employees, control group : 51-299 employees

Table 6: DiD estimate of the effect of the reform on the difference in the average number of hours worked in a year by men and women.

Dependent Variable: Gender gap in average wages in euros	
<i>Variables</i>	
DID	401.8*** (61.97)
<i>Fixed-effects</i>	
SIREN	Yes
ANNEE	Yes
<i>Fit statistics</i>	
Observations	670,916
R ²	0.66930
Within R ²	0.01095
<i>Clustered (SIREN) standard-errors in parentheses</i>	
<i>Signif. Codes: ***: 0.01, **: 0.05, *: 0.1</i>	
<i>Treatment group : NAF 55/56, control group : NAF 46/47</i>	

Table 7: DiD estimate of the effect of the reform on the difference in the average yearly wages of men and women.

Dependent Variable: Gender gap in average wages in euros	
<i>Variables</i>	
DID	356.1*** (53.95)
<i>Fixed-effects</i>	
SIREN	Yes
ANNEE	Yes
<i>Fit statistics</i>	
Observations	1,076,073
R ²	0.70679
Within R ²	0.24426
<i>Clustered (SIREN) standard-errors in parentheses</i>	
<i>Signif. Codes: ***: 0.01, **: 0.05, *: 0.1</i>	
<i>Treatment group : low-overtime intensity</i>	
<i>Control group : high-overtime intensity</i>	

Table 8: DiD estimate of the effect of the reform on the difference in the average yearly wages of men and women.

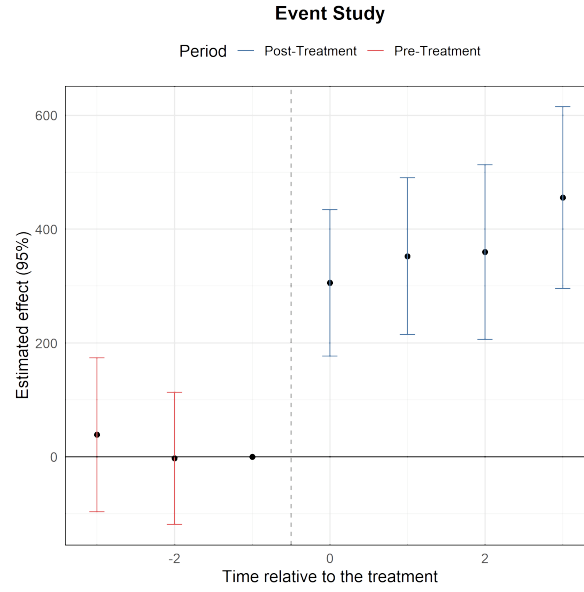


Figure 14: Effect of the reform on the difference in the firm-average wage of men and women (overtime intensity treatment)

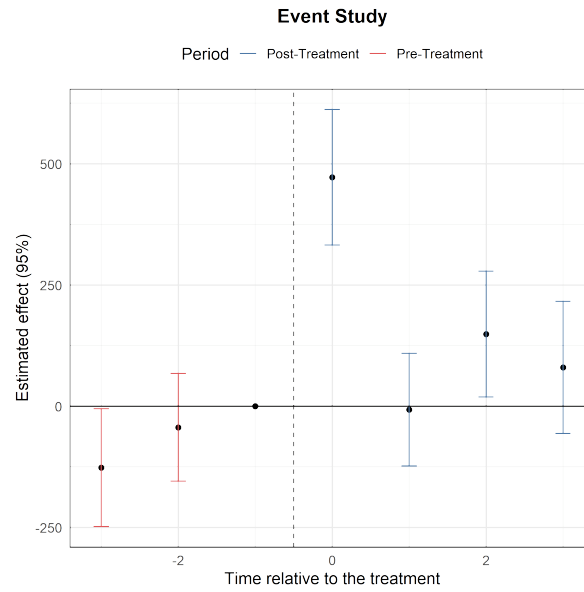


Figure 15: Effect of the reform on the difference in the firm-average wage of men and women (less/more than 50 employees)

Dependent Variable:	Gender gap in average wages in euros
<i>Variables</i>	
DID	246.8*** (50.94)
<i>Fixed-effects</i>	
SIREN	Yes
ANNEE	Yes
<i>Fit statistics</i>	
Observations	908,491
R ²	0.73164
Within R ²	0.02294

Clustered (SIREN) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Treatment group : 10-49 employees, control group : 51-299 employees

Table 9: DiD estimate of the effect of the reform on the difference in the average yearly wages of men and women.

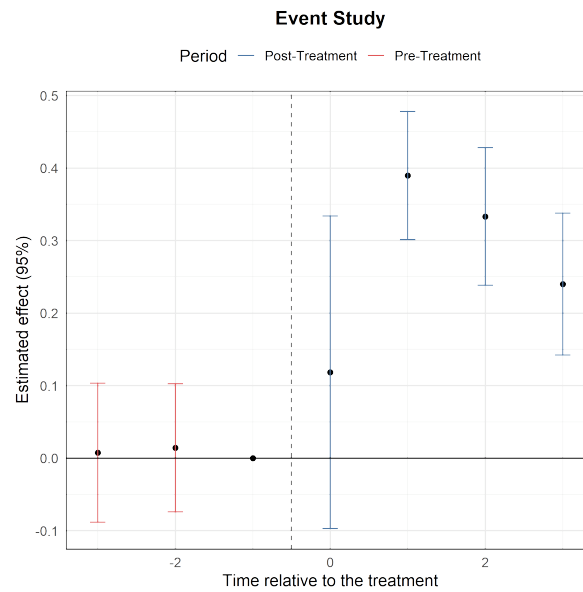


Figure 16: Effect of the reform on the difference in the firm-average hourly wage of men and women (overtime intensity treatment)

Dependent Variable: Gender gap in average hourly wages in euros	
<i>Variables</i>	
DID	0.2632*** (0.0421)
<i>Fixed-effects</i>	
SIREN	Yes
ANNEE	Yes
<i>Fit statistics</i>	
Observations	1,075,101
R ²	0.93085
Within R ²	0.91055

Clustered (SIREN) standard-errors in parentheses

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Treatment group : low-overtime intensity

Control group : high-overtime intensity

Table 10: DiD estimate of the effect of the reform on the difference in the average hourly wages of men and women.

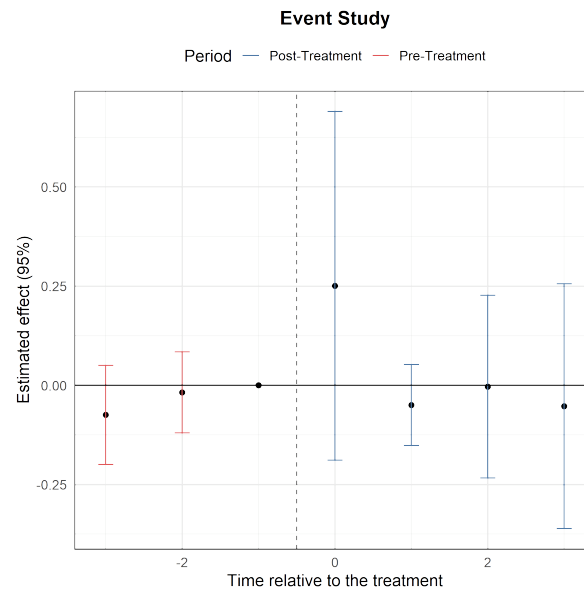


Figure 17: Effect of the reform on the difference in the firm-average hourly wage of men and women (less/more than 50 employees)

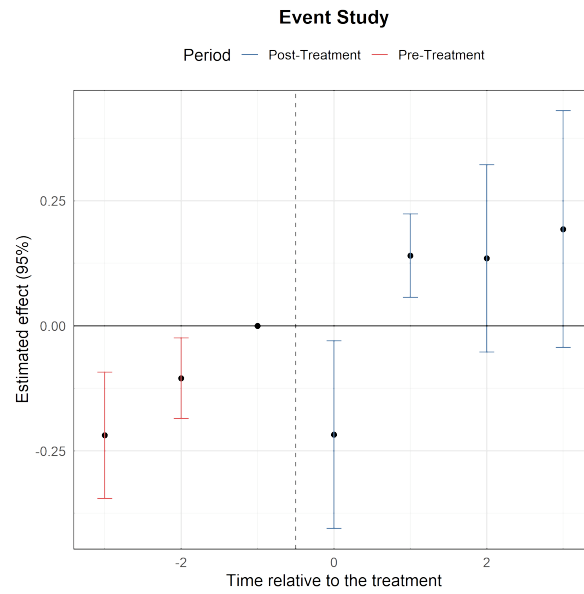


Figure 18: Effect of the reform on the difference in the firm-average hourly wage of men and women (NAF 46–47 vs. 55–56)