The impact of Covid-19 lockdown on the gender gap in the Italian labour market

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Abstract

We study the gendered impact of the nationwide lockdown (March-May 2020) due to the Covid-19 pandemic on the Italian labour market. By using Labour Force Survey Data on the first three quarters of 2020, we define a Triple Difference-in-Differences (DDD) strategy by exploiting the exact timing of the lockdown implementation. We found that in non essential sectors (treated group) the lockdown enlarged pre-existent gender inequalities. The probability of job loss got 0.7 p.p. higher among female workers compared to their male counterparts and this difference was detected during the reopening period rather than in the strict lockdown phase. The probability of receiving CIG benefit was 3.6 p.p. higher for female treated workers compared to their male ones, despite the fact that men were more likely to benefit from this measure before, and it is statistical significant during the lockdown and the reopening phase as well. Finally, no significant gender differences emerged either in terms of working hours or in terms of remote working among the treated group, at least in the medium-term.

Keywords: Covid-19, lockdown, labour market, gender gap, difference-in-differences
JEL classification codes: C21, D04, J16, J21

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1 Introduction

The shock stemming from the Covid-19 pandemic and related containment measures had major consequences on the world economy that translated into a general contraction by 3.3 percent in 2020 (IMF, 2021). Output and labor supply drops due to the lockdown were everywhere dramatic, far worse than what experienced during the 2007-2009 financial crisis. Compared with pre-pandemic scenarios, close to 95 million more people worldwide fell below the extreme poverty threshold in 2020 (IMF, 2021). Event though extraordinary policy support by national governments and international institutions prevented even worse economic outcomes, the pandemic will likely translate into a persistent increase in economic and social inequalities both within and across countries (Adams-Prassl et al., 2020; Blundell et al., 2020; Shibata, 2020).

One key dimension along which inequalities are likely to increase is gender, because of the unique nature of the labour market shock caused by the pandemic (Alon et al., 2020; Blundell et al., 2020; Oreffice and Quintana-Domeque, 2021). Whereas previous recessions mostly affected sectors such as construction and manufacturing in which men were predominantly employed, the pandemic recession had its biggest impact on sectors such as hospitality and tourism, with high female employment shares. In addition, the strict lockdown led to school and daycare closures that massively increased parents' childcare duties. Given that mothers provide a much larger share of childcare than fathers usually do, such closures mostly affected women's ability to work, either from the traditional workplace or from home. For these reasons, the literature broadly agrees on the fact that the Covid-19 pandemic translated into a "she-cession", which has disproportionately affected women's employment (Alon et al., 2021; Bluedorn et al., 2021; Fabrizio et al., 2021).

The present paper contributes to the growing evidence on the gendered impact of Covid-19 lockdown by considering the Italian labour market. Female labour force participation in Italy has been historically low: despite the progresses observed in the last decades, the female employment rate was only slightly above 50% at the beginning of 2020, the second lowest value across the whole European Union, mainly because of inadequate parental leave and child care policies (Carta, 2019). According to the OECD statistics, Italy has one of the the widest gender gaps in the time spent in unpaid domestic work, in line with the prevailing of the traditional male breadwinner model and with the existence of gender norms and stereotypes

that are still strongly influencing female involvement in paid work.

In this context, our aim is to shed light on the consequences in terms of labour market outcomes of the nationwide lockdown imposed by Italian government between March and May 2020, and how they differed between male and female workers. The lockdown policy actually determined economic activities that stopped, whereas those deemed essential (health care, food service, and public transportation, among others) could operate even though they were urged to maintain social distancing measures to the extent possible.

By using Labour Force Survey (LFS) data on the first three quarters of 2020, we investigate the consequences of the lockdown due to Covid-19 emergency on four labour market outcomes: job loss, hours worked per week, wage guarantee fund (CIG), and remote working[1]. We use a triple Difference-in-Differences (DDD) strategy based on the exact timing of the lockdown implementation by the Italian government, on the classification of economic sectors as essential or non–essential and on gender in order to analyse whether and how gender inequalities emerged. We further distinguish the effects due to the shutdown from those related to the reopening of non-essential economic activities to understand better the persistency of the effects induced by the policy shock.

The set-up of our paper is as follows. In the next Section, we briefly introduces the recent literature on the gendered impact of Covid-19 emergency in the labour market, with a focus on the Italian framework. Section 3 describes the the Covid-19 emergency and the implementation of public policies by the Italian government after March 2020. Section 4 explains the econometric model and the identification strategy. Section 5 presents the dataset used for the econometric analysis. Section 6 reports and comments on the estimation results, the falsification checks, the estimates of heterogeneity in the effects and their robustness. Section 7 concludes. An Appendix reports further descriptive statistics, the full set of estimation results of the baseline models, and the estimated effects of falsification and robustness checks.

[1]Labor income does not appear among our outcomes for two reasons. Firstly, the survey question asks about last month's earnings whereas other essential information, such as working hours, is not available with the same timing. Existing evidence has shown that the lockdown implementation had a large impact on the gender gap in terms of working hours (e.g. Alon et al., 2021, Meekes et al., 2020) and controlling for such information would be necessary to avoid spurious elations. Secondly, the available information for labour earnings may also include the wage guarantee fund (CIG) received by workers (see section 3.2) and we cannot properly distinguish it from the salary.

2 The gendered impact of Covid-19

2.1 International evidence

According to the evidence provided so far, the Covid-19 pandemic caused a "she-cession" that disproportionately affected women's employment (Alon et al., 2020). Indeed in most countries the decline in employment and hours worked had been larger among women compared to men. However, in an analysis based on 28 countries Alon et al. (2021) showed that pre-Covid19 situation as well as policy interventions played an important role in shaping differences across countries. According to their results, the gender gap was substantial in the response of hours worked in Canada, Germany and the US. Small differences instead were registered in the Netherlands, Spain, and the United Kingdom.

A similar cross-country perspective was adopted in Bluedorn et al. (2021) by using a mix of OECD and Eurostat labor force quarterly data. Looking at a panel of both advanced economies and emerging markets, they show that over half to two–thirds of the countries experienced a she–cession in the second quarter of 2020, which faded, in the most cases, by the following quarter. The gender gap worsening was mainly registered along the extensive rather than the intensive margin given that men experienced a larger reduction in average hours worked than women in most of the countries considered in the analysis. At the same time, the drop in women's extensive margin is more related to the relative declines in their labor force participation than to a relative rise in their unemployment rates.

Galasso and Foucault (2020) used microdata from a real–time survey administered between March and April 2020 in a sample of OECD countries. Overall descriptive evidence showed that women tend to work more from home than men and in several countries there was no gender gap in the share of inactive workers. Gender differences however proved significant in Austria, Canada, Germany, Italy, Poland and Sweden, where women stopped working more than men. A multi-country survey implemented in late April 2020 in China, Italy, Japan, South Korea, the UK, and the US was exploited also in Dang and Nguyen (2020). By means of simple OLS regressions and Oaxaca-Blinder decompositions, they show that women were 24 percent more likely to lose their permanent job compared to men, whereas no significant gender differences emerged in terms of temporary job losses. The gender gap was larger in countries with higher COVID-19 infection rates.

Adams-Prassl et al. (2020) focussed on UK, US and Germany estimated a linear probability models in which job loss was regressed on a set of individual and job characteristics. Women and less educated workers were more likely to experience job losses. Interestingly, the gender gap in job losses was significant in both UK and US when controlling for occupation fixed effects and the percentage of tasks one can do remotely. The authors suggest that care responsibilities may be a major driver for the observed differences between male and female workers.

Additional evidence in this direction has been provided by single country studies either on the US or on European labour markets that often looked at workers/households with dependent children. By exploiting real-time data collected in the UK on opposite-gender two-parent households with children aged 4-15, Andrew et al. (2020) showed that mothers were more likely to lose their job or to be furloughed during the lockdown and that among those who were still working time spent on paid work decreased whereas time spent on childcare increased. Even though mothers were still responsible for the largest share of housework and childcare activities, however, fathers dedicated a significant amount of their time to family responsibilities too, especially when they had lost their job and the mother was still employed. Hupkau and Petrongolo (2020) also use data on UK households from the Covid-19 supplement to the Understanding Society longitudinal study to look at the short–term impact of the pandemic on both paid and unpaid work. By estimating linear probability models for the incidence of job loss and controlling for a set of individual and job-related characteristics, in contrast with Andrew et al. (2020) they find that the incidence of job losses and furloughing was similar between males and females, but for women average losses at the intensive margin in terms of hours worked were slightly smaller. The authors also show that within the household most of the additional childcare load was taken over by mothers, although fathers became the main providers of childcare in a non negligible share of households.

Given that increased childcare responsibilities had likely played a major role in explaining changes in women labour supply during the lockdown, Amuedo-Dorantes et al. (2020) use monthly data from the US Current Population Survey and exploit geographical and temporal variation in the implementation of school closures across districts up to May 2020 within a difference-in-differences setting to look at the impact on parental labour supply for couples with school–aged children aged 6-12. They found a reduction between 11 and 15 percent

in weekly work hours both among fathers and mothers, with larger effects for women, and in particular for mothers unable to work remotely and for those who were not considered essential workers. Among non-essential workers, they show that mothers cut their weekly work hours by 30 percent with school closures whereas fathers only reduced their work hours by 11 percent. By employing the same data source, Fabrizio et al. (2021) estimate linear probability models for the probability of employment and show that US less educated women with young children were the hardest-hit workers during the first nine months of the pandemic crisis. Their probability of being employed was almost 3 percentage points lower compared to fathers with young children.

Similar evidence based on the US Current Population Survey was also provided in Montenovo et al. (2020), according to which US female workers experienced larger increases in recent unemployment compared to their male counterparts. By means of the Oaxaca-Blinder decomposition, they show that although a significant share of the increasing gender gap was explained by differences in pre–pandemic distribution across sectors and occupations, caring duties also had a crucial role. Rates of absence from work and job losses were particularly high for women with young children and for single parents, who are disproportionately female. The drop in employment and labor force participation experienced by US women looks substantial and persistent: Albanesi and Kim (2021) showed that women's employment losses accounted for 66% of the aggregate decline in employment in spring 2020, 63% in the summer and 59% in the fall. The gender gap was even larger for the decrease in participation rates, with women accounting for 70% of the total decline in the spring, and up to 100% in the fall.

Administrative microdata on the Dutch population of employees until June 2020 were used by Meekes et al. (2020) to investigate the gendered impact of Covid-19 on employment status, working hours and hourly wages. They estimated a monthly differences-in-differences model on four subsamples stratified by essential/non–essential worker status and by gender. In addition, they also employ a triple differences specification by including interactions with household composition (relationship status, presence and age of children) and partners' employment situation (essential/non–essential and full–time/part–time status). Their findings show that labour demand effects were more relevant than supply effects, with larger impacts on non–essential workers in terms of either employment, hours worked or wages. Among non–essential workers, females performed worse than men in terms of employment and working

hours whereas female and male essential workers experienced similar small effects in both employment and working hours. In terms of supply effects, the household structure had no significant role. The only category experiencing large negative effects was represented by single–parent essential workers, as shown in Alon et al. (2021) and Montenovo et al. (2020).

2.2 The impact on the Italian labour market

As far as Italy is concerned, the existing evidence on the labour market consequences of the lockdown is still relatively scant, especially as far as the gender gap is considered.

Several contributions focussed on the adoption of remote or smart working practices and their impact on labour market outcomes. Indeed, up to the pandemic Italy had one of the lowest incidence of smart working across Europe. According to Eurofound (2021), only 10% of workers worked from home several times a week, compared to an average 16% in the EU-27. During the first wave of the pandemic, almost 40% of Italian workers started to work from home (36.5% in the EU-27). Barbieri et al. (2020) classified the occupations according to the possibility to work from home and found that in sectors that were not forced to close (e.g. service sector) the risk of contagion had been mitigated by working remotely. Depalo and Giorgi (2021) showed that the increase in the incidence of smart working was larger among female workers, and compared to men they also experienced larger benefits from smart working in terms of monthly wages, hours worked and access to redundancy funds (CIG). Along the same line, Ainaa et al. (2021) looked at the effects of COVID-19 pandemic on the wage distribution by means of quantile regressions estimated on LFS data up to the second quarter of 2020 and found that women would be the major beneficiaries from the long run increase in the possibility to work from home. On the contrary, the use of remote working, as it is now, can exacerbate the gender differences rather than being a useful balancing tool for work and family duties aimed at reducing this gap. The evidence provided by Bonacini et al. (2021b) by means of Oaxaca-Blinder decomposition and unconditional quantile regressions based on the INAPP-PLUS 2018 survey, according to which the current crisis would have negative implications for women even in the post COVID-19 scenario, given that the existing gender wage gap is greater for women in occupations with a high level of work from home attitude, and in particular among older and married female employees. In other words, the "new normal" of working from home would risk exacerbating pre-existing inequalities in the labour market by

favouring male, older, high-educated, and high-paid employees (Bonacini et al., 2021a).

Some additional works investigated the impact of Covid–19 on intra–household division of non-paid housework and childcare, and thus provided only an indirect assessment of the labor market consequences of the pandemic. Data collected on a representative sample of working and non–working Italian women show that the gender gap in the household division of unpaid labor widened during both the first and the second wave of Covid-19 (Del Boca et al., 2020, 2021). The evidence provided in Mangiavacchi et al. (2020) instead supports the idea that the lockdown had a balancing effect on the parental division of household tasks, but this effect was strongly dependent on parents' employment status. Fathers performed more household tasks if they were at home alone with their children; the opposite happened if mothers stopped working.

To the best of our knowledge, a direct assessment on gender differences in labour market outcomes was provided only by Casarico and Lattanzio (2020). They employ administrative data on a sample of active contracts in the first quarter of 2020 to look at the change in weekly hirings and terminations relative to the corresponding average in 2017-2019. According to their results, there was a pronounced drop in hirings and terminations starting with the introduction of the lockdown measures. On the contrary, a sharp increase was observed in firings and quits up to the introduction of the firing freeze policy, after which firings dropped significantly. By estimating a cross-sectional linear probability model for lob loss which mainly controls for individual-level characteristics, they show that young, temporary and low–skilled workers suffered the most, whereas gender did not seem to play any significant role in predicting the separation probability.

3 Policy intervention

3.1 The lockdown implementation

In Italy, the first cases of Covid-19 were detected at the end of January 2020, but the spread of the disease accelerated only in the second half of February and Lombardia was the epicenter of the outbreak. Two local "red zones" involving 11 municipalities in the provinces of Lodi and Padua were implemented on February 22 whereas the first nation-wide measure was an-

nounced and signed by the Prime Minister on March 4 and became effective the day after. It concerned mainly the suspension of school activities at any grade from kindergarten to universities. On March 8, with 5,800 confirmed cases and 233 deaths, the Italian government signed a restriction act that extended the quarantine zone to the entire Lombardia region and to other 14 provinces in North and Central Italy[2], thus affecting over 16 million residents. Travel from, to or within the affected areas were restricted, funerals and cultural events were banned and a one-meter minimum distance between people was imposed in all public places. Restaurants and cafes could only work between 6 am and 18 pm whereas many other places such as gyms, swimming pools, bars, museums were closed. Firms and offices were asked to implement smart or remote working whenever possible to limit contagion. This measure had to become effective the day after (March 9) although the contents of the decree had already been anticipated in the media the day before the signature. On the evening of 9 March, the Prime Minister announced that the quarantine measures would be extended to the entire country from March 10. On March 11, after two weeks in which the number of worldwide cases outside China had a 13-fold increase and the number of affected countries tripled, the World Health Organization declared that Covid-19 could be characterized as a pandemic. The following day, with the virus spreading exponentially across the country, the Italian government tightened the national lockdown measures. All commercial and retail economic activities were closed down, apart from those providing essential goods and services (grocery stores, food stores, pharmacies). Even cafes and restaurants were closed with the exception of take-away services. People were allowed to exit home only to go to work, to do grocery shopping and for emergency reasons. Due to a dramatic rise in the number of cases and deaths, local autorities, trade unions and also public opinion called for a generalised shutdown including all non-necessary businesses and industries. The economic activities that were deemed as essential and could continue to operate and those classified as non–essential and forced to shut down were therefore established by decree according to Ateco 2007 classification of economic activities[3]. Essential sectors included agriculture, some manufacturing, energy and water supply, transports and logistics, banking and insurance, information and communication activities, professional and scientific

[2]The 14 provinces outside Lombardia were Alessandria, Asti, Modena, Novara, Padua, Parma, Pesaro and Urbino, Piacenza, Reggio-Emilia, Rimini, Treviso, Venice, Verbano-Cusio-Ossola, and Vercelli.

[3]The 2007 Ateco classification is the national version of the European nomenclature Nace Rev. 2 adopted by Istat in 2008.

activities, public administration, education, healthcare and few service activities. On the other hand, shutdown activities included most of manufacturing, wholesale and retail trade, hotels, restaurants and bars, entertainment and sport activities. After March 25 only few sectors remained fully operative and up to 3 million workers inside these sectors (for example in finance and insurance, professional services as well as public administration) were working from remote (Barbieri et al., 2020). We consider the 11th week (March 9th-15th) as the start of the national lockdown (Casarico and Lattanzio, 2020).

The so-called "Phase 2" was announced by the Italian government on April, 26 and the nation-wide lockdown expired on May 4. Since then, manufacturing and construction resumed their activities under new safety rules (staggered shifts, temperature checks, masks), but retail shops, cafes, restaurants, services (hairdressers, beauticians, gyms, swimming pools) and touristic activities were still closed and reopened on May 18 although with some flexibility across regions. Sports facilities reopened on May 25, followed by cinemas and theaters on June 15. Mobility across regions was still forbidden until June 3, whereas people were allowed to move across municipalities for work and health reasons as well as for visiting relatives. Since most of the activities reopened by May 25, this is the official end of the lockdown period in our empirical setting.

3.2 Additional labour market and social protection measures

On March 17, the government adopted a €25 billion emergency package (Law Decree No. 18/2020, the so–called "Cura Italia" Decree), which included also specific measures to increase workers' protection[4]. A ban on individual and collective dismissals was initially introduced from 17 March 2020 for 60 days and has been extended several times until 30 June 2021. The freeze was related to all layoffs opened after February 23rd, including those for economic reasons. The natural expiry of the fixed–term contracts remained out of scope.

The same package extended the use of the "Cassa Integrazione Guadagni", thereafter CIG (a wage guarantee instrument activated in case of suspension or reduction in working activities due to temporary events that cannot be ascribed to the company) to temporary suspensions of work or for reduction in working hours due to the pandemic. CIG was initially provided for a maximum of 9 weeks between 23 February and 31 August 2020, further prolonged by the

[4]For a detailed description see Biasi (2020) and Istat (2021).

Relaunch Decree released on May 19 in order to preserve employment relationships while cutting firms' labor costs during the lockdown period. This measure was extended to firms with less than 15 employees, usually excluded from its ordinary application. One-off bonuses were introduced for self-employed workers, professionals and (mostly temporary) workers in the touristic, entertainment and agricultural sector.

Remote working was strongly recommended in the private sector from the beginning of the emergency, and according to the provisions in the "Cura Italia" Decree it became the regular working method for most of the public sector during the pandemic. The use of agile/remote working by the employer was authorised even in the absence of any agreement between the employee and the employer which is normally required. Disabled workers were granted the right to work from remote, if their tasks were consistent with teleworking. And so were working parents employed in the private sector with children under the age of 14, provided that the other parent was still working.

The "Cura Italia" Decree also introduced additional specific measures in order to help working parents to face both school closures and the impossibility to rely on grandparents' informal childcare during the lockdown. Private and public sector employees and self-employed workers with children up to 12 years old were granted a special parental leave up to 15 days during the period of school closure, with an indemnity equal to 50% of their compensation. Moreover, workers with children between 12 and 16 years old could benefit from an unpaid leave, during which they could not be dismissed. Such parental leave was granted provided that the other parent was not unemployed or granted with similar measures. As an alternative to parental leave, parents with children up to 12 years old were entitled to apply for a bonus of euro 600 for babysitting services during lockdown.

4 Methodology

4.1 Identification strategy and empirical modelling

The aim of our empirical analysis is to assess whether and how the Covid-19 lockdown affected the labour market outcomes of workers in non-essential economic sectors, with a specific focus on gender differences.

In general, let $y_{i,p}$ be the outcome of interest of individual *i* with province of residence *p*. We define S_i as a binary variable equal to 1 if worker *i* is employed in a non-essential economic sector (*treatment group*) and 0 in an essential one (*control group*), according to what described in Section 3. Let us also define $C_{i,p}$ as another binary variable equal to 1 if the information collected from worker i living in the province p refer to a post-lockdown week[5], and 0 otherwise. Finally, the dummy variable fem_i distinguishes the gender of worker *i*.

The identification of the effect of the lockdown by gender on our outcomes of interest is based on a *Triple Difference-in-Differences* (DDD) approach with repeated cross-sections (Angrist and Pischke, 2009; Wooldridge, 2010; Imbens and Wooldridge, 2008; Lechner, 2011).

We set up the following linear regression model:

$$\begin{aligned} y_{i,p} = \delta_0 + \delta_1 S_i + \delta_2 C_{i,p} + \delta_3 S_i \times C_{i,p} + \delta_4 fem_i + \delta_5 S_i \times fem_i + \\ + \delta_6 C_{i,p} \times fem_i + \delta_7 S_i \times C_{i,p} \times fem_i + x_i' \gamma_1 + z_p' \gamma_2 + \varepsilon_{i,p}, \end{aligned} \tag{1}$$

where $S_i \times C_{i,p} \times fem_i$ is the triple treatment and δ_7 is the gendered average treatment effect on the treated (gATT), our coefficient of interest. This point estimate is unbiased because it calculates the time change in means for women employed in the treated group by netting out the change in means for women in the control group and the change in means for men employed in the treated group. As stated in Wooldridge (2010, p.151) this identification strategy accounts for two kind of potentially confounding trends: changes due to gender status across sectors unrelated to the lockdown implementation and changes in labour market outcomes of workers employed in the essential sectors possibly due to sector-specific changes in the economy that affect all workers, despite of gender. Furthermore, x_i contains exogenous or pre-treatment individual characteristics, such as citizenship, age cohorts, level of education, number of children by age cohort, employment status (employee, self-employed, etc.), years of experience and tenure until 2019, worker qualification (ISCO-08 at 1 digit) and its own index of remote working, sector of activity, firm size, and the pre-treatment proportion of females workers at 3-digit sectoral level. These information can be considered as exogenous

[5]The policy intervention took place nationwide during the 11th week and was anticipated to the 9th week in the provinces of Padua and Lodi. As further explained in subsection 5.1, three out of four outcomes considered in this analysis (hours worked per week, wage guarantee fund (CIG), and smart/remote working) refer to the week of the interview, whereas the probability of job loss refers to the month, because the available information defines the job position one month before.

or pre-determined because the pandemic and the subsequent lockdown acted as a sudden and unexpected shock on the labour demand side[6] as Italy was the first European country to experience a rapid and dramatic increase in contagion. To capture the different speed with which the virus spread throughout the country, we also add a set of covariates z_p that includes a proxy for the intensity of contagions per week at province level, time[7] and province fixed effects. The parameters of Equation (1) are estimated by Ordinary Least Squares (OLS) with standard errors clustered by sectors at 4-digit as a simple way to deal with correlation within-groups (Liang and Zeger, 1986). For further details on the interpretation of the estimated coefficients, see the section A in the Appendix.

Finally, to test the robustness of our baseline results, we augment the DDD treatment-effects estimation with the kernel propensity-score matching (PSM) following Heckman et al. (1997, 1998), and Blundell and Costa Dias (2009)[8]. More specifically, in order to account for potential selection bias caused by observable characteristics of workers we estimate a PSM model and then a DDD method for mitigating the problem of selection by unobservable characteristics. Results are presented in section 6.4.

4.2 Assumptions validity

The OLS estimations of the DDD model in Equation (1) require some assumptions hold in order to return unbiased estimates of the causal effect of the lockdown implementation.

The first assumption is parallel trend, which states that, conditional on the control variables, treated individuals (employed in non-essential economic sectors subject to lockdown) would have followed similar trends in the labour market outcomes as non treated individuals (employed in essential economic sectors not subject to lockdown) in the absence of the intervention, distinguishing by gender. This assumption is not directly testable because we cannot observe the counterfactual evolution of the outcomes, but, however, it can be supported by testing whether female and male workers in the two groups were following parallel trends be-

[6] In Subsection 6.1 the Tables 7 we report also estimations without the individual controls variables and results remain robust.

[7] Time fixed effects are expressed in terms of "relative" weeks from the beginning of the lockdown for estimations of worked hours, CIG, and remote working, whereas they refers to months for job loss estimation.

[8] As pointed out by Heckman et al. (1997), the inclusion of an observation sample that belongs to the region of non-overlapping support may generate serious evaluation bias.

fore the lockdown started. In the same spirit of Autor (2003), we checked this by estimating an event study model which includes the leads of the indicator for the lockdown implementation, up to 10 weeks (2 months for job loss estimations) and the lags from 11 to 41 weeks (from 3 to 9 months for job loss). This model is estimated first by splitting the sample by gender and then in the full sample across gender. Whether the treated and the non treated group experienced parallel trends before the policy implementation, the coefficients of these leads should be nil. This assumption holds during the lockdown implementation, as shown in Subsection 6.2.

The second assumption to test is the exogeneity of the timing of the policy implementation. As described in Section 3, the timing of lockdown implementation is exogenous as it was caused by the rapid spread of the Covid-19 emergency on the national territory. The Italian government quickly implemented the shutdown measures for the whole country to limit the increasing risks of contagion.

The third assumption regards the absence of any anticipation effect in the policy implementation. This assumption would fail if individuals themselves had anticipated the lockdown measure and decided to close their activities before the actual implementation. To assess whether anticipation might be an issue, in Subsection 6.2 we provide a robustness check by removing all individuals interviewed before the implementation from 6th to 10th week.

5 Data and sample

The empirical analysis is based on the Italian Labour Force Survey (LFS) conducted by the Italian Institute of Statistics (ISTAT) during the first three quarters of 2020. The dataset contains individual-level information on current and past work experiences (employment status, characteristics of the main job, unemployment spells, job search, etc.), together with socio-demographic variables. We focus on individuals aged 20-69 which were employed at the week before the interview ("reference" week) or up to a month earlier (see Subsection 5.1 for the exact definition of the samples).

Our estimation strategy exploits the information on the reference week and the province of residence kindly provided by ISTAT[9] in order to set up a Triple Difference in Differences

[9]Elaborations by the authors have been conducted at the Istat ADELE (Laboratorio per l'Analisi dei Dati ELEmentari) laboratory in Ancona in compliance with the norms on statistical confidentiality and personal data protection. No sample weights were employed in our estimates.

(DDD) design in which we distinguish: i) the period before and after the policy implementation (lockdown); ii) two group of workers, those employed in non-essential economic sectors (*treatment group*) and those employed in essential economic sectors (*control group*), as explained in Section 3; iii) male and female workers.

5.1 Outcomes and their dynamics

In order to assess the consequences of the Covid-19 emergency on the labour market, and specifically on the gender gap, we look at four different outcomes: job loss, hours worked per week, wage guarantee fund (CIG), and smart/remote working.

The dichotomous variable, job loss, is equal to 1 if the individual has lost her/his job in the current month (month to which the reference week belongs) and 0 otherwise. To investigate this outcome, our selected sample ($sample_1, 132055\ obs$) includes people who are employed or have lost their job in the reference month given that information on employment status are available only on monthly basis.

Hours worked per week derive from the workers' self-declaration regarding the number of hours actually worked in the reference week and are a continuous variable ($sample_2, 121744\ obs$).[10]

Given that no information on the monetary amount of the CIG is available, the variable referring to the wage guarantee fund, CIG, is equal to 1 if the individual has benefited from the wage guarantee measure in the reference week and 0 otherwise. For this outcome, we restrict the sample to employed people who belong to industries that could access this social security measure during the Covid-19 emergency as discussed in Subsection 3.2 ($sample_3, 67368\ obs$)[11].

The last outcome refers to remote working; it is equal to 1 if the individual worked remotely for at least one day in the reference week or in the three weeks before, and 0 otherwise. It is computed for the same sample of dependent employees used for the wage guarantee measure ($sample_3$) in order to focus the analysis on the private sector and better balance the treated and

[10]The size of sample$_2$ is lower than sample$_1$ one because the first one collects all workers at reference time, whilst the latter also includes individuals who have lost their job in the last month before.

[11]Starting from $sample_2$, we kept only employees and among employees we further excluded those working in the following sectors which could not benefit from the wage guarantee fund (CIG): agriculture, forestry and fishery, public administration, defence, education, human health and social work activities, extra-territorial organisations and bodies.

the control group.[12]

For each sample, Table 1 shows the distribution of frequencies across treatment (non-essential sectors) and control (essential sectors) groups, both before and after the lockdown implementation (for additional details, see Table B.1 in the Appendix). Table 2 reports the unconditional mean for all the outcome variables across treatment and control groups, both before and after the lockdown implementation (for more details, see the Table B.2 in Appendix).

Table 1: Samples - Frequencies by groups

	Sample 1 Job loss	Sample 2 Working hours	Sample 3 CIG/Remote working
All			
Before, Treated	10,971	9,074	6,432
Before, Control	21,183	17,718	8,615
After, Treated	33,623	31,627	22,257
After, Control	66,278	63,325	30,064
Total	132,055	121,744	67,368
Males			
Before, Treated	6,965	5,749	3,956
Before, Control	10,887	9,112	4,890
After, Treated	21,476	20,205	13,955
After, Control	33,814	32,182	16,905
Total	73,142	67,248	39,706
Females			
Before, Treated	4,006	3,325	2,476
Before, Control	10,296	8,606	3,725
After, Treated	12,147	11,422	8,302
After, Control	32,464	31,143	13,159
Total	58,913	54,496	27,662

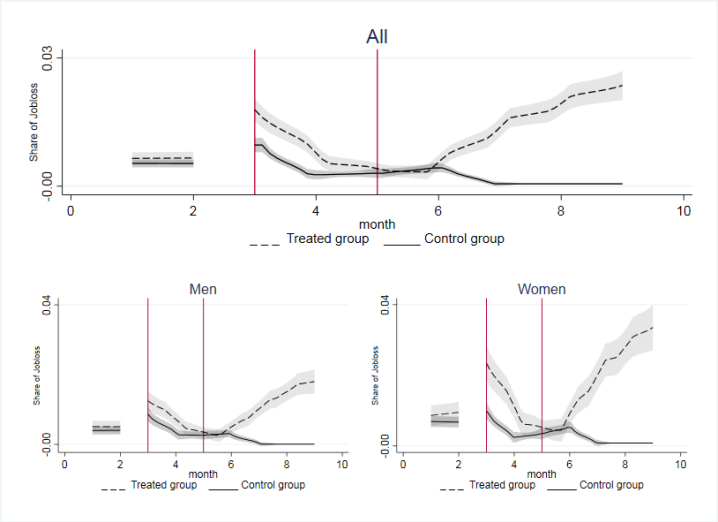
Notes: Sample 1 for job loss includes people who are employed or have lost their job in the reference month. Sample 2 for working hours keep only individuals employed in the reference week. Sample 3 for CIG and remote working selects employees excluding those working in sectors which could not benefit from the wage guarantee fund (CIG): agriculture, forestry and fishery, public administration, defence, education, human health and social work activities, extra-territorial organisations and bodies.

The lockdown had a strong impact on our outcomes. From the beginning of the lockdown (March 2020 for job loss, 11th week for working hours, CIG and remote working), a significant discontinuity is detected. Figures 1-4 show the evolution of our outcomes over time. We can observe two shocks in the period: the first one in March with the lockdown implementation and the second one in June when economic activities reopened (the so called Phase-2). Even

[12]Sectors were excluded based on the possibility to switch jobs into remote working. Neither agriculture, forestry and fishery, nor the health sector could do it, whilst public administration and education had to do it.

though such shocks are detected also in the full sample, when disaggregating by gender they appear more intensive for female workers.

Figure 1: Trend of Job Loss by groups



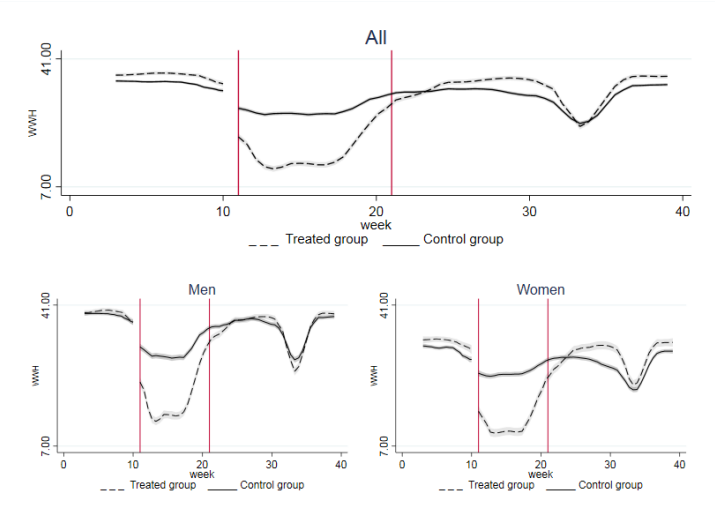
Notes: The x axis describes the first three quarters of 2020 in months. Starting from the left, the first break (first vertical line) marks the beginning of the lockdown in March, the second break (second vertical line) marks the end of the lockdown and the period of reopening of economic activities in May. Confidence interval at 5% in grey.

In particular, the probability of losing the current job more than doubled for the treatment group after the lockdown (from 0.006 to 0.013), and it had a steeper increase for treated women (from 0.008 to 0.018). This trend was confirmed also in the reopening phase, with a stronger increase in the probability of loosing the job for women compared to men (Figure 1).

Working hours per week decreased across all groups, but the decline in the treatment group was far larger (9 vs. 5 hours, respectively); however, no specific trend by gender is detected (Table 2). Figure 2 shows that the drops in working hours were recorded during the lockdown (from the 11th to 21st week) and during summer holidays (from the 31st to the 34th week). After the reopening (from the 21st week onwards) the recovery in terms of hours worked was more intense for females than for men.

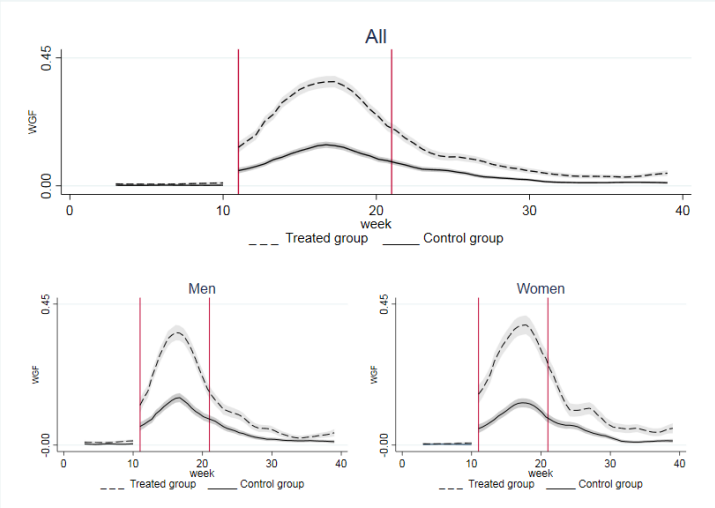
The wage guarantee fund (CIG) was implemented both in the treated and in the control group after the lockdown. The increase, however, was larger for the treated group. When splitting the sample by gender, similar trends were observed in the control group whereas

Figure 2: Trend of Weekly Working Hours by groups



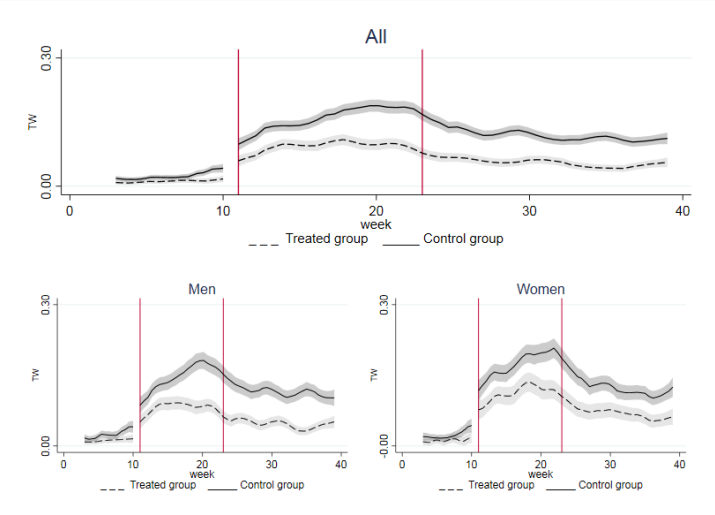
Notes: The x axis describes the first three quarters of 2020 in weeks. Starting from the left, the first break (first vertical line) marks the beginning of the lockdown at week 11, the second break (second vertical line) marks the end of the lockdown and the period of reopening of economic activities at week 21. Confidence interval at 5% in grey.

Figure 3: Trend of Wage Guarantee Fund (CIG) by groups



Notes: The x axis describes the first three quarters of 2020 in weeks. Starting from the left, the first break (first vertical line) marks the beginning of the lockdown at week 11, the second break (second vertical line) marks the end of the lockdown and the period of reopening of economic activities at week 21. Confidence interval at 5% in grey.

Figure 4: Trend of Remote Working by groups



Notes: The x axis describes the first three quarters of 2020 in weeks. Starting from the left, the first break (firs vertical line) marks the beginning of the lockdown at week 11, the second break (second vertical line) marks the end of the lockdown and the period of reopening of economic activities at week 21. Confidence interval at 5% in grey.

in the treated one the incidence among women was twice that among men, although female workers had a lower probability of benefiting from it in the period before the lockdown, due to a more extensive use of this instrument in sectors such as manufacturing and construction with a traditionally lower share of female employment. Even at the end of the period, the use of CIG was still larger compared to the situation before the lockdown, especially for women (Figure3).

Finally, the probability of remote working increased in both essential and non-essential economic sectors after the lockdown, with a major prevalence recorded among women. The incidence of remote working rose, respectively, by almost 8 times among treated females and by more than 6 times among untreated ones. Even after the end of the lockdown, the use of remote working was substantial compared to the pre-lockdown scenario (Figure 4).

Table 2: Outcomes - Unconditional means by groups

	Job loss Sample 1	Working hours Sample 2	Cig Sample 3	Remote working Sample 3
All				
Before, Treated	0.006	36.522	0.007	0.012
Before, Control	0.005	34.461	0.002	0.024
After, Treated	0.013	27.300	0.143	0.070
After, Control	0.002	29.894	0.056	0.135
Total	0.006	30.379	0.073	0.088
Males				
Before, Treated	0.005	39.061	0.009	0.012
Before, Control	0.004	38.485	0.002	0.025
After, Treated	0.010	29.489	0.131	0.061
After, Control	0.002	33.612	0.056	0.128
Total	0.005	33.499	0.071	0.080
Females				
Before, Treated	0.008	32.133	0.004	0.011
Before, Control	0.006	30.201	0.001	0.023
After, Treated	0.018	23.426	0.161	0.086
After, Control	0.002	26.053	0.056	0.144
Total	0.006	26.528	0.075	0.099

Notes: Sample 1 for job loss includes people who are employed or have lost their job in the reference month. Sample 2 for working hours keep only individuals employed in the reference week. Sample 3 for CIG and remote working selects employees excluding those working in sectors which could not benefit from the wage guarantee fund (CIG): agriculture, forestry and fishery, public administration, defence, education, human health and social work activities, extra-territorial organisations and bodies.

5.2 Other covariates

The covariates considered in the model refer to demographic and household characteristics, as well as job and firms specifics[13].

In particular, demographic and household characteristics include citizenship status (1 foreign citizenship, 0 Italian citizenship), age categories (20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, and 60-64, 65-69 years), level of education (none, primary education, secondary education, and tertiary or more), number of children by age category (0-5, 6-10, 11-15 years old).

Job and firm characteristics include the status of being an employee (vs. self-employed and/or professional), years of experience, years of tenure and the nature of the contract (part-time vs. full-time and temporary vs. permanent job).[14] Furthermore, we control for the type of occupation (ISCO08 code at 1 digit), the type of industry (ATECO/NACE code at 1 digit),[15] the size of the firm (less 10 employees, 11-15, 16-19, 20-49, 50-249, more than 250 employees),[16] and the share of female workers employed in each sector at 3-digit level before the lockdown implementation.[17]

In our estimated specification, we also include a composite index based on the ICP survey by the National Institute for Public Policies Analysis (INAPP)[18] in the same spirit of Barbieri et al. (2020). Such $remote\_index$ proxies for the feasibility of a remote working arrangement,

[13]The availability of the latter set of information is conditional on the individual employment status, i.e. they are absent for those who were unemployed at the time of the interview.

[14]Information on the years of tenure and on the type of contract are available only for individuals who were employed at the time of the interview, $sample\_2$ and $sample\_3$).

[15]The ATECO 2007 classification is the Italian equivalent of the NACE Rev. 2 classification of economic activities by Eurostat.

[16]We also add a further category in which to group employees with missing information on the size of the firm they work in.

[17]This share is computed using the $sample_2$ of all employees as the average share of women over the weeks before the lockdown implementation by 3-digit sector.

[18]The survey consider about 16000 workers employed in around 800 occupations, according to the 5-digit CP2011 classification (the Italian equivalent of the ISCO-08 ILO's classification). The ICP survey is based on the US Occupational Information Network (O*Net) run by the Bureau of Labor Statistics. It investigates the characteristics of the occupations through a particularly rich and articulated questionnaire structured in seven sections (knowledge, skills, attitudes, generalized work activities, values, work styles and working conditions) and it describes all the professions existing in the Italian labour market (e.g. those operating in private companies, those present in public institutions and state-owned enterprises, and those carried out by the self-employed and regulated professionals). Each answer to these questions are on a 0-5 scale based on how frequent or important is the activity, work style or working conditions (where 5 means very frequent or very important). A score on a 0-100 scale (from less to more intense) is then calculated for each 5-digit occupation following this standardization

ranges from 0 to 100 and is computed by taking the average of the following seven questions: i) importance of performing general physical activities (which enters with reversely); (ii) importance of working with computers; (iii) importance of maneuvering vehicles, mechanical vehicles or equipment (reversely); (iv) requirement of face-to-face interactions (reversely); (v) dealing with external customers or with the public (reversely); (vi) physical proximity (reversely); (vii) time spent standing (reversely)[19].

In order to capture the different speed of epidemics spreading at the local level, we also include the variable "$positive\_pop$" built as the ratio between the weekly number of people who tested positive for Covid-19 in each Italian province and the total resident population in the same province on 1 January 2020.[20] In the estimated model, it enters with a lag of one week.

Finally, we also control for fixed effects in terms of province of residence and of "relative weeks"[21] from the start of lockdown (or "relative months", for job loss estimation). A list of the main covariates used in the estimated model and their descriptive statistics are reported in Table 3 .

6 Estimation results

6.1 Main Results

In this section, we present the main results from Equation 1 for our four outcomes of interest. Tables 4-7 report in Column 1 the specification without any control; Column 2 includes

formula:

$$X = \frac{Y - min}{max - min} * 100,$$

where Y is the original answer (from 1 to 5) and *min* and *max* are the minimum and maximum value reported for that occupation. Each value for each occupation is than standardized over the about twenty answers received from workers in that occupation. The index, therefore, has no cardinal interpretation.

[19]Note that this $remote\_index$ is similar to the offshorability index by Autor and Dorn (2013), the face-to-face and on-site job indexes by Firpo et al. (2011), and the measure of safe jobs recently developed by Boeri et al. (2020), even though these indexes are all based on O*Net questions.

[20]The first series comes from the website `https://github.com/DavideMagno/ItalianCovidDat`, the second one is retrieved from the ISTAT website.

[21]For the province of Padua and Lodi the lockdown had already begun in the 9th week, as discussed in section 3. So, we transform the calendar weeks in relative weeks in base on the actual start of the lockdown. The week before the shutdown has been set to 0.

Table 3: Descriptive statistics of the main covariates

	Sample 1 Job loss		Sample 2 Working Hours		Sample 3 CIG/Remote working	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Female	0.446	0.497	0.448	0.497	0.411	0.492
Foreign citizenship	0.132	0.339	0.132	0.339	0.170	0.375
Age cohorts:						
- 20-24	0.005	0.070	0.005	0.070	0.007	0.083
- 25-29	0.040	0.195	0.039	0.193	0.056	0.230
- 30-34	0.063	0.244	0.063	0.243	0.078	0.268
- 35-39	0.083	0.275	0.082	0.275	0.094	0.292
- 40-44	0.105	0.306	0.105	0.307	0.116	0.320
- 45-49	0.134	0.341	0.134	0.341	0.141	0.348
- 50-54	0.159	0.366	0.160	0.367	0.161	0.367
- 55-59	0.168	0.374	0.169	0.374	0.158	0.365
- 60-64	0.152	0.359	0.153	0.360	0.130	0.336
- 65-69	0.091	0.287	0.090	0.286	0.059	0.235
Levels of Education:						
- none	0.004	0.061	0.004	0.061	0.004	0.061
- primary	0.291	0.454	0.289	0.453	0.332	0.471
- secondary	0.476	0.499	0.477	0.499	0.517	0.500
- tertiary	0.229	0.420	0.231	0.421	0.147	0.354
Number of children by age category:						
- 0-5	0.174	0.467	0.175	0.468	0.190	0.485
- 6-10	0.190	0.467	0.189	0.466	0.193	0.466
- 11-15	0.171	0.433	0.171	0.434	0.171	0.432
Employee (vs. self-employed/professional)	0.778	0.415	0.780	0.414	-	-
Years of experience	14.920	15.425	15.211	15.429	15.221	14.988
Years of tenure	-	-	13.600	11.298	11.275	10.302
Temporary job (vs. permanent)	-	-	0.117	0.322	0.143	0.350
Part-time job (vs. full-time)	-	-	0.186	0.389	0.223	0.416
Occupation (1 digit):						
- legislator, senior officials, and managers	0.025	0.157	0.025	0.157	0.010	0.101
- professionals	0.150	0.357	0.151	0.358	0.062	0.242
- technicians and associate professionals	0.178	0.382	0.179	0.383	0.166	0.372
- clerks	0.120	0.325	0.121	0.326	0.152	0.359
- service workers and shop and market sales workers	0.191	0.393	0.189	0.392	0.192	0.394
- skilled agricultural, fishery, craft and related trades workers	0.148	0.355	0.147	0.354	0.156	0.363
- plant and machine operators and assemblers	0.082	0.275	0.082	0.275	0.133	0.339
- elementary occupations	0.106	0.307	0.105	0.306	0.129	0.335
Industry (1 digit):						
- agriculture, forestry and fishing	0.042	0.200	0.041	0.199	-	-
- manufacturing	0.198	0.399	0.199	0.399	0.324	0.468
- construction	0.060	0.238	0.060	0.238	0.067	0.250
- wholesales and retail trade	0.137	0.344	0.137	0.344	0.162	0.368
- hotels and restaurants	0.063	0.243	0.061	0.239	0.076	0.265
- transport and storage	0.048	0.215	0.048	0.215	0.078	0.268
- communication	0.024	0.152	0.024	0.153	0.035	0.184
- financial intermediation	0.027	0.162	0.027	0.163	0.041	0.199
- real estate, renting, and business activities	0.110	0.313	0.111	0.314	0.118	0.322
- public administration and defence	0.051	0.220	0.052	0.221	-	-
- education, health, and social work	0.166	0.373	0.167	0.373	-	-
- other community, social, personal service activities	0.073	0.260	0.072	0.259	0.099	0.299
Plant size (n. workers):						
- less than 10	-	-	0.299	0.458	0.365	0.481
- 11-15	-	-	0.079	0.270	0.103	0.304
- 16-19	-	-	0.031	0.173	0.038	0.190
- 20-49	-	-	0.120	0.325	0.138	0.345
- 50-249	-	-	0.167	0.373	0.178	0.383
- more than 250	-	-	0.098	0.298	0.107	0.310
- missing	-	-	0.205	0.404	0.070	0.256
Share of female workers	0.444	0.285	0.445	0.285	0.407	0.286
Remote_index	50.683	10.618	50.772	10.627	51.463	10.694
Positive_pop $\times 1000$	0.154	0.304	0.163	0.311	0.171	0.319
N. obs.	132,055		121,744		67,368	

*Notes:*Sample 1 for job loss includes people who are employed or have lost their job in the reference month. Sample 2 for working hours keep only individuals employed in the reference week. Sample 3 for CIG and remote working selects employees excluding those working in sectors which could not benefit from the wage guarantee fund (CIG): agriculture, forestry and fishery, public administration, defence, education, human health and social work activities, extra-territorial organisations and bodies.
In our estimations we add also fixed effects of time and province of residence.

province and time fixed effects, together with the weekly number of Covid-19 positive cases over total resident population at the province level (z_p); Column 3 controls for individual characteristics only (x_i), whereas Column 4 is the complete specification with both individual controls and province and time fixed effects (x_i and z_p). Column 4 is therefore our preferred specification, and we will mainly comment on that. In any case, results are pretty robust across specifications.

Our discussion on the impact of the lockdown implementation focuses on gender inequalities as expressed by the coefficient δ_7, that represents the gendered average treatment effect on the treated, and δ_6, that represents the gendered average treatment effect on the control group. The evidence we get on the four outcomes is mixed. Indeed, we do observe a gendered impact of the lockdown among the treated group in terms of job loss and access to CIG as in Bluedorn et al. (2021), whereas no difference was detected as far as working hours and remote working are concerned. Among the control group, in line with Meekes et al. (2020) the lockdown implementation slightly affected job loss probability, working hours, and remote working by reducing the pre-existing gender gap, whilst no significant impact was detected on receiving CIG.

More in detail, the probability of job loss became 0.7 p.p. higher among female workers compared to their male counterparts in treated sectors (Table 4, column 4, δ_7) whereas no significant gender differences were detected in the control group (δ_6). Women in non essential sectors hence represented the most fragile category in terms of job losses due to the lockdown. Interestingly, no significant gender difference in the probability of loosing a job was observed before the lockdown either for the treated group (δ_5) or for the control one (δ_4).

In terms of working hours, as Table 5 shows, δ_7 is never statistically different from zero across specifications. The drop in the intensive margin due to the lockdown had therefore a similar impact on both female and male workers in the treated group.

The probability of receiving CIG benefit instead was 3.6 p.p. higher for female treated workers compared to male ones (Table 6), despite the fact that before the lockdown men were usually more likely to benefit from this measure (δ_5). No significant gender differences were detected in the control group (δ_6) due to the policy implementation.

When accounting for the gender dimension in terms of remote working (Table 7), we do not observe any gendered impact in the increased probability to work from home either in the

treated or in the control group.

Table 4: DDD - Job loss

	(1)	(2)	(3)	(4)
δ_0 - Before, Control	0.004***	0.001	0.011**	0.010**
	[0.001]	[0.001]	[0.004]	[0.005]
δ_1 - Before, Treated vs Control	0.001	0.002	0.003**	0.003**
	[0.001]	[0.001]	[0.001]	[0.001]
δ_2 - Control, After vs Before	-0.002**	0.004**	-0.002**	0.004**
	[0.001]	[0.002]	[0.001]	[0.002]
δ_3 - Diff-in-Diff (ATET)	0.007***	0.007***	0.007***	0.007***
	[0.002]	[0.001]	[0.001]	[0.001]
δ_4 - Female	0.002	0.002	0.001	0.001
	[0.001]	[0.001]	[0.001]	[0.001]
δ_5 - Before, Treated vs Control, F vs M	0.001	0.001	-0.000	-0.000
	[0.002]	[0.002]	[0.002]	[0.002]
δ_6 - Control, After vs Before, F vs M	-0.002	-0.002	-0.002	-0.002
	[0.001]	[0.001]	[0.001]	[0.001]
δ_7 - Diff-in-Diff-in-Diff, F vs M	0.006**	0.006**	0.007**	0.007**
	[0.003]	[0.003]	[0.003]	[0.003]
N	132,055	132,055	132,055	132,055
R^2	0.004	0.007	0.014	0.018

Notes: * 0.1, ** 0.05, and *** 0.01 level of statistical significance. Clster-robust S.E. are reported in brackets. Complete results are reported in Appendix E, Table E.1.
Model (1) includes no controls. Model (2) includes province and time fixed effects as well as the lagged weekly rate of contagion at the province level. Model (3) controls for the full set of individual and job characteristics, as described in Subsection 5.2. Model (4) is our preferred baseline model and controls for the full set of individual and job characteristics, for province and time fixed effects and for the lagged weekly rate of contagion at the province level.

Table 5: DDD - Working Hours

	(1)	(2)	(3)	(4)
δ_0 - Before, Control	38.485***	35.233***	39.228***	35.992***
	[0.459]	[0.656]	[2.522]	[2.502]
δ_1 - Before, Treated vs Control	0.577	0.449	-0.179	-0.199
	[0.595]	[0.604]	[0.362]	[0.363]
δ_2 - Control After vs Before	-4.873***	-3.927***	-5.028***	-4.187***
	[0.309]	[0.635]	[0.298]	[0.624]
δ_3 - Diff-in-Diff (ATET)	-4.699***	-4.708***	-4.639***	-4.658***
	[0.405]	[0.398]	[0.384]	[0.380]
δ_4 - Female	-8.283***	-8.410***	-2.799***	-2.954***
	[0.740]	[0.738]	[0.320]	[0.321]
δ_5 - Before, Treated vs Control, F vs M	1,355	1,480	-0.529	-0.354
	[0.946]	[0.950]	[0.472]	[0.474]
δ_6 - Control, After vs Before, F vs M	0.724**	0.806**	0.527	0.600
	[0.355]	[0.352]	[0.371]	[0.367]
δ_7 - Diff-in-Diff-in-Diff, F vs M	0.141	0.031	0.099	-0.006
	[0.587]	[0.568]	[0.547]	[0.529]
N	121,744	121,744	121,744	121,744
R^2	0.072	0.145	0.212	0.284

Notes: * 0.1, ** 0.05, and *** 0.01 level of statistical significance. Cluster-robust S.E. are reported in brackets. Complete results are reported in Appendix E, Table E.2.

Model (1) includes no controls. Model (2) includes province and time fixed effects as well as the lagged weekly rate of contagion at the province level. Model (3) controls for the full set of individual and job characteristics, as described in Subsection 5.2. Model (4) is our preferred baseline model and controls for the full set of individual and job characteristics, for province and time fixed effects and for the lagged weekly rate of contagion at the province level.

Table 6: DDD - Cig

	(1)	(2)	(3)	(4)
δ_0 - Before, Control	0.002***	0.013*	0.095***	0.107***
	[0.001]	[0.008]	[0.022]	[0.021]
δ_1 - Before, Treated vs Control	0.007***	0.009***	-0.004	-0.004
	[0.002]	[0.002]	[0.004]	[0.005]
δ_2 - Control, After vs Before	0.053***	0.019**	0.050***	0.017**
	[0.004]	[0.008]	[0.004]	[0.008]
δ_3 - Diff-in-Diff (ATET)	0.069***	0.069***	0.069***	0.069***
	[0.006]	[0.006]	[0.006]	[0.005]
δ_4 - Female	-0.001	0.000	0.003	0.004
	[0.001]	[0.001]	[0.005]	[0.005]
δ_5 - Before, Treated vs Control, F vs M	-0.004**	-0.006***	-0.012**	-0.014**
	[0.002]	[0.002]	[0.006]	[0.006]
δ_6 - Control, After vs Before, F vs M	0.001	0.001	0.002	0.002
	[0.007]	[0.007]	[0.007]	[0.007]
δ_7 - Diff-in-Diff-in-Diff, F vs M	0.034***	0.036***	0.034***	0.036***
	[0.011]	[0.011]	[0.011]	[0.011]
N	67,368	67,368	67,368	67,368
R^2	0.042	0.115	0.072	0.141

Notes: * 0.1, ** 0.05, and *** 0.01 level of statistical significance. Cluster-robust S.E. are reported in brackets. Complete results are reported in Appendix E, Table E.3.
Model (1) includes no controls. Model (2) includes province and time fixed effects as well as the lagged weekly rate of contagion at the province level. Model (3) controls for the full set of individual and job characteristics, as described in Subsection 5.2. Model (4) is our preferred baseline model and controls for the full set of individual and job characteristics, for province and time fixed effects and for the lagged weekly rate of contagion at the province level.

Table 7: DDD - Remote Working

	(1)	(2)	(3)	(4)
δ_0 - Before, Control	0.025***	0.114***	-0.029	0.016
	[0.004]	[0.021]	[0.043]	[0.042]
δ_1 - Before, Treated vs Control	-0.013***	-0.011***	0.036***	0.035***
	[0.004]	[0.004]	[0.012]	[0.012]
δ_2 - Control, After vs Before	0.104***	0.049***	0.101***	0.051***
	[0.017]	[0.014]	[0.017]	[0.014]
δ_3 - Diff-in-Diff (ATET)	-0.054***	-0.054***	-0.051***	-0.051***
	[0.015]	[0.015]	[0.015]	[0.015]
δ_4 - Female	-0.002	-0.006	-0.002	-0.003
	[0.004]	[0.004]	[0.017]	[0.018]
δ_5 - Before, Treated vs Control, F vs M	0.002	0.001	0.006	0.005
	[0.005]	[0.005]	[0.016]	[0.016]
δ_6 - Control, After vs Before, F vs M	0.018	0.018	0.014	0.014
	[0.022]	[0.022]	[0.022]	[0.022]
δ_7 - Diff-in-Diff-in-Diff, F vs M	0.008	0.008	0.005	0.005
	[0.021]	[0.020]	[0.021]	[0.021]
N	67,368	67,368	67,368	67,368
R^2	0.028	0.066	0.226	0.241

Notes: * 0.1, ** 0.05, and *** 0.01 level of statistical significance. Cluster-robust S.E. are reported in brackets. Complete results are reported in Appendix E, Table E.4.
Model (1) includes no controls. Model (2) includes province and time fixed effects as well as the lagged weekly rate of contagion at the province level. Model (3) controls for the full set of individual and job characteristics, as described in Subsection 5.2. Model (4) is our preferred baseline model and controls for the full set of individual and job characteristics, for province and time fixed effects and for the lagged weekly rate of contagion at the province level.

6.2 Validity tests

In Section 6.2 we discussed the assumptions under which we can credibly identify the causal impact of the lockdown due to the Covid-19 emergency on our labour market outcomes. The parallel trends assumption states that, in the absence of the lockdown, the labour market outcomes of treated individuals employed in non-essential economic sectors and of untreated individuals employed in essential economic sectors would have followed similar trends, distinguishing by gender. We can therefore check whether individuals belonging to the two different gender-groups were following parallel trends before the lockdown started.

As in Autor (2003), we include in Equation 1 a further set of indicators variables equal to 1 relating to the leads of lockdown implementation from 3 to 10 relative weeks (from 1

to 2 relative months for job loss) and the lags from 11 to 41 weeks (from 3 to 9 months for job loss). This model is estimated first by splitting the sample by gender and then in the full sample across gender. In other words, for working hours, CIG, and remote working we add $sp_{i,3}$; ... ; $sp_{i,41}$ indicators for males and females, separately, whilst for job loss we include $mp_{i,3}$; ... ; $mp_{i,9}$ indicators. Finally, to test the parallel trend across gender we add further indicators at previous specification such as $fsp_{i,3}$; ... ; $fsp_{i,41}$ ($fmp_{i,1}$; ... ; $fmp_{i,9}$ for job loss) for disentangle female impacts to male ones.

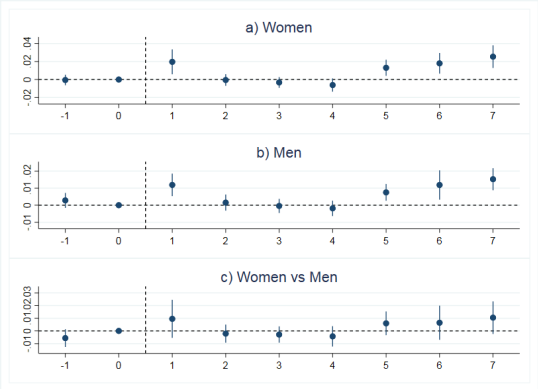
We then test whether the latter indicators which would point to groups and gender differences in the pre-treatment period are jointly nill.

Figures 5 shows the estimated coefficients for the time indicators for the pre-treatment and post-treatment period: the coefficients of the leads follow a flat trend that is almost stable in the period before the start of lockdown, both by gender and across gender. The complete set of results is reported in Tables C.1, C.2, C.3, and C.4 in the Appendix C. All the coefficients of the leads are not significantly different from zero for each specification, except when we test remote working in the women subsample. Here the joint test on the coefficients of the pre-treatment dummies is significant at 10% (p–value: 0.075). However, from Figure 5 panel d) we can observe that the trend before the lockdown implementation is very closed to the horizontal axis. Furthermore, where it moves away it does so with positive value, following the no sign to that estimated by the lockdown in terms of statistical relevance. Thus, results on this outcome variable have to be taken with caution.

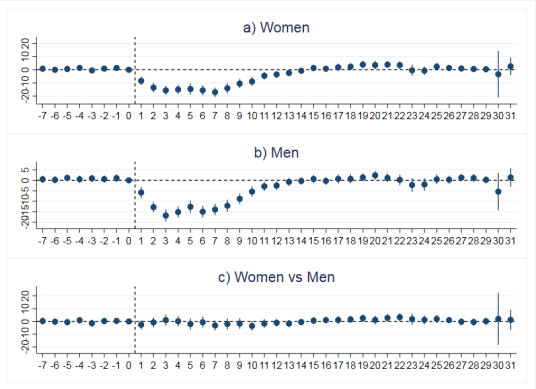
A further assumption (no anticipation) would fail if individuals were able to anticipate the policy intervention and decided to close their activities or had quit their job before the actual lockdown implementation. The direction of the eventual bias could go in either way. To check whether anticipation might be an issue in our setting, we removed all individuals interviewed before the lockdown implementation, from 6th to 10th week, and re-estimated the model on this reduced sample. Results are provided in Table 8. The point estimates are very much in line with those reported in Tables 4 - 7, our baseline results are confirmed, often with higher statistical significance for job loss and larger magnitude for all except remote working.

Figure 5: Tests for the parallel trend assumption

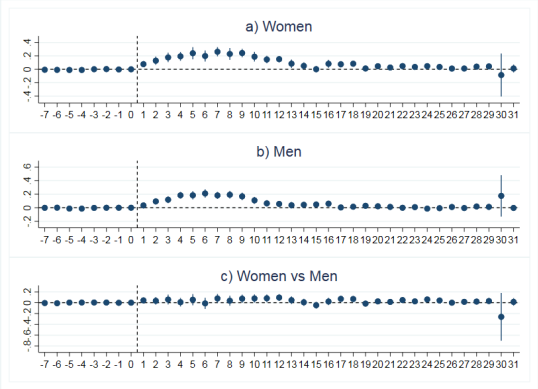
a) Job loss



b) Working hours



c) CIG



d) Remote working

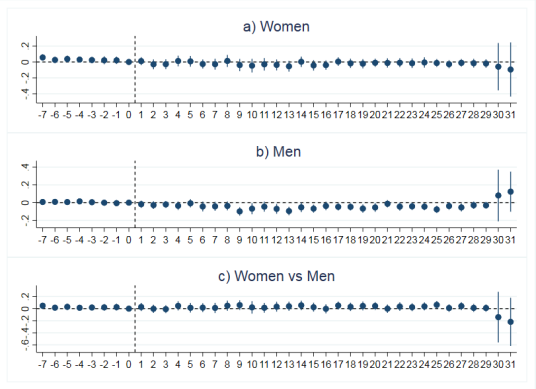


Table 8: Testing for the no anticipation assumption

	Job Loss	Working Hours	Cig	Remote Working
δ_0 Before, Control	0.007	39.029***	0.115***	0.002
	[0.005]	[2.581]	[0.024]	[0.047]
δ_1 - Before, Treated vs Control	0.004**	-0.130	-0.007	0.044***
	[0.002]	[0.444]	[0.005]	[0.014]
δ_2 - Control, After vs Before	0.011***	0.571	0.043	0.084
	[0.003]	[1.205]	[0.060]	[0.061]
δ_3 - Diff-in-Diff (ATET)	0.007***	-4.641***	0.072***	-0.056***
	[0.002]	[0.449]	[0.006]	[0.015]
δ_4 - Female	0.001	-2.877***	0.005	-0.004
	[0.001]	[0.395]	[0.006]	[0.021]
δ_5 - Before, Treat. vs Cont., F vs M	-0.002	-0.208	-0.016**	0.009
	[0.002]	[0.589]	[0.007]	[0.019]
δ_6 - Control, Aft. vs Bef., F vs M	-0.002*	0.416	0.002	0.015
	[0.001]	[0.442]	[0.008]	[0.024]
δ_7 - Diff-in-Diff-in-Diff, F vs M	0.009***	-0.129	0.037***	0.001
	[0.003]	[0.612]	[0.012]	[0.022]
N obs	119,308	109,283	60,479	60,479
R^2	0.019	0.274	0.139	0.254

Notes: * 0.1, ** 0.05, and *** 0.01 level of statitical significance. Cluster-robust S.E. are reported in brackets.

All the models control for the full set of individual and job characteristics, as described in Subsection 5.2, for province and time fixed effects and for the lagged weekly rate of contagion at the province level. The full set of estimation results are available from the authors upon request.

6.3 Heterogeneity of the treatment

In this Section we further extend our baseline models by allowing the effects of the lockdown to be heterogeneous over time. Given that the vast majority of the treated sectors were able to resume their activities in May 2020 as explained in Section 3, the assumption of constant treatment effects can be removed and we may need to model their dynamic over time (e.g. Athey and Imbens (2018), Callaway and Sant'Anna (2020), de Chaisemartin and D'Haultfœuille (2020), Sun and Abraham (2020), and Goodman-Bacon (2018)). We hence augment the previous models in Equation 1 by distinguishing the lockdown C into two different treatments: the strict lockdown dummy L, that is equal to 1 for the period of strict closure from the 11th to the 21st week, and 0 otherwise; the post-lockdown dummy R, that is equal to 1 for the reopening period from the 22nd to the 39th week, and 0 otherwise.

Equation 1 then becomes:

$$\begin{aligned} y_{i,p} = \delta_0 + \delta_1 S_i + \delta_2 L_{i,p} + \delta_3 R_i + \delta_4 S_i \times L_{i,p} + \delta_5 S_i \times R_i + \delta_6 fem_i + \\ + \delta_7 S_i \times fem_i + \delta_8 L_{i,p} \times fem_i + \delta_9 R_i \times fem_i + \\ + \delta_{10} S_i \times L_{i,p} \times fem_i + \delta_{11} S_i \times R_i \times fem_i + x_i' \gamma_1 + z_p' \gamma_2 + \varepsilon_{i,p}. \end{aligned} \tag{2}$$

Parameters are again estimated by Ordinary Least Squares (OLS) with robust standard errors clustered by sectors.

Results are reported in Table 9. Concerning the job loss outcome, we find that the gender difference previously observed in Table 4 is not related to the lockdown but rather to the reopening period when women employed in treated sector experienced a significant increase in their job loss probability by 0.8 p.p. compared to their male counterparts.

When looking at both working hours and remote working, this augmented specification confirms results from the previous DDD model where no significant gender differences were detected among treated workers. On the other hand, the probability of benefiting from the CIG adoption was constantly larger for treated women compared to treated men, with a gap equal to 4.3 p.p. during the lockdown, and to 3.2 p.p. afterwards.

Finally, in Appendix D we also test the robustness of these results by estimating the "interaction-weighted" estimator (IW) for dynamic effects using the method proposed by Sun and Abraham (2020) in order to disentangle true heterogenous effects from contaminations of other periods.

Table 9: Heterogeneous treatment: lockdown and reopening

	Job Loss	Working Hours	Cig	Remote Working
δ_0 - Before, Control	0.010**	35.926***	0.108***	0.024
	[0.005]	[2.507]	[0.021]	[0.042]
δ_1 - Before, Treated vs Control	0.003**	-0.228	-0.004	0.035***
	[0.001]	[0.362]	[0.005]	[0.012]
δ_2 - Control, Lock-down vs Before	0.001	-2.597***	-0.010	0.090***
	[0.001]	[0.673]	[0.011]	[0.017]
δ_3 - Control, Reopening vs Before	-0.005***	-1.528**	0.114***	0.070*
	[0.001]	[0.597]	[0.010]	[0.039]
δ_4 - Diff-in-Diff (ATET) of Lockdown	0.002	-12.536***	0.155***	-0.051***
	[0.001]	[0.965]	[0.012]	[0.017]
δ_5 - Diff-in-Diff (ATET) of Reopening	0.010***	-0.626*	0.025***	-0.051***
	[0.002]	[0.341]	[0.004]	[0.014]
δ_6 - Female	0.001	-2.926***	0.004	-0.003
	[0.001]	[0.322]	[0.005]	[0.018]
δ_7 - Before, Treat. vs Contr., F vs M	-0.000	-0.366	-0.014**	0.005
	[0.002]	[0.475]	[0.006]	[0.016]
δ_8 - Control, Lock. vs Bef., F vs M	-0.003*	2.968***	-0.004	0.023
	[0.001]	[0.745]	[0.014]	[0.026]
δ_9 - Control, Reop. vs Bef., F vs M	-0.002	-0.707*	0.005	0.007
	[0.001]	[0.380]	[0.005]	[0.019]
δ_{10} - DDD, F vs M, of Lock.	0.005	-1,379	0.043**	0.004
	[0.003]	[1.258]	[0.022]	[0.024]
δ_{11} - DDD, F vs M, of Reop.	0.008**	0.796	0.032***	0.006
	[0.004]	[0.526]	[0.009]	[0.019]
N. obs	132,055	121,744	67,368	67,368
R^2	0.018	0.309	0.152	0.240

Notes: * 0.1, ** 0.05, and *** 0.01 levels of statitical significance. Cluster-robust S.E. are reported in brackets.

For each dependent variable we estimate in the first column a canonical DiD model and in the second one a Triple DiD.

All the models control for the full set of individual and job characteristics, as described in Subsection 5.2, for province and time fixed effects and for the lagged weekly rate of contagion at the province level. The full set of estimation results are available from the authors upon request.

6.4 Robustness checks

In this section we briefly mention a battery of robustness checks to test the sensitivity of our results. Detailed estimation results are reported in Appendix D.

First, we estimate jointly the DDD with the kernel propensity-score matching (PSM) model

as in Heckman et al. (1997, 1998), and Blundell and Costa Dias (2009).[22] In Table D.1 we show the estimation results of our DDD setting with the kernel propensity-score matching model. Point estimates are very much in line with the ones reported in Subsection 4.1.

Second, we examined the robustness of our findings by limiting the time horizon of the analysis. The sample is cut at the 21st week, which marks the end of the stricter lockdown, before the partial reopening of non essential sectors begins. Results reported in Table D.2 confirm those obtained when considering the heterogeneity of the treatment in Subsection 6.3.

Lastly, Table D.3 shows the estimation of heterogeneous treatment effects using the IW estimator proposed by Sun and Abraham (2020). All the main results are confirmed also with this alternative methodology.

7 Conclusions

We evaluated the gendered impact of the nationwide lockdown imposed by the Italian government between March and May 2020 due to Covid-19 emergency, and how persistent it was over time. By using Labour Force Survey (LFS) data on the first three quarters of 2020, we investigated four main outcomes: job loss, hours worked per week, wage guarantee fund (CIG), and remote working. We took advantage of the exact timing of the lockdown implementation and we distinguished workers employed in essential (control group) and non–essential economic sectors (treated group) in order to estimate the casual impact of such policy intervention within a Triple Difference-in-Differences (DDD) design to analyse whether gender inequalities emerged, and how large.

In the treated group, the lockdown somehow enlarged pre-existent gender inequalities, but to a lesser extent than what commonly believed. The probability of job loss got 0.7 p.p. higher among female workers compared to their male counterparts in treated sectors and this difference was detected during the reopening period rather than in the strict lockdown phase. The probability of receiving CIG benefit was 3.6 p.p. higher for female treated workers compared to their male counterparts, despite the fact that men were more likely to benefit from this measure before the lockdown due to theit higher incidence in manufacturing sectors where the use

[22] We have used the STATA command `diff` for the estimation of Triple Diff-in-Diff (DDD) model reweighted with the kernel density PSM model (command `psmacht2`) on the subsamples based on common support.

of CIG was traditionally allowed. The gender gap related to CIG was detected both during the lockdown and the reopening phase. No significant gender differences emerged either in terms of working hours or in terms of remote working among the treated group, at least in the medium-term.

We can conclude that in Italy the lockdown implementation due to Covid-19 pandemic did not produced the "she-cession" experienced in other countries; gender differences, when significant, are mainly detected with regard to the extensive margin of female labour market participation, and to the reopening period. Social protection measures such as CIG extension helped mitigating the dramatic consequences of the lockdown, and these effects were particularly significant for female workers employed in non–essential sectors. In the absence of these interventions, women would have probably suffered a much worse impact.

However, a deeper investigation of the potential heterogeneity of the results in terms of gender gap across workers with different care responsibilities (e.g. with or without children) will be object of future research, particularly in order to investigate if any post-Covid-19 policy intervention should be designed to stimulate the employability and allow for a better work–life balance of mothers.

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Appendix

A Methodology

Starting from Equation 1 in Subsection 4.1, we simplify the Triple Difference-in-Differences (DDD) specification into a basic setup with all dummy variables, as follows:

$$\begin{aligned} y_{i,p} = \delta_0 + \delta_1 S_i + \delta_2 C_{i,p} + \delta_3 S_i \times C_{i,p} + \delta_4 fem_i + \delta_5 S_i \times fem_i + \\ + \delta_6 C_{i,p} \times fem_i + \delta_7 S_i \times C_{i,p} \times fem_i + \varepsilon_{i,p}. \end{aligned} \tag{A.1}$$

Now, the conditional mean function of Equation A.1 is $E[y_{i,p} \mid S, fem, C]$, which can take on eight values. Under standard OLS assumptions and an addictive effects, we can use $E[\varepsilon_{i,p} \mid S, fem, C] = 0$ to show the eight expected values as in A.2.

$$\begin{aligned} E[y_{i,p} \mid S = 0, fem = 0, C = 0] &= \delta_0 \\ E[y_{i,p} \mid S = 1, fem = 0, C = 0] &= \delta_0 + \delta_1 \\ E[y_{i,p} \mid S = 0, fem = 0, C = 1] &= \delta_0 + \delta_2 \\ E[y_{i,p} \mid S = 0, fem = 1, C = 0] &= \delta_0 + \delta_4 \\ E[y_{i,p} \mid S = 1, fem = 1, C = 0] &= \delta_0 + \delta_1 + \delta_4 + \delta_5 \\ E[y_{i,p} \mid S = 1, fem = 0, C = 1] &= \delta_0 + \delta_1 + \delta_2 + \delta_3 \\ E[y_{i,p} \mid S = 0, fem = 1, C = 1] &= \delta_0 + \delta_2 + \delta_4 + \delta_6 \\ E[y_{i,p} \mid S = 1, fem = 1, C = 1] &= \delta_0 + \delta_1 + \delta_2 + \delta_3 + \delta_4 + \delta_5 + \delta_6 + \delta_7. \end{aligned} \tag{A.2}$$

From the Equation A.1 we can solve for the δ as follows:

$$
\begin{aligned}
\delta_0 =& E[y_{i,p} \mid S=0, fem=0, C=0] \\
\delta_1 =& E[y_{i,p} \mid S=1, fem=0, C=0] - E[y_{i,p} \mid S=0, fem=0, C=0] \\
\delta_2 =& E[y_{i,p} \mid S=0, fem=0, C=1] - E[y_{i,p} \mid S=0, fem=0, C=0] \\
\delta_4 =& E[y_{i,p} \mid S=0, fem=1, C=0] - E[y_{i,p} \mid S=0, fem=0, C=0] \\
\delta_5 =& E[y_{i,p} \mid S=1, fem=1, C=0] + E[y_{i,p} \mid S=0, fem=0, C=0] + \\
& - E[y_{i,p} \mid S=1, fem=0, C=0] - E[y_{i,p} \mid S=0, fem=1, C=0] \\
\delta_3 =& E[y_{i,p} \mid S=1, fem=0, C=1] + E[y_{i,p} \mid S=0, fem=0, C=0] + \\
& - E[y_{i,p} \mid S=1, fem=0, C=0] - E[y_{i,p} \mid S=0, fem=0, C=1] \\
\delta_6 =& E[y_{i,p} \mid S=0, fem=1, C=1] + E[y_{i,p} \mid S=0, fem=0, C=0] + \\
& - E[y_{i,p} \mid S=0, fem=1, C=0] - E[y_{i,p} \mid S=0, fem=0, C=1] \\
\delta_7 =& [(E[y_{i,p} \mid S=1, fem=1, C=1] - E[y_{i,p} \mid S=1, fem=1, C=0]) + \\
& - (E[y_{i,p} \mid S=1, fem=0, C=1] - E[y_{i,p} \mid S=1, fem=0, C=0])] + \\
& - [(E[y_{i,p} \mid S=0, fem=1, C=1] - E[y_{i,p} \mid S=0, fem=1, C=0]) + \\
& - (E[y_{i,p} \mid S=0, fem=0, C=1] - E[y_{i,p} \mid S=0, fem=0, C=0])].
\end{aligned}
\tag{A.3}
$$

B Further descriptive statistics

Table B.1: Samples - Frequencies by groups and periods

	Sample 1 - Job loss			Sample 2 - Weekly working hours			Sample 3 - Cig			Sample 3 - Remote working		
	Before/After	Lockdown	Post lockdown	Before/After	Lockdown	Post lockdown	Before/After	Lockdown	Post lockdown	pre/post	Lockdown	Post lockdown
All												
Before, Treated	10,971	0	0	9,074	0	0	6,432	0	0	6,432	0	0
Before, Control	21,183	0	0	17,718	0	0	8,615	0	0	8,615	0	0
After, Treated	33,623	14,095	19,528	31,627	10,639	20,988	22,257	7,508	14,749	22,257	10,493	11,764
After, Control	66,278	28,573	37,705	63,325	22,075	41,250	30,064	10,346	19,718	30,064	14,254	15,810
Total	132,055	42,668	57,233	121,744	32,714	62,238	67,368	17,854	34,467	67,368	24,747	27,574
Males												
Before, Treated	6,965	0	0	5,749	0	0	3,956	0	0	3,956	0	0
Before, Control	10,887	0	0	9,112	0	0	4,890	0	0	4,890	0	0
After, Treated	21,476	9,012	12,464	20,205	6,795	13,410	13,955	4,703	9,252	13,955	6,561	7,394
After, Control	33,814	14,542	19,272	32,182	11,128	21,054	16,905	5,854	11,051	16,905	8,049	8,856
Total	73,142	23,554	31,736	67,248	17,923	34,464	39,706	10,557	20,303	39,706	14,610	16,250
Females												
Before, Treated	4,006	0	0	3,325	0	0	2,476	0	0	2,476	0	0
Before, Control	10,296	0	0	8,606	0	0	3,725	0	0	3,725	0	0
After, Treated	12,147	5,083	7,064	11,422	3,844	7,578	8,302	2,805	5,497	8,302	3,932	4,370
After, Control	32,464	14,031	18,433	31,143	10,947	20,196	13,159	4,492	8,667	13,159	6,205	6,954
Total	58,913	19,114	25,497	54,496	14,791	27,774	27,662	7,297	14,164	27,662	10,137	11,324

Notes: Sample 1 for job loss includes people who are employed or have lost their job in the reference month. Sample 2 for working hours keep only individuals employed in the reference week. Sample 3 for CIG and remote working selects employees excluding those working in sectors which could not benefit from the wage guarantee fund (CIG): agriculture, forestry and fishery, public administration, defence, education, human health and social work activities, extra-territorial organisations and bodies.
Column Before/After refers to periods of the lockdown implementation: period Before counts from 3th to 10th week (and January and February for Job loss), whereas period After includes weeks from the 11th to the 39th one (from March to September for Job loss). Column Lockdown refers only the period of lockdown, in particular from the 11th to the 21st one (for Job loss are months from March to May). Column Post lockdown represents the period of activities reopening after the lockdown, such as from the 22nd to the 39th week (from June to September for Job loss).
Sample 3 differs in columns Lockdown and Post lockdown for CIG and Remote working because of the nature of available data. As explained in Subsection 5.1, the information of CIG regards the reference week whereas that of remote working refers to a period that includes the reference week and the previous three.

Table B.2: Outcomes - Means by groups and periods

	Sample 1 Job loss			Sample 2 Working Hours			Sample 3 Cig			Sample 3 Remote working		
	Before/After	Lockdown	Post lockdown	Before/After	Lockdown	Post lockdown	Before/After	Lockdown	Post lockdown	pre/post	Lockdown	Post lockdown
All												
Before, Treated	0.006	-	-	36,522	-	-	0.007	-	-	0.012	-	-
Before, Control	0.005	-	-	34,461	-	-	0.002	-	-	0.024	-	-
After, Treated	0.013	0.010	0.014	27,300	16,124	32,965	0.143	0.281	0.072	0.070	0.089	0.054
After, Control	0.002	0.004	0.001	29,894	27,349	31,256	0.056	0.106	0.030	0.135	0.156	0.117
Total	0.006	0.006	0.006	30,379	23,699	31,833	0.073	0.179	0.048	0.088	0.127	0.090
Males												
Before, Treated	0.005	-	-	39,061	-	-	0.009	-	-	0.012	-	-
Before, Control	0.004	-	-	38,485	-	-	0.002	-	-	0.025	-	-
After, Treated	0.010	0.008	0.011	29,489	17,974	35,324	0.131	0.270	0.061	0.061	0.078	0.046
After, Control	0.002	0.005	0.001	33,612	29,920	35,563	0.056	0.108	0.028	0.128	0.144	0.114
Total	0.005	0.006	0.005	33,499	25,391	35,470	0.071	0.180	0.043	0.080	0.114	0.083
Females												
Before, Treated	0.008	-	-	32,133	-	-	0.004	-	-	0.011	-	-
Before, Control	0.006	-	-	30,201	-	-	0.001	-	-	0.023	-	-
After, Treated	0.018	0.013	0.020	23,426	12,852	28,789	0.161	0.301	0.090	0.086	0.108	0.067
After, Control	0.002	0.004	0.001	26,053	24,736	26,767	0.056	0.102	0.031	0.144	0.171	0.121
Total	0.006	0.006	0.006	26,528	21,648	27,319	0.075	0.179	0.054	0.099	0.146	0.100

Notes: Sample 1 for job loss includes people who are employed or have lost their job in the reference month. Sample 2 for working hours keep only individuals employed in the reference week. Sample 3 for CIG and remote working selects employees excluding those working in sectors which could not benefit from the wage guarantee fund (CIG): agriculture, forestry and fishery, public administration, defence, education, human health and social work activities, extra-territorial organisations and bodies.
Column Before/After refers to periods of the lockdown implementation: period Before counts from 3th to 10th week (and January and February for Job loss), whereas period After includes weeks from the 11th to the 39th one (from March to September for Job loss). Column Lockdown refers only the period of lockdown, in particular from the 11th to the 21st one (for Job loss are months from March to May). Column Post lockdown represents the period of activities reopening after the lockdown, such as from the 22nd to the 39th week (from June to September for Job loss).

C Validity tests

Table C.1: Parallel trend test for DDD model of Equation 1 - Job loss

	only women		only men		women vs men	
	β	(s.e.)	β	(s.e.)	β	(s.e.)
δ_1 - Before, Treated vs Control	0.00771***	(0.00280)	0.00200	(0.00163)	0.00198	(0.00163)
δ_5 - Before, Treated vs Control, F vs M					0.00573*	(0.00317)
mp1	-0.000537	(0.00297)	0.00281	(0.00223)	0.000527	(0.00236)
mp3	0.0196***	(0.00703)	0.0119***	(0.00336)	0.00662*	(0.00368)
mp4	-0.000538	(0.00327)	0.00152	(0.00241)	0.00158	(0.00241)
mp5	-0.00326	(0.00304)	-0.000432	(0.00211)	-0.000417	(0.00210)
mp6	-0.00611	(0.00373)	-0.00184	(0.00229)	-0.00184	(0.00229)
mp7	0.0130***	(0.00453)	0.00751***	(0.00250)	0.00950***	(0.00252)
mp8	0.0179***	(0.00583)	0.0119***	(0.00437)	0.0142***	(0.00450)
mp9	0.0253***	(0.00641)	0.0152***	(0.00329)	0.0184***	(0.00348)
fmp1					-0.00564	(0.00356)
fmp3					0.00954	(0.00764)
fmp4					-0.00212	(0.00362)
fmp5					-0.00284	(0.00326)
fmp6					-0.00427	(0.00407)
fmp7					0.00599	(0.00476)
fmp8					0.00647	(0.00685)
fmp9					0.0105	(0.00654)
N	58913		73142		132055	
R^2	0.024		0.018		0.022	
Joint F test of pre-treatment dummies	0.033		1.594		2.503	
p-value	0.857		0.207		0.114	

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Robust standard errors are reported in brackets. We control for the full set of individual and job characteristics, as described in Subsection 5.2, for province and time fixed effects and for the lagged weekly rate of contagion at the province level. The full set of estimation results are available from the authors upon request.

Table C.2: Parallel trend test for DDD model of Equation 1 - Working hours

	only women		only men		women vs men	
	β	(s.e.)	β	(s.e.)	β	(s.e.)
δ_1 - Before, Treated vs Control	-1.220	(0.958)	-0.683	(0.751)	-0.683	(0.751)
δ_5 - Before, Treated vs Control, F vs M					-0.537	(1.109)
sp3	0.804	(1.291)	0.482	(0.899)	0.482	(0.900)
sp4	-0.0100	(1.190)	0.203	(0.913)	0.203	(0.913)
sp5	0.582	(1.262)	1.143	(0.830)	1.143	(0.831)

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Table C.2 – continued from previous page

	only women		only men		women vs men	
	β	(s.e.)	β	(s.e.)	β	(s.e.)
sp6	1.384	(1.123)	0.495	(0.909)	0.495	(0.909)
sp7	-0.492	(1.179)	0.917	(0.894)	0.917	(0.894)
sp8	0.857	(1.196)	0.591	(0.906)	0.591	(0.906)
sp9	1.426	(0.939)	1.028	(0.970)	1.028	(0.970)
sp11	-8.423***	(1.617)	-5.835***	(1.362)	-5.835***	(1.362)
sp12	-13.56***	(1.840)	-12.80***	(1.259)	-12.80***	(1.259)
sp13	-15.70***	(1.799)	-16.78***	(1.483)	-16.78***	(1.483)
sp14	-14.96***	(1.735)	-15.14***	(1.369)	-15.14***	(1.369)
sp15	-14.64***	(2.149)	-12.60***	(1.509)	-12.60***	(1.510)
sp16	-15.58***	(1.935)	-14.97***	(1.424)	-14.97***	(1.424)
sp17	-17.07***	(1.808)	-13.93***	(1.392)	-13.93***	(1.392)
sp18	-14.08***	(2.025)	-12.13***	(1.506)	-12.13***	(1.506)
sp19	-10.48***	(1.775)	-8.815***	(1.285)	-8.815***	(1.286)
sp20	-8.921***	(1.799)	-5.404***	(1.248)	-5.404***	(1.249)
sp21	-4.537***	(1.484)	-2.872***	(1.110)	-2.872***	(1.110)
sp22	-3.547***	(1.293)	-2.501**	(1.035)	-2.501**	(1.035)
sp23	-2.443*	(1.291)	-0.769	(0.954)	-0.769	(0.955)
sp24	-0.758	(1.159)	-0.309	(0.897)	-0.309	(0.897)
sp25	1.293	(1.309)	0.635	(0.976)	0.635	(0.976)
sp26	0.792	(1.132)	-0.298	(0.928)	-0.298	(0.928)
sp27	1.842	(1.468)	0.691	(1.088)	0.691	(1.089)
sp28	2.341*	(1.322)	0.675	(1.094)	0.675	(1.094)
sp29	3.950***	(1.498)	1.373	(0.974)	1.373	(0.974)
sp30	3.544**	(1.603)	2.359**	(1.038)	2.359**	(1.038)
sp31	3.929***	(1.327)	1.145	(1.058)	1.145	(1.059)
sp32	3.556**	(1.463)	0.232	(1.284)	0.232	(1.284)
sp33	-0.392	(2.127)	-2.223	(1.681)	-2.223	(1.681)
sp34	-0.743	(1.652)	-1.973	(1.505)	-1.973	(1.505)
sp35	2.376	(1.475)	0.452	(1.189)	0.452	(1.189)
sp36	1.354	(1.213)	0.318	(0.972)	0.318	(0.973)
sp37	0.995	(1.208)	1.259	(0.937)	1.259	(0.938)
sp38	0.579	(1.194)	1.101	(0.962)	1.101	(0.962)
sp39	0.423	(1.237)	0.234	(0.886)	0.234	(0.886)
sp40	-3.410	(9.016)	-5.405	(4.525)	-5.405	(4.526)
sp41	2.618	(3.374)	1.354	(2.256)	1.354	(2.257)
fsp3					0.322	(1.429)
fsp4					-0.213	(1.367)
fsp5					-0.561	(1.395)
fsp6					0.889	(1.319)
fsp7					-1.409	(1.435)
fsp8					0.265	(1.316)
fsp9					0.398	(1.285)

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Table C.2 – continued from previous page

	only women		only men		women vs men	
	β	(s.e.)	β	(s.e.)	β	(s.e.)
fsp11					-2.588	(1.893)
fsp12					-0.755	(1.984)
fsp13					1.076	(2.281)
fsp14					0.177	(2.083)
fsp15					-2.032	(2.229)
fsp16					-0.609	(2.162)
fsp17					-3.133	(1.968)
fsp18					-1.948	(2.158)
fsp19					-1.669	(2.106)
fsp20					-3.517*	(1.936)
fsp21					-1.665	(1.763)
fsp22					-1.046	(1.534)
fsp23					-1.674	(1.482)
fsp24					-0.449	(1.325)
fsp25					0.658	(1.466)
fsp26					1.090	(1.386)
fsp27					1.150	(1.541)
fsp28					1.666	(1.448)
fsp29					2.577*	(1.552)
fsp30					1.184	(1.708)
fsp31					2.784*	(1.477)
fsp32					3.324**	(1.629)
fsp33					1.831	(2.247)
fsp34					1.230	(1.791)
fsp35					1.925	(1.627)
fsp36					1.036	(1.371)
fsp37					-0.264	(1.461)
fsp38					-0.522	(1.460)
fsp39					0.189	(1.433)
fsp40					1.995	(10.380)
fsp41					1.264	(3.996)
N. obs	54496		67248		121744	
R^2	0.313		0.272		0.319	
Joint F test of pre-treatment dummies	1.650		0.556		0.840	
p−value	0.119		0.792		0.554	

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Robust standard errors are reported in brackets.

We control for the full set of individual and job characteristics, as described in Subsection 5.2, for province and time fixed effects and for the lagged weekly rate of contagion at the province level. The full set of estimation results are available from the authors upon request.

Table C.3: Parallel trend test for DDD model of Equation 1 - Cig

	only women		only men		women vs men	
	β	(s.e.)	β	(s.e.)	β	(s.e.)
δ_1 - Before, Treated vs Control	-0.0180*	(0.00931)	0.00150	(0.00771)	0.00150	(0.00772)
δ_5 - Before, Treated vs Control, F vs M					-0.0195*	(0.0108)
sp3	-0.00694	(0.00972)	-0.00108	(0.00998)	-0.00108	(0.00998)
sp4	-0.00863	(0.00929)	0.000965	(0.00851)	0.000965	(0.00852)
sp5	-0.00983	(0.00847)	-0.0123	(0.00825)	-0.0123	(0.00825)
sp6	-0.00983	(0.00978)	-0.0132	(0.00845)	-0.0132	(0.00846)
sp7	0.00115	(0.00760)	-0.00222	(0.0115)	-0.00222	(0.0115)
sp8	0.00291	(0.00790)	-0.000109	(0.00846)	-0.000109	(0.00846)
sp9	-0.00232	(0.00674)	-0.000110	(0.0110)	-0.000110	(0.0110)
sp11	0.0770***	(0.0229)	0.0344**	(0.0160)	0.0344**	(0.0161)
sp12	0.129***	(0.0311)	0.0940***	(0.0238)	0.0940***	(0.0238)
sp13	0.177***	(0.0359)	0.119***	(0.0262)	0.119***	(0.0262)
sp14	0.193***	(0.0335)	0.184***	(0.0256)	0.184***	(0.0256)
sp15	0.239***	(0.0459)	0.184***	(0.0312)	0.184***	(0.0312)
sp16	0.198***	(0.0418)	0.211***	(0.0312)	0.211***	(0.0312)
sp17	0.261***	(0.0349)	0.182***	(0.0266)	0.182***	(0.0266)
sp18	0.229***	(0.0447)	0.192***	(0.0291)	0.192***	(0.0291)
sp19	0.242***	(0.0317)	0.168***	(0.0278)	0.168***	(0.0278)
sp20	0.188***	(0.0365)	0.109***	(0.0261)	0.109***	(0.0261)
sp21	0.146***	(0.0287)	0.0649***	(0.0245)	0.0649***	(0.0245)
sp22	0.151***	(0.0233)	0.0565***	(0.0215)	0.0565***	(0.0215)
sp23	0.0835***	(0.0315)	0.0372	(0.0244)	0.0372	(0.0244)
sp24	0.0509*	(0.0265)	0.0436**	(0.0189)	0.0436**	(0.0189)
sp25	0.00155	(0.0241)	0.0483**	(0.0218)	0.0483**	(0.0218)
sp26	0.0822***	(0.0302)	0.0603***	(0.0191)	0.0603***	(0.0191)
sp27	0.0751***	(0.0244)	0.00436	(0.0153)	0.00436	(0.0153)
sp28	0.0831***	(0.0186)	0.0148	(0.0121)	0.0148	(0.0121)
sp29	0.0121	(0.0203)	0.0287*	(0.0158)	0.0287*	(0.0159)
sp30	0.0462**	(0.0223)	0.0215	(0.0140)	0.0215	(0.0140)
sp31	0.0268	(0.0167)	0.0122	(0.0144)	0.0122	(0.0144)
sp32	0.0482***	(0.0177)	-0.000215	(0.0101)	-0.000215	(0.0101)
sp33	0.0346*	(0.0202)	0.00950	(0.0120)	0.00950	(0.0120)
sp34	0.0473***	(0.0141)	-0.0131	(0.0125)	-0.0131	(0.0126)
sp35	0.0348**	(0.0140)	-0.00654	(0.0101)	-0.00654	(0.0101)
sp36	0.0111	(0.0118)	0.0114	(0.0129)	0.0114	(0.0129)
sp37	0.0118	(0.0141)	-0.00432	(0.0112)	-0.00432	(0.0112)
sp38	0.0399***	(0.0133)	0.0188	(0.0123)	0.0188	(0.0123)
sp39	0.0433**	(0.0188)	0.0123	(0.0133)	0.0123	(0.0133)
sp40	-0.0858	(0.163)	0.176	(0.156)	0.176	(0.156)
sp41	0.0118	(0.0300)	-0.00288	(0.0215)	-0.00288	(0.0215)
fsp3					-0.00586	(0.0119)

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Table C.3 – continued from previous page

	only women		only men		women vs men	
	β	(s.e.)	β	(s.e.)	β	(s.e.)
fsp4					-0.00959	(0.0112)
fsp5					0.00247	(0.0110)
fsp6					0.00338	(0.0123)
fsp7					0.00338	(0.0125)
fsp8					0.00302	(0.0119)
fsp9					-0.00221	(0.0122)
fsp11					0.0426	(0.0261)
fsp12					0.0345	(0.0351)
fsp13					0.0582	(0.0463)
fsp14					0.00896	(0.0400)
fsp15					0.0550	(0.0527)
fsp16					-0.0127	(0.0522)
fsp17					0.0789*	(0.0413)
fsp18					0.0365	(0.0474)
fsp19					0.0739*	(0.0385)
fsp20					0.0788**	(0.0380)
fsp21					0.0813**	(0.0358)
fsp22					0.0944***	(0.0317)
fsp23					0.0462	(0.0357)
fsp24					0.00730	(0.0333)
fsp25					-0.0468	(0.0324)
fsp26					0.0220	(0.0343)
fsp27					0.0708**	(0.0288)
fsp28					0.0683***	(0.0230)
fsp29					-0.0166	(0.0230)
fsp30					0.0247	(0.0275)
fsp31					0.0146	(0.0212)
fsp32					0.0484**	(0.0194)
fsp33					0.0251	(0.0221)
fsp34					0.0604***	(0.0190)
fsp35					0.0414**	(0.0164)
fsp36					-0.000273	(0.0162)
fsp37					0.0161	(0.0178)
fsp38					0.0211	(0.0171)
fsp39					0.0310	(0.0200)
fsp40					-0.261	(0.225)
fsp41					0.0147	(0.0353)
N. obs	27662		39706		67368	
R^2	0.174		0.152		0.161	
Joint F test of pre-treatment dummies	0.737		1.794		0.454	
p−value	0.641		0.866		0.867	

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Table C.3 – continued from previous page

	only women		only men		women vs men	
	β	(s.e.)	β	(s.e.)	β	(s.e.)

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Robust standard errors are reported in brackets. We control for the full set of individual and job characteristics, as described in Subsection 5.2, for province and time fixed effects and for the lagged weekly rate of contagion at the province level. The full set of estimation results are available from the authors upon request.

Table C.4: Parallel trend test for DDD model of Equation 1 - Remote working

	only women		only men		women vs men	
	β	(s.e.)	β	(s.e.)	β	(s.e.)
δ_1 - Before, Treated vs Control	0.0110	(0.0227)	0.0305**	(0.0151)	0.0305**	(0.0152)
δ_5 - Before, Treated vs Control, F vs M					-0.0195	(0.0250)
sp3	0.0568***	(0.0206)	0.00772	(0.0150)	0.00772	(0.0150)
sp4	0.0257	(0.0189)	0.00937	(0.0138)	0.00937	(0.0138)
sp5	0.0373*	(0.0219)	0.00691	(0.0140)	0.00691	(0.0140)
sp6	0.0301*	(0.0169)	0.0149	(0.0153)	0.0149	(0.0153)
sp7	0.0243	(0.0196)	0.00523	(0.0140)	0.00523	(0.0140)
sp8	0.0211	(0.0255)	-0.000410	(0.0175)	-0.000410	(0.0175)
sp9	0.0208	(0.0236)	-0.00509	(0.0172)	-0.00509	(0.0172)
sp11	0.0105	(0.0253)	-0.0175	(0.0202)	-0.0175	(0.0202)
sp12	-0.0299	(0.0315)	-0.0274	(0.0218)	-0.0274	(0.0218)
sp13	-0.0279	(0.0315)	-0.0198	(0.0194)	-0.0198	(0.0195)
sp14	0.0121	(0.0342)	-0.0346	(0.0240)	-0.0346	(0.0240)
sp15	0.00798	(0.0344)	-0.00671	(0.0234)	-0.00671	(0.0234)
sp16	-0.0258	(0.0291)	-0.0428	(0.0282)	-0.0428	(0.0283)
sp17	-0.0287	(0.0350)	-0.0411	(0.0257)	-0.0411	(0.0257)
sp18	0.0131	(0.0383)	-0.0364	(0.0257)	-0.0364	(0.0257)
sp19	-0.0393	(0.0390)	-0.0985***	(0.0244)	-0.0985***	(0.0244)
sp20	-0.0468	(0.0438)	-0.0679**	(0.0318)	-0.0679**	(0.0318)
sp21	-0.0300	(0.0398)	-0.0449	(0.0287)	-0.0449	(0.0287)
sp22	-0.0374	(0.0353)	-0.0699**	(0.0281)	-0.0699**	(0.0281)
sp23	-0.0542	(0.0344)	-0.0941***	(0.0241)	-0.0941***	(0.0241)
sp24	0.00241	(0.0331)	-0.0526**	(0.0268)	-0.0526*	(0.0268)
sp25	-0.0428	(0.0332)	-0.0676***	(0.0231)	-0.0676***	(0.0231)
sp26	-0.0395	(0.0299)	-0.0369	(0.0246)	-0.0369	(0.0246)
sp27	0.00471	(0.0272)	-0.0470**	(0.0204)	-0.0470**	(0.0204)
sp28	-0.0172	(0.0296)	-0.0473**	(0.0202)	-0.0473**	(0.0202)
sp29	-0.0220	(0.0295)	-0.0667***	(0.0237)	-0.0667***	(0.0237)
sp30	-0.00996	(0.0258)	-0.0540**	(0.0247)	-0.0540**	(0.0248)
sp31	-0.0127	(0.0296)	-0.0120	(0.0208)	-0.0120	(0.0208)
sp32	-0.00905	(0.0285)	-0.0441*	(0.0231)	-0.0441*	(0.0231)

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Table C.4 – continued from previous page

	only women		only men		women vs men	
	β	(s.e.)	β	(s.e.)	β	(s.e.)
sp33	-0.0160	(0.0302)	-0.0410**	(0.0205)	-0.0410**	(0.0205)
sp34	-0.00632	(0.0329)	-0.0444**	(0.0204)	-0.0444**	(0.0204)
sp35	-0.0130	(0.0251)	-0.0761***	(0.0207)	-0.0761***	(0.0207)
sp36	-0.0277	(0.0260)	-0.0378*	(0.0214)	-0.0378*	(0.0214)
sp37	-0.0113	(0.0245)	-0.0537**	(0.0226)	-0.0537**	(0.0226)
sp38	-0.0158	(0.0280)	-0.0286	(0.0212)	-0.0286	(0.0212)
sp39	-0.0197	(0.0271)	-0.0303	(0.0192)	-0.0303	(0.0192)
sp40	-0.0594	(0.151)	0.0813	(0.148)	0.0813	(0.148)
sp41	-0.0950	(0.173)	0.124	(0.115)	0.124	(0.115)
fsp3					0.0491**	(0.0238)
fsp4					0.0164	(0.0223)
fsp5					0.0304	(0.0257)
fsp6					0.0152	(0.0226)
fsp7					0.0191	(0.0233)
fsp8					0.0215	(0.0280)
fsp9					0.0259	(0.0286)
fsp11					0.0280	(0.0339)
fsp12					-0.002	(0.0342)
fsp13					-0.008	(0.0334)
fsp14					0.0467	(0.0384)
fsp15					0.0147	(0.0402)
fsp16					0.0170	(0.0372)
fsp17					0.0123	(0.0424)
fsp18					0.0495	(0.0428)
fsp19					0.0592	(0.0405)
fsp20					0.0212	(0.0525)
fsp21					0.0150	(0.0412)
fsp22					0.0325	(0.0414)
fsp23					0.0399	(0.0384)
fsp24					0.0550	(0.0397)
fsp25					0.0248	(0.0373)
fsp26					-0.003	(0.0382)
fsp27					0.0517	(0.0334)
fsp28					0.0301	(0.0347)
fsp29					0.0447	(0.0378)
fsp30					0.0440	(0.0325)
fsp31					-0.000648	(0.0351)
fsp32					0.0351	(0.0362)
fsp33					0.0250	(0.0327)
fsp34					0.0381	(0.0336)
fsp35					0.063**	(0.0319)
fsp36					0.0102	(0.0319)

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Table C.4 – continued from previous page

	only women		only men		women vs men	
	β	(s.e.)	β	(s.e.)	β	(s.e.)
fsp37					0.0424	(0.0329)
fsp38					0.0128	(0.0334)
fsp39					0.0107	(0.0306)
fsp40					-0.141	(0.213)
fsp41					-0.219	(0.203)
N. obs	27662		39706		67368	
R^2	0.234		0.257		0.247	
Joint F test of pre-treatment dummies	1.862		0.486		0.929	
p−value	0.075		0.845		0.484	

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Robust standard errors are reported in brackets. We control for the full set of individual and job characteristics, as described in Subsection 5.2, for province and time fixed effects and for the lagged weekly rate of contagion at the province level. The full set of estimation results are available from the authors upon request.

D Robustness analysis

Table D.1: Triple Diff-in-Diff (DDD) estimations with Kernel PSM

	Job Loss		Working Hours		Cig		Remote Working	
	b	s.e.	b	s.e.	b	s.e.	b	s.e.
Before								
Control (F)	0.016		35.223		0.100		-0.173	
Control (M)	0.015		38.645		0.099		-0.170	
Treated (F)	0.017		35.001		0.101		-0.175	
Treated (M)	0.016		37.969		0.105		-0.174	
Diff (T-C)	0.000	0.002	0.454	0.503	-0.004	0.003	0.002	0.010
After								
Control (F)	0.012		31.006		0.161		-0.096	
Control (M)	0.013		33.369		0.153		-0.103	
Treated (F)	0.026		25.993		0.255		-0.107	
Treated (M)	0.020		28.336		0.224		-0.125	
Diff (T-C)	0.006***	0.002	0.020	0.603	0.023*	0.013	0.010	0.007
DDD	0.006**	0.003	-0.434	0.607	0.028**	0.013	0.008	0.013
N	129,479		121,733		67,367		67,367	
r2	0.02		0.19		0.07		0.19	

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Robust standard errors are reported. Cluster-robust S.E. are reported. For estimations we use the Stata commands `psmatch2` `kernel` option for the PSM model and then `diff` for the triple DDD model.
We control for the full set of individual and job characteristics, as described in Subsection 5.2, for province and time fixed effects and for the lagged weekly rate of contagion at the province level. The full set of estimation results are available from the authors upon request.

Table D.2: Estimated effects of lockdown after limiting the sample at the 21st week

	Job Loss	Working Hours	Cig	Remote Working
δ_0 Before, Control	0.017***	30.396***	0.240***	0.010
	[0.006]	[2.712]	[0.031]	[0.044]
δ_1 - Before, Treated vs Control	-0.000	0.828	-0.005	0.031***
	[0.001]	[0.522]	[0.007]	[0.011]
δ_2 - Control, After vs Before	0.006***	-1.021*	-0.015	0.104***
	[0.002]	[0.557]	[0.009]	[0.018]
δ_3 - Diff-in-Diff (ATET)	0.002	-12.161***	0.149***	-0.052***
	[0.002]	[0.945]	[0.012]	[0.017]
δ_4 - Female	0.002	-3.790***	0.008	-0.005
	[0.001]	[0.407]	[0.006]	[0.017]
δ_5 - Before, Treated vs Control, F vs M	-0.002	0.378	-0.003	0.006
	[0.002]	[0.577]	[0.008]	[0.015]
δ_6 - Control, After vs Before, F vs M	-0.003*	2.860***	-0.002	0.023
	[0.002]	[0.691]	[0.012]	[0.026]
δ_7 - Diff-in-Diff-in-Diff, F vs M	0.005	-1,180	0.032	0.003
	[0.003]	[1.236]	[0.021]	[0.024]
N obs.	68,280	62,725	34,701	39,794
R^2	0.018	0.338	0.181	0.229

Notes: *** Significant at 1%; ** significant at 5%; * significant at 10%. Cluster-robust S.E. are reported in brackets.

For each dependent variable we estimate in the first column a canonical DiD model and in the second one a Triple DiD.

We control for the full set of individual and job characteristics, as described in Subsection 5.2, for province and time fixed effects and for the lagged weekly rate of contagion at the province level. The full set of estimation results are available from the authors upon request.

Table D.3: Heterogeneous treatment: lockdown and reopening - IW estimations

	Job Loss	Working Hours	Cig	Remote Working
δ_0 - Before, Control	0.010**	35.926***	0.108***	0.024
	[0.005]	[2.507]	[0.021]	[0.042]
δ_1 - Before, Treated vs Control	0.003**	-0.228	-0.004	0.035***
	[0.001]	[0.362]	[0.005]	[0.012]
δ_2 - Control, Lock-down vs Before	0.001	-2.597***	-0.010	0.090***
	[0.001]	[0.673]	[0.011]	[0.017]
δ_3 - Control, Reopening vs Before	-0.005***	-1.528**	0.114***	0.070*
	[0.001]	[0.597]	[0.010]	[0.039]
δ_4 - Diff-in-Diff (ATET) of Lockdown	0.002	-12.536***	0.155***	-0.051***
	[0.001]	[0.965]	[0.012]	[0.017]
δ_5 - Diff-in-Diff (ATET) of Reopening	0.010***	-0.626*	0.025***	-0.051***
	[0.002]	[0.341]	[0.004]	[0.014]
δ_6 - Female	0.001	-2.926***	0.004	-0.003
	[0.001]	[0.322]	[0.005]	[0.018]
δ_7 - Before, Treat. vs Contr., F vs M	-0.000	-0.366	-0.014**	0.005
	[0.002]	[0.475]	[0.006]	[0.016]
δ_8 - Control, Lock. vs Bef., F vs M	-0.003*	2.968***	-0.004	0.023
	[0.001]	[0.745]	[0.014]	[0.026]
δ_9 - Control, Reop. vs Bef., F vs M	-0.002	-0.707*	0.005	0.007
	[0.001]	[0.380]	[0.005]	[0.019]
δ_{10} - DDD, F vs M, of Lock.	0.005	-1,379	0.043**	0.004
	[0.003]	[1.258]	[0.022]	[0.024]
δ_{11} - DDD, F vs M, of Reop.	0.008**	0.796	0.032***	0.006
	[0.004]	[0.526]	[0.009]	[0.019]
N. obs	132,055	121,744	67,368	67,368
R^2	0.018	0.309	0.152	0.240

Notes: * 0.1, ** 0.05, and *** 0.01 levels of statitical significance. Cluster-robust S.E. are reported in brackets.

For each dependent variable we estimate in the first column a canonical DiD model and in the second one a Triple DiD.

All the models control for the full set of individual and job characteristics, as described in Subsection 5.2, for province and time fixed effects and for the lagged weekly rate of contagion at the province level. The full set of estimation results are available from the authors upon request.

E Full set of estimation results of the benchmark models

Table E.1: Full set of results of the estimates reported in Table 4 - Job loss

	Job loss			
	(1)	(2)	(3)	(4)
δ_0 - Before, Control	0.004***	0.001	0.011***	0.010***
	[0.001]	[0.001]	[0.003]	[0.003]
δ_2 - Control, After vs Before	-0.002**	0.004***	-0.002**	0.004***
	[0.001]	[0.001]	[0.001]	[0.001]
δ_4 - Female	0.002*	0.002**	0.001	0.001
	[0.001]	[0.001]	[0.001]	[0.001]
δ_1 - Before, Treated vs Control	0.001	0.002	0.003***	0.003***
	[0.001]	[0.001]	[0.001]	[0.001]
δ_5 - Before, Treated vs Control, F vs M	0.001	0.001	-0.000	-0.000
	[0.002]	[0.002]	[0.002]	[0.002]
δ_6 - Control, After vs Before, F vs M	-0.002**	-0.002**	-0.002**	-0.002**
	[0.001]	[0.001]	[0.001]	[0.001]
δ_3 - Diff-in-Diff (ATET)	0.007***	0.007***	0.007***	0.007***
	[0.001]	[0.001]	[0.001]	[0.001]
δ_7 - Diff-in-Diff-in-Diff, F vs M	0.006***	0.006***	0.007***	0.007***
	[0.002]	[0.002]	[0.002]	[0.002]
Foreign citizenship	-	-	-0.000	-0.000
			[0.001]	[0.001]
Age cohorts - Reference: 30-34				
- 20-24	-	-	0.021***	0.020***
			[0.007]	[0.007]
- 25-29	-	-	0.005**	0.005**
			[0.002]	[0.002]
- 35-39	-	-	-0.003*	-0.003*
			[0.001]	[0.001]
- 40-44	-	-	-0.002	-0.002
			[0.001]	[0.001]
- 45-49	-	-	-0.002*	-0.002*
			[0.001]	[0.001]
- 50-54	-	-	-0.001	-0.001
			[0.001]	[0.001]
- 55-59	-	-	-0.000	0.000
			[0.001]	[0.001]
- 60-64	-	-	0.001	0.002
			[0.001]	[0.001]
- 65-69	-	-	0.008***	0.009***
			[0.002]	[0.002]
Levels of Educations - Reference: secondary				
- none	-	-	0.003	0.003
			[0.005]	[0.005]
- primary	-	-	0.001**	0.001**

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Table E.1 – continued from previous page

	Job loss			
	(1)	(2)	(3)	(4)
			[0.001]	[0.001]
- tertiary	-	-	-0.001	-0.001
			[0.001]	[0.001]
Remote_index	-	-	-0.000**	-0.000**
			[0.000]	[0.000]
Industry (1 digit) - Reference: communication				
- agriculture, forestry, and fishing	-	-	0.002	0.002
			[0.002]	[0.002]
- manufacturing	-	-	-0.006***	-0.006***
			[0.001]	[0.001]
- construction	-	-	-0.002	-0.002
			[0.001]	[0.001]
- wholesales and retail trade	-	-	-0.004***	-0.005***
			[0.001]	[0.001]
- hotels and resturants	-	-	0.002	0.001
			[0.002]	[0.002]
- transport and storage	-	-	0.000	0.000
			[0.001]	[0.001]
- financial intermediation	-	-	-0.001	-0.002
			[0.001]	[0.001]
- real estate, renting, and business activities	-	-	-0.002*	-0.002*
			[0.001]	[0.001]
- public administration and defence	-	-	-0.001	-0.001
			[0.001]	[0.001]
- education, health, and social work	-	-	-0.002	-0.002*
			[0.001]	[0.001]
- other community, social, personal service activities	-	-	-0.001	-0.001
			[0.001]	[0.001]
Occupation (1 digit) - Reference: Clerks				
- legislator, senior officials, and managers	-	-	-0.003***	-0.002***
			[0.001]	[0.001]
- professionals	-	-	0.000	0.000
			[0.001]	[0.001]
- technicians and associate professionals	-	-	-0.001	-0.001
			[0.001]	[0.001]
- service workers and shop and market sales workers	-	-	0.001	0.001
			[0.001]	[0.001]
- skilled agriculturals, fishery, craft and related trades workers	-	-	-0.001	-0.001
			[0.001]	[0.001]
- plant and machine operators and assemblers	-	-	0.000	0.000
			[0.001]	[0.001]
- elementary occupations	-	-	0.003**	0.003**

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Table E.1 – continued from previous page

	Job loss			
	(1)	(2)	(3)	(4)
			[0.001]	[0.001]
Employee (vs. self-employed/professional)	-	-	0.005***	0.005***
			[0.001]	[0.001]
Plant size (n. workers) - Reference: less than 10				
- 11-15	-	-	-	-
- 16-19	-	-	-	-
- 20-49	-	-	-	-
- 50-249	-	-	-	-
- more than 250	-	-	-	-
- missing	-	-	-	-
Years of experience	-	-	-0.000***	-0.000***
			[0.000]	[0.000]
Years of tenure	-	-	-	-
Number of children by age category:				
- 0-5	-	-	-0.001**	-0.001**
			[0.000]	[0.000]
- 6-10	-	-	0.001	0.001
			[0.000]	[0.000]
- 11-15	-	-	0.000	0.000
			[0.000]	[0.000]
Part-time job (vs. full-time)	-	-	-	-
Temporary job (vs. permanent)	-	-	-	-
Positive_pop	-	2.919***	-	2.826**
		[1.122]		[1.115]
N. obs	132055	132055	132055	132055
R^2	0.004	0.007	0.014	0.018

Notes: * 0.1, ** 0.05, and *** 0.01 level of statistical significance. Robust standard errors are reported in brackets. Model (1) includes no controls. Model (2) includes province and time fixed effects as well as the lagged weekly rate of contagion at the province level. Model (3) controls for the full set of individual and job characteristics. Model (4) is our preferred baseline model and controls for the full set of individual and job characteristics, for province and time fixed effects and for the lagged weekly rate of contagion at the province level. The estimated coefficients of all fixed effects are not reported, they are available from the authors upon request.

Table E.2: Full set of results of the estimates reported in Table 5 - Working Hours

	Working Hours			
	(1)	(2)	(3)	(4)
δ_0 - Before, Control	38.485***	35.233***	38.295***	35.133***
	[0.127]	[0.432]	[0.589]	[0.679]
δ_2 - Control, After vs Before	-4.873***	-3.927***	-5.032***	-4.189***
	[0.157]	[0.442]	[0.141]	[0.402]
δ_4 - Female	-8.283***	-8.410***	-3.153***	-3.294***
	[0.190]	[0.190]	[0.170]	[0.169]
δ_1 - Before, Treated vs Control	0.577***	0.449**	-0.124	-0.147
	[0.205]	[0.205]	[0.190]	[0.189]
δ_5 - Before, Treated vs Control, F vs M	1.355***	1.480***	-0.511*	-0.335
	[0.348]	[0.348]	[0.293]	[0.291]
δ_6 - Control, After vs Before, F vs M	0.724***	0.806***	0.535***	0.608***
	[0.230]	[0.229]	[0.199]	[0.198]
δ_3 - Diff-in-Diff (ATET)	-4.699***	-4.708***	-4.633***	-4.653***
	[0.263]	[0.255]	[0.239]	[0.231]
δ_7 - Diff-in-Diff-in-Diff, F vs M	0.141	0.031	0.101	-0.004
	[0.432]	[0.421]	[0.375]	[0.362]
Foreign citizenship	-	-	1.115***	0.942***
			[0.138]	[0.131]
Age cohorts - Reference: 30-34				
- 20-24	-	-	1.078**	0.226
			[0.533]	[0.495]
- 25-29	-	-	-0.157	-0.216
			[0.265]	[0.245]
- 35-39	-	-	0.080	0.082
			[0.225]	[0.213]
- 40-44	-	-	0.121	0.148
			[0.222]	[0.210]
- 45-49	-	-	0.088	0.041
			[0.218]	[0.207]
- 50-54	-	-	-0.055	-0.054
			[0.217]	[0.206]
- 55-59	-	-	-0.258	-0.251
			[0.222]	[0.211]
- 60-64	-	-	-0.950***	-0.911***
			[0.239]	[0.228]
- 65-69	-	-	-1.426***	-1.366***
			[0.267]	[0.257]
Levels of Educations - Reference: secondary				
- none	-	-	1,067	1.920***
			[0.730]	[0.672]
- primary	-	-	-0.304***	-0.261**

Continued on next page

Table E.2 – continued from previous page

	Working Hours			
	(1)	(2)	(3)	(4)
			[0.118]	[0.111]
- tertiary	-	-	1.562***	1.571***
			[0.130]	[0.128]
Remote_index	-	-	0.089***	0.094***
			[0.006]	[0.006]
Industry (1 digit) - Reference: communication				
- agriculture, forestry, and fishing	-	-	6.347***	6.128***
			[0.365]	[0.364]
- manufacturing	-	-	0.017	0.089
			[0.287]	[0.285]
- construction	-	-	-1.809***	-1.823***
			[0.348]	[0.334]
- wholesales and retail trade	-	-	0.682**	0.803***
			[0.301]	[0.296]
- hotels and resturants	-	-	-1.544***	-1.736***
			[0.378]	[0.363]
- transport and storage	-	-	-0.821**	-0.676**
			[0.330]	[0.326]
- financial intermediation	-	-	-0.335	-0.343
			[0.338]	[0.338]
- real estate, renting, and business activities	-	-	-0.967***	-0.876***
			[0.288]	[0.284]
- public administration and defence	-	-	-1.447***	-1.294***
			[0.300]	[0.303]
- education, health, and social work	-	-	-5.303***	-5.159***
			[0.288]	[0.288]
- other community, social, personal service activities	-	-	-0.946***	-0.875***
			[0.319]	[0.313]
Occupation (1 digit) - Reference: Clerks				
- legislator, senior officials, and managers	-	-	4.309***	4.320***
			[0.352]	[0.339]
- professionals	-	-	-2.870***	-2.748***
			[0.184]	[0.182]
- technicians and associate professionals	-	-	0.475***	0.448***
			[0.159]	[0.154]
- service workers and shop and market sales workers	-	-	3.402***	3.527***
			[0.218]	[0.211]
- skilled agriculturals, fishery, craft and related trades workers	-	-	0.655***	0.733***
			[0.231]	[0.219]
- plant and machine operators and assemblers	-	-	-0.016	0.009
			[0.234]	[0.222]
- elementary occupations	-	-	-0.701***	-0.646***

Continued on next page

Table E.2 – continued from previous page

	Working Hours			
	(1)	(2)	(3)	(4)
			[0.214]	[0.205]
Employee (vs. self-employed/professional)	-	-	-3.834***	-4.167***
			[0.165]	[0.155]
Plant size (n. workers) - Reference: less than 10				
- 11-15	-	-	-0.214	0.104
			[0.169]	[0.160]
- 16-19	-	-	-0.211	0.286
			[0.245]	[0.237]
- 20-49	-	-	-0.420***	-0.250*
			[0.150]	[0.144]
- 50-249	-	-	-0.456***	-0.291**
			[0.142]	[0.137]
- more than 250	-	-	1.317***	1.495***
			[0.171]	[0.167]
- missing	-	-	-1.692***	-1.972***
			[0.160]	[0.150]
Years of experience	-	-	0.026***	0.021***
			[0.003]	[0.003]
Years of tenure	-	-	0.020***	0.019***
			[0.005]	[0.005]
Number of children by age category:				
- 0-5	-	-	-1.214***	-1.201***
			[0.103]	[0.098]
- 6-10	-	-	0.112	0.126
			[0.100]	[0.095]
- 11-15	-	-	-0.156	-0.075
			[0.104]	[0.099]
Part-time job (vs. full-time)	-	-	-14.301***	-14.289***
			[0.108]	[0.105]
Temporary job (vs. permanent)	-	-	0.757***	0.640***
			[0.138]	[0.132]
Positive_pop	-	-394.766*	-	-588.830***
		[237.380]		[225.413]
N. obs	121744	121744	121744	121744
R^2	0.072	0.145	0.211	0.284

Notes: * 0.1, ** 0.05, and *** 0.01 level of statistical significance. Robust standard errors are reported in brackets. Model (1) includes no controls. Model (2) includes province and time fixed effects as well as the lagged weekly rate of contagion at the province level. Model (3) controls for the full set of individual and job characteristics. Model (4) is our preferred baseline model and controls for the full set of individual and job characteristics, for province and time fixed effects and for the lagged weekly rate of contagion at the province level. The estimated coefficients of all fixed effects are not reported, they are available from the authors upon request.

Table E.3: Full set of results of the estimates reported in Table 6 - CIG

	CIG			
	(1)	(2)	(3)	(4)
δ_0 - Before, Control	0.002***	0.013*	0.096***	0.107***
	[0.001]	[0.007]	[0.013]	[0.014]
δ_2 - Control, After vs Before	0.053***	0.019***	0.050***	0.017**
	[0.002]	[0.007]	[0.002]	[0.007]
δ_4 - Female	-0.001	0.000	0.004**	0.005**
	[0.001]	[0.001]	[0.002]	[0.002]
δ_1 - Before, Treated vs Control	0.007***	0.009***	-0.005**	-0.004*
	[0.002]	[0.002]	[0.002]	[0.002]
δ_5 - Before, Treated vs Control, F vs M	-0.004*	-0.006***	-0.012***	-0.014***
	[0.002]	[0.002]	[0.003]	[0.003]
δ_6 - Control, After vs Before, F vs M	0.001	0.001	0.002	0.002
	[0.003]	[0.003]	[0.003]	[0.003]
δ_3 - Diff-in-Diff (ATET)	0.069***	0.069***	0.069***	0.069***
	[0.004]	[0.004]	[0.004]	[0.004]
δ_7 - Diff-in-Diff-in-Diff, F vs M	0.034***	0.036***	0.034***	0.036***
	[0.006]	[0.006]	[0.006]	[0.006]
Foreign citizenship	-	-	-0.022***	-0.020***
			[0.003]	[0.003]
Age cohorts - Reference: 30-34				
- 20-24	-	-	-0.023***	-0.011
			[0.008]	[0.008]
- 25-29	-	-	-0.012**	-0.013***
			[0.005]	[0.005]
- 35-39	-	-	-0.010**	-0.006
			[0.005]	[0.004]
- 40-44	-	-	0.004	0.007
			[0.005]	[0.004]
- 45-49	-	-	0.012**	0.015***
			[0.005]	[0.005]
- 50-54	-	-	0.010**	0.014***
			[0.005]	[0.005]
- 55-59	-	-	0.023***	0.025***
			[0.005]	[0.005]
- 60-64	-	-	0.028***	0.031***
			[0.005]	[0.005]
- 65-69	-	-	0.024***	0.028***
			[0.006]	[0.006]
Levels of Educations - Reference: secondary				
- none	-	-	-0.030**	-0.039***
			[0.013]	[0.012]
- primary	-	-	0.006**	0.005**

Continued on next page

Table E.3 – continued from previous page

	CIG			
	(1)	(2)	(3)	(4)
			[0.003]	[0.002]
- tertiary	-	-	-0.016***	-0.016***
			[0.003]	[0.003]
Remote_index	-	-	-0.001***	-0.001***
			[0.000]	[0.000]
Industry (1 digit) - Reference: communication				
- agriculture, forestry, and fishing	-	-	-	-
- manufacturing	-	-	-0.003	-0.003
			[0.005]	[0.005]
- construction	-	-	-0.001	-0.002
			[0.006]	[0.006]
- wholesales and retail trade	-	-	-0.002	-0.001
			[0.005]	[0.005]
- hotels and resturants	-	-	0.069***	0.071***
			[0.007]	[0.007]
- transport and storage	-	-	-0.002	-0.003
			[0.005]	[0.005]
- financial intermediation	-	-	-0.036***	-0.035***
			[0.005]	[0.005]
- real estate, renting, and business activities	-	-	-0.000	-0.001
			[0.005]	[0.005]
- public administration and defence	-	-	-	-
- education, health, and social work	-	-	-	-
- other community, social, personal service activities	-	-	-0.025***	-0.024***
			[0.006]	[0.006]
Occupation (1 digit) - Reference: Clerks				
- legislator, senior officials, and managers	-	-	-0.041***	-0.043***
			[0.008]	[0.008]
- professionals	-	-	-0.028***	-0.027***
			[0.004]	[0.004]
- technicians and associate professionals	-	-	-0.008**	-0.007**
			[0.004]	[0.003]
- service workers and shop and market sales workers	-	-	-0.025***	-0.025***
			[0.005]	[0.005]
- skilled agriculturals, fishery, craft and related trades workers	-	-	0.002	0.004
			[0.005]	[0.005]
- plant and machine operators and assemblers	-	-	0.004	0.005
			[0.005]	[0.005]
- elementary occupations	-	-	-0.026***	-0.025***

Continued on next page

Table E.3 – continued from previous page

	CIG			
	(1)	(2)	(3)	(4)
			[0.005]	[0.005]
Employee (vs. self-employed/professional)	-	-	-	-
Plant size (n. workers) - Reference: less than 10				
- 11-15	-	-	0.001	-0.003
			[0.004]	[0.004]
- 16-19	-	-	-0.005	-0.008
			[0.005]	[0.005]
- 20-49	-	-	-0.004	-0.005
			[0.003]	[0.003]
- 50-249	-	-	-0.007**	-0.007**
			[0.003]	[0.003]
- more than 250	-	-	0.005	0.003
			[0.004]	[0.004]
- missing	-	-	-0.028***	-0.016***
			[0.003]	[0.003]
Years of experience	-	-	-0.001***	-0.001***
			[0.000]	[0.000]
Years of tenure	-	-	-0.001***	-0.001***
			[0.000]	[0.000]
Number of children by age category:				
- 0-5	-	-	0.001	0.001
			[0.002]	[0.002]
- 6-10	-	-	-0.002	-0.002
			[0.002]	[0.002]
- 11-15	-	-	0.006***	0.006**
			[0.002]	[0.002]
Part-time job (vs. full-time)	-	-	0.008***	0.008***
			[0.003]	[0.003]
Temporary job (vs. permanent)	-	-	-0.105***	-0.098***
			[0.002]	[0.002]
Positive_pop	-	1,822	-	3,461
		[5.073]		[4.987]
N. obs	67,368	67,368	67,368	67,368
R^2	0.042	0.115	0.072	0.141

Notes: * 0.1, ** 0.05, and *** 0.01 level of statistical significance. Robust standard errors are reported in brackets. Model (1) includes no controls. Model (2) includes province and time fixed effects as well as the lagged weekly rate of contagion at the province level. Model (3) controls for the full set of individual and job characteristics. Model (4) is our preferred baseline model and controls for the full set of individual and job characteristics, for province and time fixed effects and for the lagged weekly rate of contagion at the province level. The estimated coefficients of all fixed effects are not reported, they are available from the authors upon request.

Table E.4: Full set of results of the estimates reported in Table 7 - Remote Working

	Remote Working			
	(1)	(2)	(3)	(4)
δ_0 - Before, Control	0.025***	0.114***	-0.031**	0.014
	[0.002]	[0.010]	[0.015]	[0.018]
δ_2 - Control, After vs Before	0.104***	0.049***	0.101***	0.051***
	[0.003]	[0.008]	[0.003]	[0.008]
δ_4 - Female	-0.002	-0.006*	-0.006	-0.007
	[0.003]	[0.003]	[0.004]	[0.004]
δ_1 - Before, Treated vs Control	-0.013***	-0.011***	0.036***	0.035***
	[0.003]	[0.003]	[0.004]	[0.004]
δ_5 - Before, Treated vs Control, F vs M	0.002	0.001	0.006	0.005
	[0.004]	[0.004]	[0.005]	[0.005]
δ_6 - Control, After vs Before, F vs M	0.018***	0.018***	0.014***	0.014***
	[0.005]	[0.005]	[0.005]	[0.005]
δ_3 - Diff-in-Diff (ATET)	-0.054***	-0.054***	-0.051***	-0.051***
	[0.004]	[0.004]	[0.004]	[0.004]
δ_7 - Diff-in-Diff-in-Diff, F vs M	0.008	0.008	0.005	0.005
	[0.007]	[0.007]	[0.007]	[0.007]
Foreign citizenship	-	-	-0.006***	-0.010***
			[0.002]	[0.002]
Age cohorts - Reference: 30-34				
- 20-24	-	-	0.023***	0.027***
			[0.007]	[0.007]
- 25-29	-	-	0.010**	0.009**
			[0.004]	[0.004]
- 35-39	-	-	0.009**	0.010**
			[0.005]	[0.004]
- 40-44	-	-	0.008*	0.008*
			[0.004]	[0.004]
- 45-49	-	-	0.015***	0.014***
			[0.004]	[0.004]
- 50-54	-	-	0.010**	0.009**
			[0.004]	[0.004]
- 55-59	-	-	0.009**	0.007*
			[0.004]	[0.004]
- 60-64	-	-	0.005	0.005
			[0.005]	[0.005]
- 65-69	-	-	0.010*	0.010*
			[0.006]	[0.006]
Levels of Educations - Reference: secondary				
- none	-	-	-0.005	0.002
			[0.004]	[0.005]
- primary	-	-	-0.010***	-0.010***

Continued on next page

Table E.4 – continued from previous page

	Remote Working			
	(1)	(2)	(3)	(4)
			[0.001]	[0.001]
- tertiary	-	-	0.077***	0.074***
			[0.005]	[0.005]
Remote_index	-	-	0.003***	0.003***
			[0.000]	[0.000]
Industry (1 digit) - Reference: communication				
- agriculture, forestry, and fishing	-	-	-	-
- manufacturing	-	-	-0.211***	-0.200***
			[0.010]	[0.010]
- construction	-	-	-0.186***	-0.178***
			[0.011]	[0.011]
- wholesales and retail trade	-	-	-0.197***	-0.189***
			[0.010]	[0.010]
- hotels and resturants	-	-	-0.190***	-0.180***
			[0.011]	[0.010]
- transport and storage	-	-	-0.212***	-0.205***
			[0.011]	[0.010]
- financial intermediation	-	-	-0.085***	-0.081***
			[0.013]	[0.013]
- real estate, renting, and business activities	-	-	-0.158***	-0.152***
			[0.011]	[0.011]
- public administration and defence	-	-	-	-
- education, health, and social work	-	-	-	-
- other community, social, personal service activities	-	-	-0.188***	-0.180***
			[0.011]	[0.011]
Occupation (1 digit) - Reference: Clerks				
- legislator, senior officials, and managers	-	-	0.124***	0.116***
			[0.018]	[0.017]
- professionals	-	-	0.130***	0.127***
			[0.008]	[0.008]
- technicians and associate professionals	-	-	0.052***	0.050***
			[0.005]	[0.005]
- service workers and shop and market sales workers	-	-	-0.001	-0.000
			[0.005]	[0.005]
- skilled agriculturals, fishery, craft and related trades workers	-	-	-0.027***	-0.024***
			[0.004]	[0.004]
- plant and machine operators and assemblers	-	-	-0.054***	-0.050***
			[0.004]	[0.004]
- elementary occupations	-	-	-0.045***	-0.045***

Continued on next page

Table E.4 – continued from previous page

	Remote Working			
	(1)	(2)	(3)	(4)
			[0.004]	[0.004]
Employee (vs. self-employed/professional)	-	-	-	-
Plant size (n. workers) - Reference: less than 10				
- 11-15	-	-	0.006**	0.007**
			[0.003]	[0.003]
- 16-19	-	-	0.015***	0.015***
			[0.005]	[0.005]
- 20-49	-	-	0.032***	0.029***
			[0.003]	[0.003]
- 50-249	-	-	0.054***	0.048***
			[0.003]	[0.003]
- more than 250	-	-	0.117***	0.108***
			[0.005]	[0.005]
- missing	-	-	0.031***	0.032***
			[0.004]	[0.004]
Years of experience	-	-	0.000***	0.000***
			[0.000]	[0.000]
Years of tenure	-	-	0.000	0.000
			[0.000]	[0.000]
Number of children by age category:				
- 0-5	-	-	0.000	0.001
			[0.002]	[0.002]
- 6-10	-	-	0.004*	0.005**
			[0.002]	[0.002]
- 11-15	-	-	-0.001	-0.000
			[0.002]	[0.002]
Part-time job (vs. full-time)	-	-	-0.017***	-0.016***
			[0.002]	[0.002]
Temporary job (vs. permanent)	-	-	-0.008***	-0.004*
			[0.002]	[0.002]
Positive_pop	-	12.992***	-	11.112**
		[4.793]		[4.433]
N. obs	67368	67368	67368	67368
R^2	0.028	0.066	0.226	0.240

Notes: * 0.1, ** 0.05, and *** 0.01 level of statistical significance. Robust standard errors are reported in brackets. Model (1) includes no controls. Model (2) includes province and time fixed effects as well as the lagged weekly rate of contagion at the province level. Model (3) controls for the full set of individual and job characteristics. Model (4) is our preferred baseline model and controls for the full set of individual and job characteristics, for province and time fixed effects and for the lagged weekly rate of contagion at the province level. The estimated coefficients of all fixed effects are not reported, they are available from the authors upon request.