Is the Recession a ‘Shecession’? Gender Inequality in the Employment Effects of the COVID-19 Pandemic in Germany

Katja Möhring ^{a*}, Maximiliane Reifenscheid ^a, Andreas Weiland ^a

^a Collaborative Research Center 884 “Political Economy of Reforms”, University of Mannheim, Germany

* Corresponding author, E-mail: moehring@uni-mannheim.de

Abstract

This paper evaluates gender inequality in employment risks during the first and the second wave of the COVID-19 pandemic in Germany. We use individual-level panel data collected weekly between 20 March and 9 July 2020, and again in January 2021, to examine the risks of short-time work, job loss and unpaid furlough, as well as having to work on-site by means of growth curve modelling. The results reveal gender inequality in employment risks and gendered use of governmental support schemes. During the early phase of the pandemic, women had a higher probability of being temporarily exempted from work, but a lower probability of being in short-time work and receiving the associated state benefits. Compared to men, women also continuously had a higher probability of working on-site rather than from home. Consequently, women’s employment during the pandemic is more polarized between job loss or working on-site with the associated infection risk. Gender inequalities are rooted in the long-term gendered dualization of the German labour market with the low-wage sector and marginal employment being female dominated. The results call for close monitoring of long-term gendered effects of the pandemic recession and an adjustment of governmental crisis measures to the requirements of the female workforce.

Key words: Corona crisis; Lockdown; Short-time work; Furlough; Unemployment; Growth Curve Modelling

Introduction

In early research on the employment consequences of the COVID-19 pandemic, implications for gender inequality were widely discussed. Several early studies showed that the effects of the pandemic recession differ from those of previous recessions, as women especially are expected to be disproportionately affected (Alon, Doepke, Olmstead-Rumsey, & Tertilt, 2020a; Collins, Landivar, Ruppanner, & Scarborough, 2020). However, most research on the consequences of the pandemic for gender inequality focused on the sharing of child care and home-schooling tasks in couples facing school and day-care closures, and its implications for parents' and especially mothers' well-being (Hank & Steinbach, 2020; Hipp & Bünning, 2020; Möhring et al., 2020; Yerkes et al., 2020). Less research has been devoted to exploring gender inequality within employment risks induced by the pandemic. The few existing studies point out that working women are highly affected by job loss and working hours reduction in the pandemic recession (Alon et al., 2020a; Collins et al., 2020; Möhring et al., 2021). Therefore, the current pandemic recession is described as 'Shecession' (Alon, Doepke, Olmstead-Rumsey, & Tertilt, 2020b). In contrast, women are also overrepresented among essential workers, especially in the health and care sector (Blundell, Dias, Joyce, & Xu, 2020). However, previous studies operate either with projections based on data that was gathered before the onset of the pandemic (e.g., Alon et al., 2020a), or are based on descriptive analysis of cross-sectional data (e.g., Blundell et al., 2020). Furthermore, existing research on the employment consequences of the COVID-19 pandemic mostly focuses on liberal market economies such as the United States of America. These countries with their comparatively flexible labour markets experienced a sharp rise in unemployment (OECD, 2021). In the USA, job loss among women was indeed much more severe than in previous recessions (Alon et al., 2020b).

In more regulated welfare states, unemployment did not sharply rise immediately after the onset of the pandemic because governments implemented new or existing job retention schemes, as the “furlough scheme” in the UK, and the “short-time work” benefit in Germany (Adams-Prassl, Boneva, Golin, & Rauh, 2020; Konle-Seidl, 2020; OECD, 2021). The consequences of these approaches for gender inequality at the labour market are not clear and have not been investigated so far.

With this background, the present study focuses on the situation in Germany, which has a highly regulated labour market and provides a generous social security net for the core work force, but is also characterized by a high gender-based dualization of employment. We address two research questions related to gender inequality in employment during the pandemic recession. What gender differences can be identified in the risks of short-time work, job loss, and having to work on-site in the early phase and in the further course of the crisis? Which factors related to socio-economic status and employment explain these differences? To the best of our knowledge, this study is the first using detailed longitudinal data to analyse how gender inequalities in employment have evolved during the COVID-19 pandemic in Germany. Our data provides weekly information on the employment status over a time-span of 16 weeks ranging from 23 March to 9 July 2020. We combine this weekly data with further longitudinal information for January 2021, thereby covering the first COVID-19 lockdown and the period after containment measures were eased, as well as the second lockdown in winter 2020/21. The data comes from the German Internet Panel (GIP), a longitudinal survey representative of the German population (Blom, Gathmann, & Krieger, 2015), and a special COVID-19 study, carried out as part of the GIP (Blom et al., 2020).

This article is organised as follows: in the next section we describe gender inequality on the German labour market and the design and targeting of governmental crisis measures. Based on these descriptions, we derive hypotheses for the empirical analyses. Our data, sample, operationalizations, and methods are explained in the “Materials and Methods” section. Afterwards, we present descriptive results on gender differences in employment between March and July 2020, and in January 2021. We then turn to our multivariate results for the risks of short-time work, being out of work, and working on-site- first of the growth curve models for the first wave of the pandemic in spring and summer 2020, and second of cross-sectional regressions for January 2021. We close the article with a discussion of the results and conclusion.

Background

Gendered dualization of the German labour market

Germany is a conservative welfare state with a coordinated market economy and corporatist structure (Esping-Andersen, 1990; Hall & Soskice, 2001). In the post-war decades, West Germany represented a male-breadwinner society promoting a traditional gendered division of tasks in couples (Struffolino, Studer, & Fasang, 2016). The traditional division of paid work and unpaid care work between men and women was underpinned by central elements of the social security system, taxation, and wage structure (Schäfer & Gottschall, 2015; Trappe, Pollmann-Schult, & Schmitt, 2015). Family policy focused on cash benefits and long leave periods for mothers and public childcare remained largely underdeveloped in the pre-millennial decades (Gangl & Ziefle, 2015). The marriage tax premium generally disincentivizes the increase of employment hours or the uptake of employment by the part-time or non-working spouse, thereby supporting inequality in labour market participation among married

couples (Bach, Haan, & Ochmann, 2013). Especially during the economic upturn in the immediate post-war decades, wage levels of industrial workers were sufficient to provide a livelihood for a family without the necessity of a second earner (Schäfer & Gottschall, 2015). Men's employment careers of the post-war decades were characterized by an exceptional homogeneity and stability (Lersch, Schulz, & Leckie, 2020; Möhring, 2016).

This traditional arrangement has been changing for about three decades. First, changes induced by the economic crises of the 1970s and the stalled economic development of the 1980s led to mass unemployment and an increasing destandardization of men's employment histories. At the same time, women's attachment to the labour market steadily increased. Second, with German re-unification, East Germany was integrated into the Western institutional setting, which was at odds with the predominant dual-earner model in the former socialist German Democratic Republic. Today, Eastern German women's labour force participation is still higher than Western German women's, albeit converging to Western-German level, especially with respect to part-time work (Trappe et al., 2015). Finally, reforms in family policy since the mid-2000s towards a Scandinavian model, including the expansion of public child care in Western Germany, led to a further increase in the labour market participation of women. Despite these developments, central elements of the institutional structure that supports a male breadwinner model, such as the marital wage premium, are still in place. As a consequence, the incentives for labour market participation of women, and especially mothers, are contradictory. Thus, the change in women's employment occurred mainly through higher labour market involvement of women in the form of part-time and marginal employment, the so-called 'Mini-Jobs', with the latter not being subject to social security payment and protection (Bergmann, Scheele, & Sorger, 2019).

Labour market inequality intensified after the labour market reforms of the early 2000s, which included the flexibilisation of the low-wage sector through incentives for employers and employees to generate and take up low wage employment (Bosch & Weinkopf, 2008; Eichhorst & Marx, 2011). These changes implied an increased dualization of the labour force, including a polarisation between full-time and part-time employees in terms of wages and job security (Brülle, Gangl, Levanon, & Saburov, 2019; Emmenegger, Hausermann, Palier, & Seeleib-Kaiser, 2012). As a consequence, gender represents a main division in the dualized German labour market with predominantly women working part-time and in the low wage sector (Hassel, 2014; Häusermann & Schwander, 2012). Although female labour force participation in Germany is above the EU average, with 72.8 percent of women in employment in 2019 compared to the EU average of 64.1 percent, a more nuanced look shows that women in Germany are often still on the margins of the labour market: 46.7 percent of women worked part-time, compared to the EU-average of 31.3 percent, or just 9.9 percent of men in Germany (data for 2019; Eurostat, 2020a). Furthermore, 26.2 percent of women in Germany are in low-wage employment, compared to the EU-average of 18.8 percent; this is one of the highest shares in Europe (data for 2018; Eurostat, 2020b).

Gender bias of government crisis measures

The German security system buffers income short-fall, providing earnings-related benefits in case of unemployment or health-related loss of work ability. These benefits are supposed to secure the previous living standard instead of just preventing poverty, and thereby serve as an automatic stabilizer of life-time earnings and consumption (Gangl, 2004; Hall & Soskice, 2001). During economic crises, further instruments compensate for negative consequences. Short-time work is the main instrument of social policy to avoid mass lay-offs during economic crises in Germany. It allows

companies to reduce working hours and wages of employees in times of economic hardship. The employer can then apply for a government earnings replacement that compensates for the wage loss of up to 60 percent of the previous net wage and 67 percent for employees with dependent children (Konle-Seidl, 2020; Wachter, 2020).

Generally, governmental crises measures are designed for the usual cyclic economic recessions that first and foremost hit the export-oriented German industrial sector, such as the automotive industry, as well as the construction industry. Especially during the Great Recession, these measures were successful in preventing mass unemployment. Usual economic recessions affect men's employment much more than women's: the average working hours of men are reduced more than those of women, because the male-dominated industry and construction sectors are stronger affected from job losses, making men's employment much more volatile and depended on the economic circumstances (Doepke & Tertilt, 2016). This was generally also the case for Germany during the Great Recession, but job losses here were much fewer and rather short-term, due to the rapid recovery of the German economy compared to many other countries (Rinne & Zimmermann, 2012). During the Great Recession, the short-time work policy was applied and, in conjunction with direct state subsidies, mass lay-offs were prevented in the export-oriented industrial sectors, such as the automotive industry (Burda & Hunt, 2011). On the contrary, the service sector had an increase in employment even in the core crisis years of 2008/09. This led to an increase in the employment rate of women in part-time and especially atypical employment during this period (Kirchmann & Rosemann, 2010). Hence, the fact that crises measures are mostly targeted at male-dominated sectors of the economy did not become noticeable at that time.

During the COVID-19 pandemic, the German federal government has extended existing crisis measures and adopted several new subsidies to mitigate the negative consequences. It prolonged the short-time work benefits to up to 24 months or the end of 2021 and enacted a temporary increase to 70 percent (77 percent) of the net wage after four months and 80 percent (87 percent) after seven months of benefits (BMAS, 2020). A government aid package including direct payments for companies that had lost revenues was launched during the spring lockdown, and repeated several times afterwards (BMWI, 2021). Nevertheless, the economic aid package is still largely focused on male-dominated sectors of the economy. Wiesner (2020) presents the only study to date on the distribution of aid funds in Germany from a gender perspective. According to their calculations, the largest share of the package consists of direct government subsidies for affected companies in the private sector, while payments for the social and cultural sector, including care, health, education, and art/culture, are smaller. Even investments in sectors with a high female share of the workforce, such as public child care and health, focus on construction and infrastructure measures, and thus mainly benefit the largely male-dominated construction sector (Wiesner, 2020).

Furthermore, gender differences also exist in the eligibility and level of the short-time work benefit. Most importantly, jobs that are not subject to social security payments are exempted from short-time work. As a result, many female employees working in sectors heavily affected by the pandemic crisis, such as retail and hospitality, are excluded from receiving the short-time work earning's replacement and thus cannot bridge pandemic-related closures and restrictions. Furthermore, the short-time work benefit has to be applied for by the employer, which requires administrative effort that small firms in the service sector are might be less capable of to than large manufacturing companies. Therefore, one response to the pandemic has been to

temporarily suspend employees. These furloughed employees represent a highly heterogeneous group: for some, especially civil servants in the public sector, salary is continued, while others neither receive pay from their employer, nor any government earnings replacement to compensate for their loss of income (unlike Britain's temporary furlough scheme; Adams-Prassl, Boneva, et al., 2020). Those in precarious employment ineligible to short-time work benefits mostly compose the latter group (Grabka, Braband, & Göbler, 2020). Even for those eligible to short-time work benefits, gender differences exist. Sectors with collective agreement coverage grant an upscaling of the short-time work benefit of up to 90 percent of the previous wage. Women, however, mostly work in areas that are not subject to collective agreements (Hammerschmid, Schmieder, Wrohlich, 2020; Wiesner, 2020). In contrast, women are overrepresented in the social and care professions with 83.7 percent of employees being female, and in nursing professions with 81.8 percent, as well as in retail with 71.5 percent of employees (Bundesagentur für Arbeit, 2021). Therefore, they represent a large share of the so-called key workers during the pandemic (Koebe, Samtleben, Schrenker & Zucco, 2020). As such, they have to work close to patients or customers and do not have self-determination over their work location, which is potentially related to a higher risk of COVID-19 infection (Vlachos, Hertegård & Svaleryd, 2021; Möhring et al., 2021).

Hypotheses

Due to the gendered dualization of the labour market and the gender bias of economic aid policies in Germany, the following expectations for gender differences in employment risks are derived: First, as a consequence of the stronger impairment of female-dominated sectors in the current recession and the eligibility requirements of the short-time work benefit, *women's risk of short-time work will be lower than men's* (Hypothesis 1a), *and this will be mainly due to their higher share in the areas of the*

service sector mainly affected by the pandemic-related closures (Hypothesis 1b). In contrast, women's risk of being out of work will be higher than men's (Hypothesis 2a) due to their higher shares in low-wage employment (Hypothesis 2b). Furthermore, women will have a higher likelihood of working on-site (Hypothesis 3a) which will be explained by sectoral differences (Hypothesis 3b). As women's employment is more dependent on the introduction and relaxation containment measures, their risks of short-time work and being out of work will be more volatile over time (Hypothesis 4).

Materials and methods

Data and operationalisation

We use data from the GIP, which is based on a random probability sample of the general population of Germany aged 16 to 75. The panel started in 2012 and was supplemented with additional participants in 2014 and 2018. The panel participants were recruited offline using strict statistical procedures (Blom et al. 2015). Every other month, panel participants are invited to take part in a voluntary online survey. The GIP launched a special survey on 20 March 2020 to gather data about the COVID-19 pandemic. GIP respondents were invited to take surveys every week. We merge this weekly information for the early phase of the pandemic with further information from the survey months September 2020 and January 2021. In the descriptive analysis we use weights to extrapolate participants' characteristics to those of Germany's general population based on age, gender, marital status, highest level of education, household size, and federal state. In all analyses, we include only individuals who were employed in January 2020 and are below 68 years old. The sample size for the period March to July 2020 is N=1,849, and for January 2021 N=2,027. The case number of the regular GIP wave in January 2021 is higher than of the March to July 2020 survey because 1/8

of the GIP sample were not included in the special Corona survey to use it as control group for later survey methodological analyses (Blom et al., 2020).

With respect to the employment situation, we are interested in the risks of short-time work, being out of work, and working on-site. For the risks of short-time work we have direct information from the respondents on whether they are in short-time work and receive governmental short-time work benefits at each weekly interview. For being out of work, we summarise unemployment and being suspended without pay, as the latter is de-facto equal to being temporary unemployed. Working on-site is operationalized using information on the work location, and summarizing those who always or mainly work on-site, with those who work always, mainly, or half of the time from home as reference category. Also, for estimating the risks of working on-site, we exclude those in furlough, short-time, and unemployment, what reduces the sample to N=1,782.

The main explanatory variable is gender, coded as 1 for women with men as reference category. We include several control variables, including: educational degree, distinguishing between low (without further qualification), middle (vocational training degree), and high (higher education degree); occupational sector, in four categories (industry, service, public administration/education/health, other); and personal net income, in three categories (below 1,000 Euro, 1,000–2,500 Euro, above 2,500 Euro). These income categories refer to the 25 and 75 percent quartiles of the income distribution in the GIP- yet this is a rough estimate, as income was measured in 15 categories. All control variables are measured before the onset of the pandemic. Appendix Table A.1 provides an overview of all variables.

Methods

We apply logit random effects growth curve models in order to estimate the average

risk trajectories of entering the respective states short-term work or out of work between March 20th (week 1) and July 9th (week 16). Similar to fixed effects models, random effects growth curve models account for serial correlations and are suitable for unbalanced panels (Banerjee, 2009; Singer & Willett, 2003). However, the latter method provides parameters for both time-varying as well as time-constant variables, thereby enabling us to estimate group-specific growth curve trajectories for gender, occupational sector, educational attainment and income bracket.

$$DV_{it} = \alpha + \beta_1 week_{it} + \beta_2 week_{it}^2 + \beta_3 week_{it}^3 + \beta_4 week_{it}^4 + \delta group_{.i} + \vartheta_1 group_{.i} * week_{it} + \vartheta_2 group_{.i} * week_{it}^2 + \vartheta_3 group_{.i} * week_{it}^3 + \vartheta_4 group_{.i} * week_{it}^4 + \sum \tau_j controls_{ji} + \mu_i + \varepsilon_{it}$$

Here, DV denotes the dependent variable, which in the first set of models is the state ‘short-time work’ and in our second set of models the state ‘out of work.’ Subsequently, t represents weekly observations of an individual i . We include the first to fourth polynomial of $week$ in order to model change in the DV and account for the potential volatility across the observation window, which might emerge against the background of frequent fluctuations in COVID-19 prevalence or related government measures. Models further include an interaction between the weekly terms and the variable $group$, which is gender. Here, we pursue the following approach: In the first set of models, we estimate group-specific growth curves for gender. In order to disentangle potential gender-differences, we subsequently run growth curve models conditional on occupational sector, income bracket and educational attainment. Finally, $\mu_i + \varepsilon_{it}$ respectively represent the individual time-constant and time-varying error terms.

Results

Descriptive overview of gender differences in employment

Our analyses include only those individuals who have been in gainful employment in January 2020 to focus on if and how they are affected by the changes induced by the pandemic. Table 1 gives an overview of gender differences in the composition of this group. Among women employed in January 2020, 42.0 percent were working part-time and 7.0 percent were in marginal employment compared to 6.4 percent and 1.9 percent of men (excluding individuals in vocational training). In line with these differences in job type, 21.2 percent of working women had a personal net income below 1,000 Euro, while only 5.0 percent of working men. Gender differences in job sector were also large: 40.0 percent of working men were in the manufacturing sector, while only 15.4 percent of women. In contrast, 43.1 percent of women worked in public administration, education, and health, while only 20.4 percent of men. Shares in the service sector apart from public administration, education, and health were quite equal with 36.1 percent of men and 34.9 percent of women working in these fields. However, within the service sector, the distribution was gendered, for example, while 54.0 percent of employees in retail and commerce were female, only 27.1 in IT and communication. The highest female share in the private service sector is 84.5 percent in “other services” which mainly includes small-scale household-related services as cleaning.

<Table 1 here>

Between late March and early July 2020, 14.2 percent of women and 24.1 percent of men experienced short-time work for at least one week. 7.6 percent of women and 8.7 percent of men were either unemployed or furloughed without pay for at least one week. For women, the mean duration of both of these states combined was

slightly longer with 7.4 weeks compared to 6.4 weeks for men. Figure 1 illustrates how the weekly employment situation of those who were in gainful employment in January 2020 changed over the course of the lockdown separated by gender and for selected time-points. In the week of 20 to 26 March 2020, 4.1 percent of female employees reported that they were receiving the government short-time work allowance; this number climbed to over 10.8 percent in early May 2020. Men started from a slightly lower level of short-time work in late March of 3.5 percent, yet their share increased more steeply to 15.7 percent in early May 2020. Also, men's share in short-time work was almost twice as high as women's in early July 2020 after the first wave of the pandemic when the restrictions were eased with 8.2 percent compared to 4.5 percent. This continued in September 2020 and January 2021 when men's shares in short-time work were at 7.6 percent and 6.9 percent respectively, while only 3.7 and 4.6 percent of female employees were in short-time work. Women's shares of unemployment and unpaid furlough were almost always slightly higher than men's: 6.9 percent of female employees compared to 5.5 percent of male employees were out of work immediately in late March 2020. 3.8 percent of women and 3.2 of men were out of work in early May 2020, and 1.5 percent of women and 1.0 percent of men in January 2021.

<Figure 1 here>

Comparing genders in terms of the work location shows that women had higher shares working on-site over the whole period from late March 2020 to January 2021. In late March 2020, 26.0 percent of women and 31.4 percent of men were working from home. For both genders, the share of homeworking declined until autumn 2020 to 12.5 percent of women and 17.4 percent of men working from home in September 2020. In January 2021, during the peak of the second pandemic wave, 21.6 percent of women compared to 24.3 percent of men were working from home.

Gender differences in employment risks during the early phase of the pandemic

We use three sets of Logistic Random Effects Panel Models to assess the probability of (1) short-time work, (2) being out of work, and (3) working on-site, for the period of 20 March to 9 July covering the first COVID-19 wave in Germany. The regression results are depicted in Tables 2-4, and Figures 2 and 3. The Figures report the predicted probabilities of short-time work and being out of work for each of the 16 weeks covered in the survey and separated by gender. For their estimation, interactions of the variables for time with gender were integrated in the growth curve models (full regression tables are included in Appendix Tables A.4 and A.5).

<Tables 2 and 3 here>

During the first COVID-19 lockdown, women had significantly reduced odds of short-time work by 54.0 percent compared to men (Table 2, Model 1). This gap even increases to 61.2 percent when we control for educational status and income group in Model 2. When controlling for sector of employment, however, the gender difference in the odds of short-time work is reduced to 16.2 percent and becomes insignificant (Table 2, Model 5). Compared to manufacturing, employees in the service sector had 59.4 percent reduced odds of short-time work, and employees in the public, education and health sectors by even 97.4 percent (Table 2, Model 5). With respect to income groups, the results show that the highest likelihood of short-time work existed for those receiving a medium income, they have 10.3 percent higher odds than those with lower incomes, while those with higher incomes have 29.1 percent lower odds than those with lower incomes (Table 2, Model 5). Yet, these differences between income groups are not significant. To sum up, women's lower likelihood of short-time work in the early phase of the pandemic can be explained, first and foremost, by their higher shares in the service sector. Besides, the fact that more women work in low-income jobs explains

their lower likelihood of short-time work. Figure 2 shows the marginal effects for the probability of short-time work over the 16 weeks covered in the survey without (Panel A) and with control variables (Panel B). Men and women started with the same probability of short-time work in late March 2020. Men's probability increased to a higher level than women's in mid-April and afterwards remained on a higher level, while women's probability of short-time work reduced back to its initial level in early July 2020 (Figure 2, Panel A). When controlling for sector of employment and earnings level, the difference in men's and women's probability of short-time work is insignificant for almost the whole time-span. Only from late June onwards is women's probability significantly lower than men's (Figure 2, Panel B).

<Figure 2 here>

In contrast to short-time work, women had 75.9 percent higher odds of being out of work compared to men during the early phase of the pandemic (Table 3, Model 1). This difference, however, is only significant on a 10%-point level. When controlling for income group, the gender difference reverses, and becomes insignificant, and when controlling additionally for sector, women had 47.3 percent reduced odds of being out of work compared to men, again significant on a 10%-point level (Table 3, Model 5). For income group and sector, the results for out of work and short-time work differ. The odds of being out of work are significantly reduced the higher the personal income, with high income earners having 98.5 percent lower odds than those with low income (Table 3, Model 5). Service sector employees have about 9 times higher odds to be out of work than those in manufacturing (Table 3, Model 5). Therefore, women's higher risk of job loss and being suspended without continued pay during the early phase of the pandemic resulted from their overrepresentation in low-income jobs and the service sector. Figure 3 shows marginal effects for the probability of being out of work over the whole time-

span. Women's probability of being out of work was higher than men's in late March 2020, but steadily declined over the observation window until men's probability of being out of work surpassed women's in early July (Figure 3, Panel A). When controlling for sector of employment and earnings level, the difference in men's and women's probability of being out of work is still mostly insignificant with men having a slightly higher probability, especially towards the end of the observation window from late June onwards (Figure 3, Panel B).

<Figure 3 here>

Again, we use Logistic Random Effects Panel Models to assess the probability of working on-site compared to working from home for the period of 20 March to 9 July. The regression results are depicted in Table 4. Women had 71.5 percent higher odds of working on-site than men (Table 4, Model 1). After controlling for earnings-level, the gender difference becomes insignificant and is reversed with women having 46.9 percent lower odds of working on-site (Table 4, Model 3), and is further reduced to 43.7 percent lower odds of working on-site after additionally controlling for sector of employment (Table 4, Model 5). Consequently, as in the case of being out of work, women's lower probability of working from home was primarily explained by their higher shares in low-income jobs compared to men.

<Table 4 here>

Gender differences in employment risks in the second wave of the pandemic

We next turn to the employment situation in January 2021 during the second wave of the COVID-19 pandemic. We use two sets of Logistic Models to assess the probability of (1) short-time work; and (2) being out of work. However, as we do not have weekly information for this survey wave, these are cross-sectional regressions. The results are

depicted in Appendix Tables A.2 and A.3. The determinants of gender differences in the odds of short-time work have changed compared to the first wave of the pandemic.

First, the gender difference was smaller with women having 27.0 percent lower odds than men, and this difference is only significant on a 10%-point level (Table A.3, Model 1). When controlling for educational status and income group, the gender gap becomes larger (women having 46.2 percent lower odds) and highly significant (Table A.3, Model 3). This is however partly reversed after additionally controlling for sector (Table A.3, Model 5). In January 2021, those with low incomes had the highest odds of short-time work, while the difference between the service sector and manufacturing had become insignificant (Table A.3, Model 5). The latter is also the reason why gender differences appeared to be smaller in early 2021 than in spring and summer 2020. For the risk of being out of work, we find no significant gender differences in January 2021. Still, low-income workers had the highest odds of being out of work (Table A.4, Model 2); however, the differences between the service sector and manufacturing were not significant (Table A.4, Model 5).

Discussion

Overall, the results for the early phase of the pandemic March to July 2020 provide support for Hypotheses 1a and 2a as women had a lower likelihood of short-time work and a higher chance of being out of work during the first lockdown. Gender differences in the short-time work probability were explained by the higher share of female employees in the service sector in particular, and differences in the out of work risk primarily by the higher share of women in low-wage employment. These results support Hypotheses 1b and 2b. Furthermore, as expected in Hypothesis 3a, women had a higher probability of working on-site than men. Yet, this was mainly explained by their higher shares in low-income jobs, rather than by gender differences in the sectoral composition

of the workforce, which confutes our expectation formulated in Hypothesis 3b on sectoral differences. Gender differences in the risks of short-time work and being out of work are less pronounced in the second wave of the pandemic according to our results for January 2021. Hypotheses 1-3 are not contradicted by the results for January 2021, but the patterns of gender inequality are less intense than during the early wave of the pandemic. With respect to changes over time, the results are in line with Hypothesis 4 showing that women's employment trajectories are more volatile, as they more quickly left short-time work or re-entered employment after being temporarily out of work in the first phase of the pandemic.

Summary and conclusion

We investigated gender differences in the risks of short-time work, job-loss and unpaid furlough, and having to work on-site during the first and the second wave of the COVID-19 pandemic in Germany. We found women had a lower probability of short-time work and a higher probability of job-loss and unpaid furlough than men during the early phase of the pandemic. Differences in short-time work are due to the unequal take-up in the service sector and manufacturing: female employees are overrepresented in the former, while short-time work has been used more in the latter during the first COVID-19 wave. Also, short-time work has been used less in the lowest income group than among employees with a medium income, and women are overrepresented among low-earners. The risk of job-loss and unpaid furlough has been higher for women especially due to their overrepresentation in the low-income sector. Furthermore, women had a higher probability than men of working on-site during the early phase of the pandemic, and this mainly affects female employees in the low-income sector. The gender differences in employment risks have reduced, yet not reversed, in the second wave of the pandemic. Reasons for that are that the differences between the service sector and

manufacturing in the take-up of short-time work have become smaller. In addition, the use of unpaid furlough as well as the share of unemployment have been very low in January 2021.

Is the pandemic recession a ‘Shecession’? Overall, our results point to gender inequality in the employment risks associated with the pandemic recession that differ from previous recessions, yet this inequality does not manifest in widespread job-loss as in the USA. Rather, it is the case in Germany that men and women are much more equally affected by negative employment consequences during the pandemic recession than they have been in previous recessions. Especially during the early phase of the pandemic, inequality emerged from the long-term gender-based dualization of the German labour market. Women had less access to the more protected status of short-time work which is associated with governmental earnings-related benefits. Instead, they had a higher risk of being out of work. However, both statuses were more short-term for women: they entered and left them more quickly than men, making them more dependent on the ups and downs of the pandemic and the containment measures, and thus, more vulnerable. In addition, women had a higher probability to continue working on-site instead of changing to working from home than men, which is due to their overrepresentation among key-workers in the low-income sector. Overall, these results contribute to the notion that women’s employment during the pandemic is, first, more polarized between job loss and unpaid furlough for some, and necessity to work on-site with the associated infection risk for others, and second, more volatile than during previous recessions.

Our results point to a mismatch of the usual governmental crisis measures for the requirements of the pandemic recession. Also, companies might have differed in their efforts to apply for short-time work benefits: smaller firms do not have the same

administrative possibilities as larger companies, and therefore might have faced more difficulty applying for the scheme. This is also a question of timing: while the service sector was immediately hit by the containment measures, the export-oriented manufacturing sector had more time to prepare for the temporary decline in orders. Over the course of the pandemic, there might have been learning processes that could explain the reduced gender differences during the second wave according to our results. Still, our results call for a close monitoring of the further gendered effects of the pandemic recession and an adjustment of the usual governmental crisis measures to meet the requirements of the female workforce.

While our study is the first to use detailed longitudinal data covering the early phase as well as the second wave of the COVID-19 pandemic, we were not able to apply a more differentiated categorization of employment sectors due to low case numbers. Furthermore, the advantage of weekly surveys only exists for the time-span of the first phase of the pandemic, March to July 2020. Afterwards, the GIP changed to the usual mode of bi-monthly surveys, and did not include employment status in each wave. With this study, we focused on gender inequality in employment risks, and covered neither changes in working hours nor consequences of employment risks for income and feelings of insecurity. Here, further research is necessary.

Acknowledgements: We thank Saskia Exner and David Plessy for their support. We are grateful to the Collaborative Research Center SFB 884 “Political Economy of Reforms” for financial and general support (Deutsche Forschungsgemeinschaft, grant number: 139943784). The Mannheim Corona Study was partly funded by the Network for Interdisciplinary Social Policy Research, German Federal Ministry of Labour and Social Affairs (grant number: FIS.00.00185.20).

References

- Adams-Prassl, A., Boneva, T., Golin, M., & Rauh, C. (2020). Furloughing*. *Fiscal Studies*, 41(3), 591–622. <https://doi.org/10.1111/1475-5890.12242>
- Alon, T., Doepke, M., Olmstead-Rumsey, J., & Tertilt, M. (2020a). The impact of Covid-19 on gender equality. *Covid Economics*, 4, 14 April 2020: 62-85.
- Alon, T., Doepke, M., Olmstead-Rumsey, J., & Tertilt, M. (2020b, September 22). The shecession (she-recession) of 2020: Causes and consequences. Retrieved from <https://voxeu.org/article/shecession-she-recession-2020-causes-and-consequences>
- Bach, S., Haan, P., & Ochmann, R. (2013). Taxation of married couples in Germany and the UK: One-earner couples make the difference. *International Journal of Microsimulation*, 6(3), 3–24. DOI: 10.34196/IJM.00086
- Banerjee, R. (2009). Income growth of new immigrants in Canada: Evidence from the Survey of Labour and Income Dynamics. *Relations Industrielles / Industrial Relations*, 64(3), 466–488. <https://doi.org/10.7202/038552ar>
- Bergmann, N., Scheele, A., & Sorger, C. (2019). Variations of the same? A sectoral analysis of the gender pay gap in Germany and Austria. *Gender, Work & Organization*, 26(5), 668–687. <https://doi.org/10.1111/gwao.12299>
- Blom, A. G., Gathmann, C., & Krieger, U. (2015). Setting up an online panel representative of the general population: The German Internet Panel. *Field Methods*, 27(4), 391–408. <https://doi.org/10.1177/1525822X15574494>
- Blom, A. G., Cornesse, C., Friedel, S., Krieger, U., Fikel, M., Rettig, T., ... Reifenscheid, M. (2020). High frequency and high quality survey data collection. *Survey Research Methods*, 14(2), 171–178. <https://doi.org/10.18148/srm/2020.v14i2.7735>

- Blundell, R., Dias, M. C., Joyce, R., & Xu, X. (2020). COVID-19 and Inequalities*. *Fiscal Studies*, 41(2), 291–319. <https://doi.org/10.1111/1475-5890.12232>
- Bosch, G., & Weinkopf, C. (Eds.). (2008). *Low-wage work in Germany*. New York: Russell Sage Foundation. DOI: 10.1111/j.1467-8543.2009.00745_3.x
- Brülle, J., Gangl, M., Levanon, A., & Saburov, E. (2019). Changing labour market risks in the service economy: Low wages, part-time employment and the trend in working poverty risks in Germany. *Journal of European Social Policy*, 29(1), 115–129. <https://doi.org/10.1177/0958928718779482>
- Bundesagentur für Arbeit. (2021 January 7). Anteil von Frauen und Männern in verschiedenen Berufsgruppen in Deutschland am 30. Juni 2020 (sozialversicherungspflichtig und geringfügig Beschäftigte) [Graph]. In Statista. Retrieved from <https://de.statista.com/statistik/daten/studie/167555/umfrage/frauenanteil-in-verschiedenen-berufsgruppen-in-deutschland/>
- Bundesministerium für Arbeit und Soziales (BMAS). (2020 November 20). Erfolgsmodell Kurzarbeit wird verlängert. Retrieved from <https://www.bmas.de/DE/Presse/Pressemitteilungen/2020/erfolgsmodell-kurzarbeit-wird-verlaengert.html>
- Bundesministerium für Wirtschaft und Energie (BMWi) (2021). Corona-Hilfen für Unternehmen. Retrieved from <https://www.bmwi.de/Redaktion/DE/Infografiken/Wirtschaft/corona-hilfen-fuer-unternehmen.html>
- Burda, M. C., & Hunt, J. (2011). What explains the German labor market miracle in the Great Recession? *NBER Working Paper Series*, Working Paper Nr. 17187.

- National Bureau of Economic Research, Cambridge.
<https://doi.org/10.3386/w17187>
- Collins, C., Landivar, L. C., Ruppanner, L., & Scarborough, W. J. (2020). COVID-19 and the gender gap in work hours. *Gender, Work & Organization*, 28, 101 – 112.
<https://doi.org/10.1111/gwao.12506>
- Doepke, M., & Tertilt, M. (2016). Families in Macroeconomics. In J. B. Taylor, & H. Uhlig. (Eds.), *Handbook of Macroeconomics* (pp. 1798 – 1891). Saint Louis: Elsevier Science & Technology. <https://doi.org/10.1016/bs.hesmac.2016.04.006>
- Eichhorst, W., & Marx, P. (2011). Reforming German labour market institutions: A dual path to flexibility. *Journal of European Social Policy*. 21(1) 73-87.
<https://doi.org/10.1177/0958928710385731>
- Emmenegger, P., Häusermann, S., Palier, B., & Seeleib-Kaiser, M. (Eds.). (2012). *The age of dualization: The changing face of inequality in deindustrializing societies*. Oxford and New York: Oxford University Press.
<https://doi.org/10.1093/acprof:oso/9780199797899.001.0001>
- Esping-Andersen, G. (1990). *The three worlds of welfare capitalism*. Princeton, N.J: Princeton University Press.
- Eurostat (2020a) Employment by sex, age and economic activity (from 2008 onwards, NACE Rev. 2) [LFSQ_EGAN2] Retrieved from
https://ec.europa.eu/eurostat/databrowser/view/lfsq_egan2/default/table?lang=en
- Eurostat (2020b) Low-wage earners as a proportion of all employees (excluding apprentices) by sex [earn_ses_pub1s]. Retrieved from
https://ec.europa.eu/eurostat/databrowser/view/earn_ses_pub1s/default/table?lang=en

- Gangl, M. (2004). Welfare states and the scar effects of unemployment: A comparative analysis of the United States and West Germany. *American Journal of Sociology*, 109(6), 1319–1364. <https://doi.org/10.1086/381902>
- Gangl, M., & Ziefle, A. (2015). The making of a good woman: Extended parental leave entitlements and mothers' work commitment in Germany. *American Journal of Sociology*, 121(2), 511–563. <https://doi.org/10.1086/682419>
- Grabka, M. M., Braband, C., & Göbler, K. (2020). Beschäftigte in Minijobs sind VerliererInnen der coronabedingten Rezession. *DIW Wochenbericht*, 45/2020, 841 – 847. Deutsches Institut für Wirtschaftsforschung (DIW), Berlin. https://doi.org/10.18723/diw_wb:2020-45-1
- Hall, P. A., & Soskice, D. (2001). *Varieties of capitalism: The institutional foundations of comparative advantage*. Oxford: Oxford University Press.
- Hammerschmid, A., Schmieder, J., & Wrohlich, K. (2020) Frauen in Corona-Krise stärker am Arbeitsmarkt betroffen als Männer. *DIW aktuell*, No. 42, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin. Retrieved from <http://hdl.handle.net/10419/222873>
- Hank, K., & Steinbach, A. (2020). The virus changed everything, didn't it? Couples' division of housework and childcare before and during the Corona crisis. *Journal of Family Research*, 33(1), 99 – 114. DOI:10.20377/jfr-488
- Hassel, A. (2014). The paradox of liberalization—Understanding dualism and the recovery of the German political economy. *British Journal of Industrial Relations*, 52(1), 57–81. <https://doi.org/10.1111/j.1467-8543.2012.00913.x>
- Häusermann, S., & Schwander, H. (2012). Varieties of dualization: Identifying insiders and outsiders across regimes. In P. Emmenegger, S. Häusermann, B. Palier, & M. Seeleib-Kaiser (Eds.). *The age of dualization. The changing face of*

- inequality in deindustrializing societies*. Oxford and New York: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199797899.001.0001>
- Hipp, L., & Bünning, M. (2020). Parenthood as a driver of increased gender inequality during COVID-19? Exploratory evidence from Germany. *European Societies*, 23(1), S658 – S673. <https://doi.org/10.1080/14616696.2020.1833229>
- Kirchmann, A., & Rosemann, M. (2010). Wer sind die Betroffenen der Krise? Parallelen und Unterschiede zur vorangegangenen Krise. *WSI-Mitteilungen*, 63(11), 560–568. <https://doi.org/10.5771/0342-300X-2010-11-560>
- Koebe, J., Samtleben, C., Schrenker, A., & Zucco, A. (2020). Systemrelevant, aber dennoch kaum anerkannt: Entlohnung unverzichtbarer Berufe in der Corona-Krise unterdurchschnittlich. *DIW aktuell*, Nr. 48. Deutsches Institut für Wirtschaftsforschung (DIW), Berlin. Retrieved from https://www.diw.de/de/diw_01.c.792754.de/publikationen/diw_aktuell/2020_0048/systemrelevant__aber_dennoch_kaum_anerkannt__entlohnung_unverzichtbarer_berufe_in_der_corona-krise_unterdurchschnittlich.html
- Konle-Seidl, R. (2020). Kurzarbeit in Europa: Die Rettung in der aktuellen Corona-Krise? *IAB-Forschungsbericht*, 4/2020, Institut für Arbeitsmarkt- und Berufsforschung (IAB), Nürnberg. Retrieved from <https://www.econstor.eu/bitstream/10419/221787/1/1700122452.pdf>
- Lersch, P. M., Schulz, W., & Leckie, G. (2020). The variability of occupational attainment: How prestige trajectories diversified within birth cohorts over the twentieth century. *American Sociological Review*, 85(6), 1084–1116. <https://doi.org/10.1177/0003122420966324>

- Möhring, K. (2016). Life course regimes in Europe: Individual employment histories in comparative and historical perspective. *Journal of European Social Policy*, 26(2), 124–139. <https://doi.org/10.1177/0958928716633046>
- Moehring, K., Weiland, A., Reifenscheid, M., Naumann, E., Wenz, A., Rettig, T., ... Blom, A. G. (2021, January 19). Inequality in employment trajectories and their socio-economic consequences during the early phase of the COVID-19 pandemic in Germany. <https://doi.org/10.31235/osf.io/m95df>
- Möhring, K., Naumann, E., Reifenscheid, M., Wenz, A., Rettig, T., Krieger, U., ... Blom, A. (2020). The COVID-19 Pandemic and subjective well-being: Longitudinal evidence on satisfaction with work and family. *European Societies*, 23(S1), S601 – S617. <https://doi.org/10.1080/14616696.2020.1833066>
- OECD (2021). Unemployment rate (indicator). doi: 10.1787/52570002-en
- Rinne, U., & Zimmermann, K. F. (2012). Another economic miracle? The German labor market and the Great Recession. *IZA Journal of Labor Policy*, 1(1), 3. <https://doi.org/10.1186/2193-9004-1-3>
- Schäfer, A., & Gottschall, K. (2015). From wage regulation to wage gap: How wage-setting institutions and structures shape the gender wage gap across three industries in 24 European countries and Germany. *Cambridge Journal of Economics*, 39(2), 467–496. <https://doi.org/10.1093/cje/bev005>
- Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. Oxford: Oxford University Press. Retrieved from <http://www.loc.gov/catdir/enhancements/fy0612/2002007055-d.html>
- Struffolino, E., Studer, M., & Fasang, A. E. (2016). Gender, education, and family life courses in East and West Germany: Insights from new sequence analysis

- techniques. *Advances in Life Course Research*, 29, 66–79.
<https://doi.org/10.1016/j.alcr.2015.12.001>
- Trappe, H., Pollmann-Schult, M., & Schmitt, C. (2015). The rise and decline of the male breadwinner model: Institutional underpinnings and future expectations. *European Sociological Review*, 31(2), 230–242.
<https://doi.org/10.1093/esr/jcv015>
- Vlachos, J., Hertegård, E., & Svaleryd, H. B. (2021). The effects of school closures on SARS-CoV-2 among parents and teachers. Proceedings of the National Academy of Sciences, 118(9). <https://doi.org/10.1073/pnas.2020834118>
- Wachter, T. von. (2020). Lost generations: Long-term effects of the COVID-19 crisis on job losers and labour market entrants, and options for policy*. *Fiscal Studies*, 41(3), 549–590. <https://doi.org/10.1111/1475-5890.12247>
- Wiesner, D. C. (2020). Das Konjunkturpaket der Bundesregierung und seine Auswirkungen auf Frauen und Männer. i3 - *Kasseler Diskussionspapiere – Ideen, Interessen und Institutionen im Wandel*, Nr. 9, 12/2020. Retrieved from https://www.uni-kassel.de/fb05/fileadmin/datas/fb05/i3DiskussionsPapiere_9-2020_Wiesner_031220_02.pdf
- Yerkes, M. A., André, S., Beckers, D. G. J., Besamusca, J., Kruijnen, P. M., Remery, C., ... Geurts, S. (2020). Intelligent lockdown, intelligent effects? The impact of the Dutch COVID-19 ‘intelligent lockdown’ on gendered work and family dynamics among parents [Preprint]. SocArXiv.
<https://doi.org/10.31235/osf.io/uq2pf>

Tables

Table 1: Gender differences employment (weighted)

Employed in January 2020	men	women	Total
Full-time	91.71	50.97	72.52
Part-time	6.42	42.04	23.2
Marginally/occasionally employed	1.87	6.99	4.28
Personal net income	men	women	Total
<1.000 Euro	5.02	21.23	12.55
1.000 - 2.500 Euro	47.26	60.2	53.27
>2.500 Euro	47.72	18.57	34.18
short-time work, out of work	men	women	Total
ever short-time work	24.12	14.22	19.41
ever out of work	8.7	7.59	8.17
Sector of employment	men	women	Total
manufacturing	39.96	15.42	28.3
service	36.13	34.89	35.54
public administration, education, and health	20.36	43.09	31.16
other	3.55	6.6	5
Gender composition of service sector fields	men	women	Total
Wholesale and Retail Trade	45.98	54.02	100
Transportation and Storage	67.29	32.71	100
Accommodation and Food Service	40.9	59.1	100
Information and Communication	72.89	27.11	100
Financial and Insurance Activities	46.68	53.32	100
Real Estate	33.12	66.88	100
Professional, Scientific and Technical Activities	55.31	44.69	100
Other Service Activities	15.53	84.47	100
Arts, Entertainment and Recreation	50.61	49.39	100

Source: German Internet Panel, own estimations.

Note: All numbers referring to individuals in gainful employment in January 2020

Table 2: Logit Random Effects Regressions for the risk of short-time work between March and July 2020. Odds Ratios displayed

	(1)	(2)	(3)	(4)	(5)
Women	0.460** (-3.05)	0.453** (-3.15)	0.388*** (-3.46)	0.956 (-0.17)	0.838 (-0.63)
Age	0.991 (-0.78)	0.986 (-1.28)	0.989 (-0.99)	0.993 (-0.65)	0.995 (-0.42)
Education: medium (Ref. low)		0.878 (-0.18)	0.911 (-0.13)	1.039 (0.05)	1.058 (0.08)
high		0.306 (-1.57)	0.364 (-1.33)	0.570 (-0.76)	0.647 (-0.58)
Income: 1000-2500 Euro (Ref. <1000 Euro)			1.027 (0.06)		1.103 (0.22)
>2500 Euro			0.634 (-0.93)		0.709 (-0.70)
Sector: service (Ref. manufacturing)				0.416** (-2.92)	0.406** (-3.00)
public/education/health				0.0265*** (-9.06)	0.0262*** (-9.06)
other				0.505+ (-1.76)	0.486+ (-1.85)
Insig2u	41.00*** (64.64)	37.07*** (62.21)	36.38*** (61.76)	30.66*** (57.86)	30.20*** (57.47)
n	24493	24493	24493	24493	24493
N	1849	1849	1849	1849	1849

Notes: Controlling for survey week (polynomials 1-4); exponentiated coefficients; z statistics in parentheses; + $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

Source: German Internet Panel, own estimations.

Table 3: Logit Random Effects Regressions for the risk of out of work between March and July 2020. Odds Ratios displayed

	(1)	(2)	(3)	(4)	(5)
Women	1.759 ⁺ (1.68)	1.702 (1.50)	0.555 (-1.51)	1.539 (1.37)	0.527 ⁺ (-1.79)
Age	1.058 ^{**} (2.68)	1.058 [*] (2.15)	1.077 ^{***} (4.31)	1.045 ^{**} (3.04)	1.074 ^{***} (4.91)
Education: medium (Ref. low)		0.173 [*] (-2.43)	0.209 (-1.58)	0.182 [*] (-2.42)	0.229 [*] (-1.99)
high		0.103 ^{**} (-2.71)	0.253 (-1.34)	0.0945 ^{**} (-3.21)	0.258 ⁺ (-1.74)
Income: 1000-2500 Euro (Ref. <1000 Euro)			0.00685 ^{***} (-8.65)		0.0705 ^{***} (-6.05)
>2500 Euro			0.000854 ^{***} (-10.57)		0.0150 ^{***} (-7.75)
Sector: service (Ref. manufacturing)				7.536 ^{***} (4.02)	9.261 ^{***} (4.52)
public/education/health				2.389 (1.60)	3.152 [*] (2.12)
other				7.167 ^{***} (3.38)	6.493 ^{**} (3.17)
Insig2u	20.00 ^{***} (38.74)	20.62 ^{***} (32.32)	41.03 ^{***} (57.31)	23.30 ^{***} (50.10)	24.99 ^{***} (51.10)
n	24493	24493	24493	24493	24493
N	1849	1849	1849	1849	1849

Notes: Controlling for survey week (polynomials 1-4); exponentiated coefficients; z statistics in parentheses; ⁺ $p < .1$, ^{*} $p < .05$, ^{**} $p < .01$, ^{***} $p < .001$

Source: German Internet Panel, own estimations.

Table 4: Logit Random Effects Regressions for the risk of working on-site between March and July 2020. Odds Ratios displayed

	(1)	(2)	(3)	(4)	(5)
Gender: female	2.505** (3.10)	2.021* (2.15)	0.884 (-0.33)	1.995+ (1.80)	0.777 (-0.64)
Age	1.096** (6.86)	1.064** (4.30)	1.087*** (5.17)	1.069*** (4.32)	1.089*** (5.48)
Education: medium (ref. low)		0.494 (-0.80)	0.597 (-0.53)	0.312 (-1.27)	0.366 (-1.03)
high		0.0000408*** (-10.44)	0.0000859*** (-8.49)	0.0000190*** (-10.70)	0.0000753*** (-8.97)
Income: 1000-2500 Euro (Ref. <1000 Euro)			0.375+ (-1.66)		0.339+ (-1.80)
>2500 Euro			0.0355*** (-4.87)		0.0261*** (-5.37)
Sector: service (Ref. manufacturing)				0.0631*** (-5.27)	0.0511*** (-5.86)
public/education/health				0.774 (-0.49)	0.798 (-0.45)
other				0.366+ (-1.69)	0.285* (-2.14)
Insig2u	82.53*** (61.73)	62.17*** (58.95)	62.93*** (58.50)	62.66*** (58.43)	58.06*** (57.52)
n	20731	20731	20731	20731	20731
N	1782	1782	1782	1782	1782

Notes: Controlling for survey week (polynomials 1-4); exponentiated coefficients; z statistics in parentheses; + $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

Source: German Internet Panel, own estimations.

Figures

Figure 1. Weighted shares of employment statuses of men and women for selected time-points between March 2020 and January 2021

Source: German Internet Panel, own estimations.

Figure 2. Probabilities of short-time work of men and women between March and July 2020; Panel A: not controlling for sector; Panel B: controlling for sector

Notes: Adjusted predictions with 95% confidence intervals. Full regression results in Appendix Table A.5. Source: German Internet Panel, own estimations.

..

Figure 3. Probabilities of out of work of men and women of men and women between March and July 2020; Panel A: not controlling for sector; Panel B: controlling for sector

Notes: Adjusted predictions with 95% confidence intervals. Full regression results in Appendix Table A.6. Source: German Internet Panel, own estimations.

Appendix

Table A.1: Summary statistics for all variables (unweighted)

Variable	Women				Men			
	Mean	Stand. Dev.	Min	Max	Mean	Stand. Dev.	Min	Max
Employment status								
Short-time work	0.08	0.27	0	1	0.09	0.29	0	1
Out of work	0.04	0.19	0	1	0.03	0.16	0	1
Work on-site	0.66	0.47	0	1	0.60	0.49	0	1
Women	1	0	1	1	1	0	1	1
Age	46.05	11.34	19	66	46.92	10.94	20	67
Education								
low	0.03	0.17	0	1	0.03	0.16	0	1
medium	0.62	0.49	0	1	0.60	0.49	0	1
high	0.35	0.48	0	1	0.38	0.48	0	1
Personal net income								
< 1.000 Euro	0.17	0.38	0	1	0.03	0.17	0	1
1.000-2.500 Euro	0.59	0.49	0	1	0.39	0.49	0	1
> 2.500 Euro	0.24	0.42	0	1	0.58	0.49	0	1
Sector								
Manufacturing	0.12	0.32	0	1	0.32	0.47	0	1
Service	0.30	0.46	0	1	0.36	0.48	0	1
Public administration / education / health	0.44	0.50	0	1	0.21	0.41	0	1
Other	0.14	0.35	0	1	0.12	0.32	0	1

Source: German Internet Panel, own estimations.

Table A.2: Logit Regressions for the risk of short-time work in January 2020. Odds Ratios displayed

	(1)	(2)	(3)	(4)	(5)
Women	0.730 ⁺ (-1.65)	0.722 ⁺ (-1.70)	0.538** (-3.00)	0.911 (-0.47)	0.693 ⁺ (-1.70)
Age	0.993 (-0.84)	0.991 (-1.12)	0.997 (-0.42)	0.992 (-1.02)	0.996 (-0.43)
Education: medium (Ref. low)		0.428* (-2.12)	0.478 ⁺ (-1.81)	0.534 (-1.56)	0.561 (-1.42)
high		0.266** (-3.13)	0.371* (-2.27)	0.384* (-2.23)	0.489 (-1.64)
Income: 1000-2500 Euro (Ref. <1000 Euro)			0.506* (-2.37)		0.546* (-2.09)
>2500 Euro			0.268*** (-3.96)		0.306*** (-3.53)
Sector: service (Ref. manufacturing)				1.333 (1.24)	1.287 (1.08)
public/education/health				0.218*** (-3.88)	0.222*** (-3.82)
other				1.506 (1.41)	1.416 (1.19)
N	2027	2027	2027	2027	2027

Notes: Exponentiated coefficients; z statistics in parentheses; ⁺ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

Source: German Internet Panel, own estimations.

Table A.3: Logit Regressions for the risk of out of work in January 2020. Odds Ratios displayed

	(1)	(2)	(3)	(4)	(5)
Women	1.656 (1.26)	1.627 (1.21)	1.179 (0.37)	1.907 (1.55)	1.422 (0.77)
Age	1.025 (1.32)	1.024 (1.26)	1.028 (1.51)	1.025 (1.32)	1.029 (1.56)
Education: medium (Ref. low)		0.211* (-2.38)	0.246* (-2.11)	0.243* (-2.14)	0.261* (-2.02)
high		0.238* (-2.09)	0.330 (-1.55)	0.300 ⁺ (-1.72)	0.382 (-1.34)
Income: 1000-2500 Euro (Ref. <1000 Euro)			0.198** (-3.18)		0.199** (-3.16)
>2500 Euro			0.199** (-2.81)		0.209** (-2.70)
Sector: service (Ref. manufacturing)				1.068 (0.13)	0.943 (-0.11)
public/education/health				0.465 (-1.20)	0.438 (-1.29)
other				1.041 (0.06)	0.868 (-0.21)
N	2027	2027	2027	2027	2027

Notes: Exponentiated coefficients; z statistics in parentheses; ⁺ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

Source: German Internet Panel, own estimations.

Table A.3: Logit Random Effects Regressions for the risk of short-time work between March and July 2020. Odds Ratios displayed

	(1)	(2)
Week	24.29*** (9.28)	24.26*** (9.29)
Week ²	0.582*** (-7.33)	0.582*** (-7.34)
Week ³	1.037*** (5.83)	1.037*** (5.83)
Week ⁴	0.999*** (-4.77)	0.999*** (-4.77)
Women	0.729 (-0.38)	1.196 (0.21)
Women *Week	1.413 (0.66)	1.414 (0.66)
Women *Week ²	0.874 (-1.17)	0.874 (-1.17)
Women *Week ³	1.014 (1.42)	1.014 (1.42)
Women *Week ⁴	1.000 (-1.59)	1.000 (-1.59)
Age		0.996 (-0.39)
Education: medium (ref. low)		1.064 (0.09)
high		0.658 (-0.56)
Income 1000-2500 Euro (Ref. <1000 Euro)		1.100 (0.22)
>2500 Euro		0.713 (-0.68)
Sector: service (Ref. manufacturing)		0.408** (-2.95)
public/education		0.0298*** (-8.49)
other		0.489+ (-1.81)
Insig2u	33.47*** (59.77)	31.25*** (58.01)
n	24493	24493
N	1849	1849

Notes: t statistics in parentheses; + $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Source: German Internet Panel, own estimations

Table A.4: Logit Random Effects Regressions for the risk of out of work between March and July 2020. Odds Ratios displayed

	(1)	(2)
Week	2.080 (1.45)	2.130 (1.47)
Week ²	0.876 (-1.11)	0.872 (-1.14)
Week ³	1.005 (0.47)	1.005 (0.49)
Week ⁴	1.000 (0.06)	1.000 (0.05)
Women	8.063* (2.23)	3.028 (1.14)
Women *Week	0.352 (-1.49)	0.339 (-1.52)
Women *Week ²	1.206 (1.13)	1.213 (1.15)
Women *Week ³	0.988 (-0.79)	0.988 (-0.80)
Women *Week ⁴	1.000 (0.48)	1.000 (0.48)
Age		1.072*** (4.68)
Education: medium (ref. low)		0.253+ (-1.91)
high		0.288 (-1.64)
Income 1000-2500 Euro (Ref. <1000 Euro)		0.0882*** (-5.55)
>2500 Euro		0.0181*** (-7.35)
Sector: service (Ref. manufacturing)		7.773*** (4.11)
public/education		2.889+ (1.94)
other		5.692** (2.90)
lnsig2u	22.21*** (50.23)	24.49*** (50.60)
n	24493	24493
N	1849	1849

Notes: t statistics in parentheses; + $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Source: German Internet Panel, own estimations