

von Gaudecker, Hans-Martin; Holler, Radost; Janys, Lena; Siflinger, Bettina M.; Zimpelmann, Christian

Working Paper

Labour Supply during Lockdown and a "New Normal": The Case of the Netherlands

IZA Discussion Papers, No. 13623

Provided in Cooperation with:

IZA – Institute of Labor Economics

Suggested Citation: von Gaudecker, Hans-Martin; Holler, Radost; Janys, Lena; Siflinger, Bettina M.; Zimpelmann, Christian (2020) : Labour Supply during Lockdown and a "New Normal": The Case of the Netherlands, IZA Discussion Papers, No. 13623, Institute of Labor Economics (IZA), Bonn

This Version is available at:

<https://hdl.handle.net/10419/227150>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

DISCUSSION PAPER SERIES

IZA DP No. 13623

**Labour Supply during Lockdown and
a “New Normal”: The Case of the
Netherlands**

Hans-Martin von Gaudecker
Radost Holler
Lena Janys
Bettina Sifinger
Christian Zimpelmann

AUGUST 2020

DISCUSSION PAPER SERIES

IZA DP No. 13623

Labour Supply during Lockdown and a “New Normal”: The Case of the Netherlands

Hans-Martin von Gaudecker

Universität Bonn and IZA

Radost Holler

Bonn Graduate School of Economics

Lena Janys

Universität Bonn and IZA

Bettina Siflinger

Tilburg University

Christian Zimpelmann

*Bonn Graduate School of Economics and
IZA*

AUGUST 2020

Any opinions expressed in this paper are those of the author(s) and not those of IZA. Research published in this series may include views on policy, but IZA takes no institutional policy positions. The IZA research network is committed to the IZA Guiding Principles of Research Integrity.

The IZA Institute of Labor Economics is an independent economic research institute that conducts research in labor economics and offers evidence-based policy advice on labor market issues. Supported by the Deutsche Post Foundation, IZA runs the world's largest network of economists, whose research aims to provide answers to the global labor market challenges of our time. Our key objective is to build bridges between academic research, policymakers and society.

IZA Discussion Papers often represent preliminary work and are circulated to encourage discussion. Citation of such a paper should account for its provisional character. A revised version may be available directly from the author.

ISSN: 2365-9793

IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

ABSTRACT

Labour Supply during Lockdown and a “New Normal”: The Case of the Netherlands*

We document the evolution of hours of work using monthly data from February to June 2020. During this period, the Netherlands experienced a quick spread of the SARS-CoV-2 virus, enacted a lockdown for a period of six weeks and gradually opened thereafter. We show that during lock-down, substitutability between work from home and at the workplace or essential worker status are key to maintain a large fraction of pre-crisis hours of work. These pandemic-specific mechanisms become much less important as social distancing restrictions are eased in May and June. Labor supply recovers quickly in sectors affected heavily during lockdown, but goes down in other areas of the economy. The latter is unlikely caused by pandemic-induced supply changes; diminished demand is a more plausible explanation. Analyzing take-up of economic support programs, we find suggestive evidence that wage subsidies and other programs helped limit the early-stage impact of the crisis along the extensive margin.

JEL Classification: J2, H3

Keywords: hours of work, telecommuting, essential workers, labor hoarding, COVID-19

Corresponding author:

Hans-Martin von Gaudecker
University of Bonn
Department of Economics
Adenauerallee 24-42
53113 Bonn
Germany

E-mail: hmgaudecker@uni-bonn.de

* The data collection was funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) under Germany's Excellence Strategy { EXC 2126/1 – 390838866, by the Dutch Research Council (NWO) under a Corona Fast track grant (440.20.043), and by the IZA – Institute of Labor Economics. Gaudecker is grateful for financial support by the German Research Foundation (DFG) through CRC-TR 224 (Project C01). This research would not have been possible without the help of many others at the CoViD-19 Impact Lab, a research group initiated in Bonn in Mid-March 2020. Special thanks to the team at CentERdata, who made the surveys underlying this research possible in record time. We would like to thank Egbert Jongen for very helpful comments. This paper updates and supersedes von Gaudecker et al. (2020).

1 Introduction

A large number of papers have traced out the details of how economic activity has slowed dramatically under the lockdown policies enacted by many countries in the first half of 2020 as a response to the CoViD-19 pandemic.¹ To the best of our knowledge, this paper is first to study the impacts on what happens to detailed patterns of labor supply as lockdowns are eased once the pandemic is under some degree of control. We show that the pandemic-specific mechanisms—large reductions in labor supply if work cannot be performed from home and it is not classified as essential—lose much of their explanatory power. At the same time, labor supply goes down in many other sectors. On the labor market, the pandemic recession is beginning to resemble other downturns.

The Netherlands is an interesting case to study because it is broadly similar to many Northwestern European countries. After infection rates started growing quickly in mid-March of 2020, lockdown policies were enacted. These policies were somewhat softer than in Southern Europe or the U.K., compliance was high as was trust in the government. As infection rates came down, restrictions were gradually lifted starting in May. By June, one would expect a much more uniform impact of the pandemic’s direct effects across sectors, for example, because of limited travel by public transport. A major exception are events that gather lots of individuals and air travel. While the economy has taken a hard hit—in the second quarter of 2020, GDP contracted by 9.3 percent year-to-year—the combination of employment protection and employment hoarding subsidies have limited the immediate individual-level economic consequences compared to other countries. The unemployment and labor force participation rates fell by 1 percent each over the February-June period.

To understand the effects of the pandemic-induced crisis on labor markets, it is crucial to explain how working hours have changed. First, if labor hoarding is not sustainable in the medium term, the evolution of hours allows to gauge the likely extent of job separations and who will be affected. Second, understanding the division of hours between the usual workplace and at home helps in understanding how work might be organized in the future and how this will impact different segments of the population.

We make use of customized data collected in the LISS Panel, a high-quality online survey based on a probability sample of the Dutch population. We have measures at five points in time: Just before the crisis, in the first two weeks of lockdown in the second half of March, and monthly data from April to June. In addition to obtaining standard background variables, we measure hours worked at home and at the workplace, the ability to perform usual tasks from home, essential worker status, and whether workers were affected by various government support programs.

¹Examples include Adams-Prassl et al. (2020a), Alstadsæter et al. (2020), Bick and Blandin (2020), Juranek et al. (2020), and von Gaudecker et al. (2020) on the labor market impacts, Bachas et al. (2020), Chetty et al. (2020), and Sheridan et al. (2020) on consumer spending, Alon et al. (2020) on the macro effects of unequal impacts across genders, and Guerrieri et al. (2020) as well as Danieli and Olmstead-Rumsey (2020) on spillovers across sectors.

During lockdown, being able to substitute hours at the workplace with home office hours and essential worker status largely explain changes in hours worked. Being able to perform the vast majority of tasks from home or being classified as essential each imply an average fall in working hours by 2-3 hours during lockdown. If non-essential work requires near-total physical presence at the workplace, the reduction was 7-8 hours larger. By June, this gap reduced to around 3 hours. Between April and June, home office became substantially less prevalent across all workers.

The same pattern is visible across sectors. Initial reductions were largest in sectors with high personal contact, which were directly affected by policy measures. For example, working hours in catering fell by more than 14 hours during lockdown. As restrictions were lifted, they quickly recovered to levels not far from the overall average loss of five hours.

All these patterns hold up qualitatively and quantitatively in a regression analyses with a large set of controls. Examining the individual-level dynamics, we find some persistence. However, the explanatory power of early hours reductions quickly fades between May and June. The rather transitory nature of initial reductions related to low telecommutability also implies that initial socioeconomic inequality in pandemic response may partly vanish as cases go down and restrictions are lifted. Indeed, we find that the education and income gradient in hours reduction are large on impact but fade out towards June.

Finally, we examine the take-up of policies. This is very heterogeneous across sectors and much larger for individuals who faced substantial reductions in work hours during lockdown. The hours gap to workers who were not affected by policy measures closes quickly in May and June. We take this pattern as suggestive evidence that schemes subsidizing labor hoarding and supporting the incomes of self-employed were successful in bridging the lockdown period. This finding is consistent with cross-country evidence (OECD, 2020) and data from the financial crisis (Giupponi and Landais, 2020).

In the next section, we sketch the institutional context and the general setting in the Netherlands. In Section 3, we then describe our survey modules and the aggregate trends in the data. Section 4 contains our main analysis. Section 5 concludes.

2 Institutional context

This section sets the scene for interpreting our results. We first sketch the spread of the Coronavirus in the Netherlands and the social distancing policies taken as a response. We then move on to key features of the Dutch labor market and some economic support programs.

2.1 Social distancing policies

The first infection with the SARS-CoV-2 virus was detected in the Netherlands in late February 2020. By mid-March, more than 10 new cases per million

inhabitants were confirmed each day (all infection number are based on Roser et al., 2020). This number reached 60 by the end of March and stayed roughly at that level for the first three weeks of April.² It declined thereafter and reached 10 again in mid-May, staying there or somewhat below until late July 2020.

Similar to other countries, the steep rise in infections prompted the Dutch government to impose restrictions on economic and social life to stop the spread of the Coronavirus. In mid-March, all schools and childcare facilities were closed along with restaurants, cafes, bars, and several other businesses involving personal contacts. People were advised to stay at home, to keep a distance of at least 1.5 meters to each other and to avoid social contacts; the number of visitors at home was restricted to a maximum of three individuals.

While most of these policy measures resembled those in other European countries, they did not involve a general curfew and some measures were much more lenient. Businesses, such as stores for clothes, utilities, or coffee shops remained open as long as they could guarantee to maintain the social distancing rules. While the government advised everybody to stay at home, people were allowed to go outside without any official permission, and they were allowed to meet a maximum of three other non-household members as long as social distancing was maintained. Public locations were accessible and traveling or the use of public transportation was possible throughout the lockdown period.

Beginning in May, the restrictions were gradually lifted. Daycare facilities and primary schools started opening in mid-May, businesses such as hairdressers and beauty saloons were allowed to accept customers again. In the beginning of June, secondary schools started opening; restaurants, cafes, and cinemas could operate under restricted capacity. With the main exceptions of bans on larger (inside) gatherings, the requirement to wear masks in public transport, and the mandate to keep a distance of 1.5 meters to other people, social and economic life was largely back to what it was before – a new normal.

2.2 Labor supply and economic support measures

The Dutch labor market entered 2020 in a very healthy state. In 2019, about 69% of the Dutch population aged 15 to 75 years were employed³. The employment rate was 64% among women and 73% among men. On average, men work about 37 hours per week and women work about 26 weekly hours. The numbers from 2019 line up well with the pre-crisis numbers in our sample: On average, men work 37 hours per week. Female working hours are somewhat higher in our sample at 29 hours per week. Bick, Fuchs-Schündeln, and Lagakos (2018) compare differences in hours worked per adult by log GDP per capita from 49 countries worldwide. The Netherlands are very similar to other high income

²The peak in daily cases was also between 60 and 70 in Germany, France, or the U.K., although the plateau lasted shorter in Germany and France. It lasted much longer in the U.K.. During the March-April period, the peaks were substantially higher in Spain (160), Italy and the U.S. (both between 90 and 100).

³Numbers are obtained from the latest report on employment of the Statistics Netherlands, <https://www.cbs.nl/nl-nl/visualisaties/dashboard-arbeidsmarkt/werkenden>

countries in terms of hours worked per adult and in the ratio of income per worker over GDP per worker.

As many other countries, the Dutch government identified a number of areas of the economy that are exempt from the restrictions on public life. Examples for these types of occupations and industries are health and social care; teachers and school staff; public transportation; the production, distribution and transportation food, fuel, and gas; communication and online services, emergency services such as fire department and ambulance; or necessary administrative services. We describe these essential workers in more detail in von Gaudecker et al. (2020). During the period daycare centers and schools were closed, parents who qualified as essential workers were eligible for emergency daycare.

In order to reduce the impact of the lockdown and of behavioral reactions to the virus spread on the labor market, the Dutch government implemented several measures starting in mid-March for the period March to May. In mid-May, the government announced that the supportive strategies were extended by another four months, sometimes on somewhat different terms. So far, the entire emergency program for the Dutch economy amounts to about 30 billion Euros, which is about 3-4 percent of the Dutch GDP.

Arguably the most important policy measure targeting workers is the short-term allowance (Noodmaatregel Overbrugging voor Werkgelegenheid, NOW), which subsidizes labor hoarding. In order to prevent job loss due to the crisis, the Dutch government supports all businesses that expect a loss in gross revenues of at least 20% between March 2020 and May 2020 with advanced money for labor costs. The amount of advancement depends on the expected revenue loss. A business that expects a loss of 100% can request 90% of its labor costs from the government. The advancement is paid out at three points in time, with a first chunk being paid within 2-4 weeks after a positive decision on the request. Employers who get the advancement commit to pay full salaries to their employees and to not fire employees due to reduced business activities. Moreover, employers can revert dismissals that already have taken place. The advancement can also be requested for employees with fixed-term contracts or temporary workers. This form of short-time work (see, e.g., Giupponi and Landais, 2020, for a current perspective) has been used previously by the Dutch government.

Another important program is the TOGS (Tegemoetkoming Ondernemers Getroffen Sectoren COVID-19, Reimbursement for Entrepreneurs in Affected Sectors COVID-19), a one-time payment of 4000€ that is conditional on the sector being affected directly by the pandemic or pandemic-related measures. The TOZO (Tijdelijke Overbruggingsregeling Zelfstandig Ondernemers, Temporary Bridging Measure for Self-employed Professionals) is an income support measure for the self-employed. It was not means-tested in the first three months of existence. For the period May-September, a household-level income test was introduced. Further relief was provided through tax deferrals and loan guarantees for firms. We provide some more detail in the supplementary material to Section 4.4.

3 Data and overall labor market trends

This section describes our data and the dynamics of employment and working hours. We designed a set of modules asking members of the Longitudinal Internet Studies for the Social Sciences (LISS) panel about behaviors, beliefs and expectations during the CoViD-19 crisis. The first module was fielded between March 20th and 31st 2020, a few days into the lockdown. Three more modules were in the field throughout the months of April, May, and June.

The LISS panel is based on a probability sample of individuals registered by Statistics Netherlands; it has been running since 2007 and consists of roughly 4,000 Dutch households comprising about 7,000 individuals. It is administered by CentERdata, a survey research institute affiliated with Tilburg University, the Netherlands. All four modules were addressed to all panel members at the age of at least 16 years. In all four surveys, the response rate was in excess of 80%. All questions of our surveys are documented at CoViD-19 Impact Lab (2020). Throughout this paper, we restrict the sample to respondents aged 18 to 66 years. 66 years is the legal retirement age in the Netherlands in 2020.

3.1 Labor force participation

The CoViD-19 crisis had dramatic effects on employment in many countries with the U.S. and the U.K. standing out (Adams-Prassl et al., 2020a; Alstadsæter et al., 2020; Benzeval et al., 2020; Bick and Blandin, 2020; Juranek et al., 2020). Due to stronger labour protection laws and the quick reaction in terms of short-time work schemes (Jongen and Koning, 2020; OECD, 2020), more employment relations were preserved in a lot of Western European countries over the first months of the crisis.

The first row of Panel A in Table 1 shows the dynamics of the labor force for all respondents between the ages of 18 and 66.⁴ We asked about labor force status before the crisis retrospectively in March, during the first two weeks of lockdown. The share of respondents that are not working because they are either in education, unemployed, retired or a home maker increases from 24.3% before the onset of the crisis to 26% in May, before slightly dropping again. The difference is significant at the 10%-level; it is broadly in line with official statistics, which indicate a rise in the non-participation rate by 0.9 percentage points for ages between 15 and 75 over the same period.⁵

The second row of Table 1 displays the evolution of unemployment in our sample. Before the CoViD-19 crisis, we estimate the unemployment rate to be 4.5%. This is somewhat higher than the 3.2% rate in official statistics for February 2020. Some of the discrepancy may be explained by different age restrictions. Until May, we estimate it to gradually rise to 5.8%, before we see a slight drop again. The difference between the period before the crisis and

⁴Visualisations of many of the features highlighted in the rest of this Section 3 can be found in Section B of the Online Appendix.

⁵<https://opendata.cbs.nl/statline/#/CBS/nl/dataset/80590ned/table?ts=1597837537466>

Table 1: Summary statistics

Panel A: Labor force status and working hours over time						
	pre CoViD-19	late March	April	May	June	
out of the laborforce	0.243 (0.006)	0.246 (0.007)	0.251 (0.007)	0.260 (0.007)	0.255 (0.007)	
N	4451	3970	4018	3879	4209	
unemployment rate	0.045 (0.004)	0.050 (0.004)	0.056 (0.004)	0.058 (0.004)	0.052 (0.004)	
N	3370	2993	3009	2872	3134	
total working hours	33.2 (0.2)	29.2 (0.3)	28.4 (0.3)	27.2 (0.3)	28.2 (0.3)	
N	3216	2848	2869	2744	2989	
hours worked from home	3.9 (0.2)	14.5 (0.3)	15.0 (0.3)	12.7 (0.3)	11.3 (0.3)	
N	3216	2848	2869	2744	2989	
Panel B: Characteristics of individuals working at least 10h in any one period						
	N	mean	std. dev.	q0.25	q0.5	q0.75
female	3216	0.53				
education: lower sec. & less	3216	0.14				
education: upper sec.	3216	0.37				
education: tertiary	3216	0.48				
age	3216	43.79	12.49	33	45	55
employed	3216	0.88				
self-employed	3216	0.10				
part time	3155	0.33				
gross income (thousands)	3035	3.62	30.2	1.9	2.82	3.89
essential worker	3208	0.38				
frac. work doable from home	2563	0.45	0.42	0	0.4	0.9
affected by economic support program	2459	0.18				
Panel C: Statistics by sectors						
	N pre- CoVid	average fraction of work doable from home	fraction essential worker	Change in hours, pre- CoVid to March	Change in hours, pre- CoVid to June	affected by eco- nomic support program
catering	72	0.15	0.14	-14.8	-6.7	0.41
construction	95	0.35	0.04	-1.9	-4.6	0.07
education	229	0.56	0.57	-5.0	-3.5	0.03
env., culture, & recr.	79	0.50	0.13	-9.5	-8.8	0.44
financial & business services	312	0.78	0.12	-2.0	-6.0	0.22
healthcare & welfare	550	0.24	0.79	-2.8	-4.4	0.11
industry	219	0.40	0.19	-3.5	-3.6	0.21
other	345	0.42	0.30	-4.5	-6.2	0.29
public services	235	0.69	0.34	-2.3	-6.3	0.01
retail	191	0.35	0.19	-5.2	-5.0	0.31
transport, comm., & utilities	162	0.39	0.43	-3.9	-7.3	0.19

Notes: Source LISS. All statistics are on respondents between ages 18 and 66. The samples for hours, background characteristics, and sectors include individuals who worked for at least 10 hours in any one of the 5 periods.

in May is statistically significant at the 5%-level; so is the difference between the pre-crisis period and the average between April and June. Official statistics record a rise by 1.1 percentage points over the same period.

3.2 Hours worked

Throughout the rest of the paper, we consider unconditional working hours for the subset of individuals who are working at least ten hours in at least one of the five periods we observe. This sample amounts to 3,216 individuals. The reported numbers for hours, hence, cover both changes in working hours on the extensive and intensive margin. They do exclude those without any attachment to the labor force in the first half of 2020. This strikes a balance in the short term between summarizing work dynamics in one measure and being close to conditional hours of work, which are most intuitive and typically reported in work spanning longer horizons.

The third row of Table 1.A shows that on average, weekly hours initially decreased by almost 4 hours or 11%. They bottomed out in May just above 27 weekly hours and rose by an hour again in June. As has been documented by many data collection efforts already (Adams-Prassl et al., 2020b; Bick, Blandin, and Mertens, 2020; Dingel and Neiman, 2020), the most dramatic change on the labor market has been an unprecedented rise in the amount of work performed from home. Indeed, the last row of Table 1.A shows a huge jump in March from just under 4 to more than 14 hours. In terms of relative sizes, this was a change from 12% to almost 50% in the aggregate. This fraction peaked in April at 53% and declined again to 40% in June.

The joint patterns of total hours and home office hours already display the gist of this paper: The defining features of the pandemic recession (Alon et al., 2020) quickly become much less important as infections dwindle and restrictions are lifted. The overall amount of work remains much lower than before the crisis, however.

3.3 Background characteristics

The sample used in most of the paper consists of the 3,216 individuals who worked for at least ten hours in any one of the five periods. The first row of Panel B of Table 1 shows that just over half of this sample is female. Fourteen percent left school with a primary or lower secondary degree (bo/vmbo), 37% have completed upper secondary education (havo/vwo/mbo), just under one half of the workforce has some form of tertiary education (wo/hbo).

Before the CoViD-19 crisis started, 88% of the sample were in dependent employment; one in ten individuals was self-employed.⁶ One third of the workforce worked part-time, defined as working no more than 30 hours per week.

Individuals' gross monthly income before the crisis was 3,620€ on average; median income is at 2,820€. We often make use of a categorization for income

⁶58 individuals were not working before the crisis but did work at a later point in time, hence the categories for initial type of employment add up to 0.98 only.

being below 2,500€ (41% of the sample), between 2,500€ and 3,500€ (28%), and above 3,500€ (31%).

38% work in an occupation identified as being essential to the working of public life, see Section 2.2 for more details. In the May questionnaire, we asked about the fraction of normal work before the onset of the crisis that could be done working from home. This is true for 44% of all tasks on average. The measure varies across the whole distribution — the first quartile is zero and the third quartile is already 90%.

Finally, we estimate that 18% of the workforce benefit from one of the economic support programs we ask about (NWO, TOGS, tax deferrals, Tozo, amendment provisional assessments and Qredits; the latter three only for the self-employed). For this measure, we construct indicators of whether the self-employed or employers (in case of employees) were granted support under any program or the outcome was unknown. We set the measure to zero if no application was made, respondents did not know whether an application was made, or the application was known to be rejected. The reason we set applications with unknown outcomes to “affected by the policy” is that acceptance rates were very high (e.g., 94% in case of the NOW Jongen and Koning, 2020). This is a reflection of the fact that the explicit goal—particularly in the first three months-phase—was to provide fast and unbureaucratic support. Even with this broad definition, we underestimate take-up to some extent. For the NOW, the most important program, numbers by Statistics Netherlands imply that 24% of the working population benefitted from it in May 2020. We estimate overall take-up to be 13%, with 24% of respondents stating they do not know whether they fall under this program. This is not surprising because there is no requirement to reduce hours under this program, so there is no direct implication for employees’ everyday lives. Our analysis below suggests that among the group who answers “Don’t know”, there is a sizeable fraction of individuals who benefit from programs.

Finally, Panel C of Table 1 breaks down various statistics by sectors. By far the largest sector is healthcare and welfare; the smallest ones are catering, environment/culture/recreation, and construction. The average fraction of tasks that can be done from home is highest for financial/business services, followed by public services and education. It is lowest for catering, followed by healthcare/welfare, and retail. Essential worker status is highest in healthcare/welfare (79% of workers) and in education (57%); construction is at the other extreme. All this fits very well with what one would expect.

The numbers in the last column of Table 1.C show that economic support programs affected the largest fractions of workers in sectors most directly hit by the pandemic. More than 40% of workers in environment/culture/recreation and in catering were affected by the measures, followed by retail with 31%. Public services, education, and construction are located at the other extreme.

4 Predicting the trajectories of hours worked

In this section, we provide an analysis of the trajectories of the evolution of hours worked. We first show how they have covaried with the nature of individuals’ work, where telecommutability and essential worker status are the most important a priori predictors in a pandemic recession. We then show how the reductions in hours have changed across sectors over time. Finally, we run a multivariate analysis. The three exercises provide evidence for how the defining features of a pandemic recession have become less important over time as infection numbers dwindled and restrictions were lifted.

4.1 Home office, essential workers, and hours worked

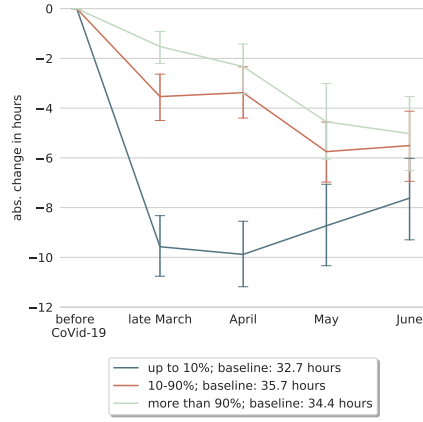
The root cause of the 2020 global recession has been the CoViD-19 pandemic. When it arrived in the Netherlands in March 2020, there was great uncertainty about how the disease spread except that it was very contagious. The result was a lockdown (see Section 2.1) and large behavioral reactions (Sheridan et al., 2020). Hence, Alon et al. (2020) and others have coined the term “pandemic recession”.

The most natural way to keep a distance from people outside the own household and continue to work is to work from home. Essential workers were exempted from most restrictions imposed on work lives. Indeed, many of them were asked to keep working despite limited protective equipment for, e.g., health-care workers or cashiers in supermarkets. As discussed before, the definition of essential workers was rather wide in the Netherlands and 38% of our sample state they are covered by this definition (see Table 1.B). We expect these two mechanisms to have the largest impact on hours worked early in the pandemic.

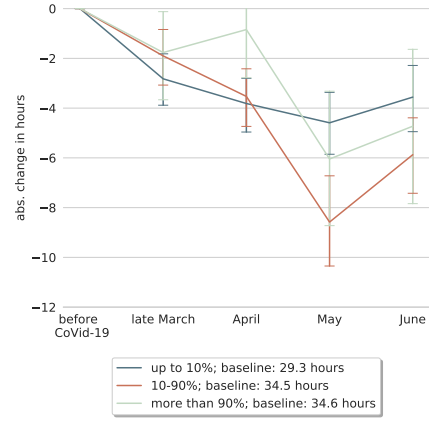
The top row of Figure 1 shows total hours by the degree of telecommutability in three categories. Figure 1a does so for non-essential workers.⁷ Figure 1a demonstrates that for workers who are not classified as essential, the initial impact of telecommutability during lockdown is enormous. The fifth of the workforce that has very little possibility to work from home saw losses close to 10 hours, compared to 3 and below 2 for intermediate and high degrees of telecommutability. By June, these gaps of 7-8 hours have narrowed considerably to 2 hours or less.

In stark contrast to this, the ability to work from home does not have salient effects on the overall quantity of work for essential workers. Figure 1b shows that initially, reductions are limited to about 2-3 hours regardless of telecommutability; by June there is an additional 2 hour decrease. The relation between telecommutability and hours changes is generally not monotone for essential workers, whereas it is for non-essential workers.

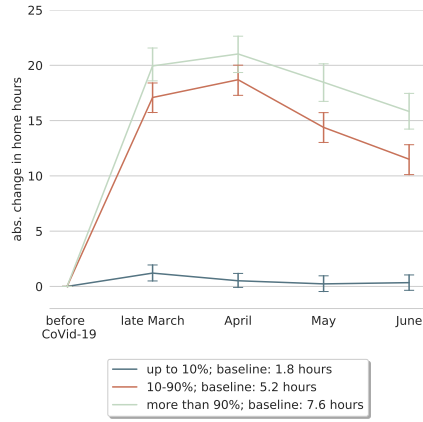
⁷Table A.1 shows the distribution of the workforce across along the categorization in Figure 1. The two smallest groups are the combinations of essential workers with high (4% of the total) and intermediate (13%) capability to work from home. The remaining four categories contain about one fifth of workers each.



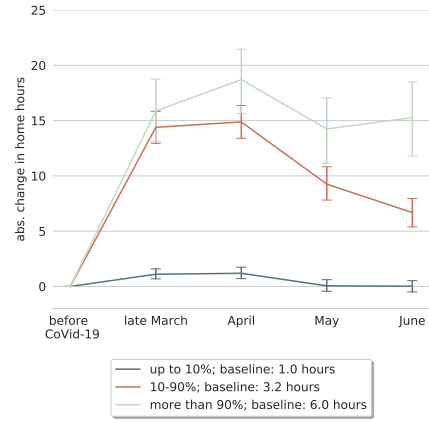
(a) Non-essential workers: Change in total working hours



(b) Essential workers: Change in total working hours



(c) Non-essential workers: Change in hours worked from home



(d) Essential workers: Change in hours worked from home

Figure 1: Changes in total working hours and hours worked from home, by essential worker status and the percentage of work that can be done from home

Notes: The figure shows changes in total hours worked (Panel a) and hours worked from home (Panel b) over time by percentage of work that can be done from home (in three categories). Reference period is late February/early March. Vertical bars depict 95 %-confidence intervals. Sample: $18 \leq \text{age} \leq 66$; working hours of at least 10h in at least one period.

The bottom row shows that substituting workplace hours by home office hours indeed seems to be driving many of these patterns.⁸ For those with more than 10% capability to work from home, doing so is up by 15-21 hours in March and April, before declining again. In case almost all work has to be done at the workplace, the change in home office is very close to zero. As restrictions are gradually lifted, home office hours decrease again in the groups with intermediate or high capacity to work from home. They do so more than overall hours decrease.

4.2 Sectors

Another way to look at the declining importance of pandemic-specific causes for work disruptions is to consider the impact on workers in different sectors. This is of independent interest for two reasons. First, sectors constitute a common level of intervention for policy, e.g. the TOGS program specifically targets sectors hit by the CoViD-19 pandemic. Second, there might be spillovers within sectors. Even if some jobs are fully telecommutable in principle, e.g. accountants, might be affected by the pandemic if the core business is shut down.

Figure 2a plots the average telecommutability of work in a sector against the average change in hours of work between the pre-CoViD period and late March. As we found for education in our earlier work (Figure 10 in von Gaudecker et al., 2020), there is a strong negative relative relation between the two variables. Hours declines were largest in sectors that require presence at the workplace; they were very limited where most work can be done from home. By June, the regression has flipped sign (Figure 2b).⁹ For example, the catering sector is by no means an outlier anymore in terms of hours reductions. The pattern that emerged in Section 4.1 also holds at the sector level: The pandemic-specific mechanisms determining labor supply initially played a crucial role, but their importance fades quickly after lockdowns are lifted.

4.3 Exploring broader patterns

In order to further disentangle the effects of essential workers, telecommutability, and sectors from other potential factors, we run a number of OLS regressions. These are summarized in Table 2. In all cases, the dependent variable is the change in hours between the pre-CoViD and a later period. These later periods are late March/April—we pool these periods in the time dummies for conciseness as there were no meaningful differences in the policy environment or in the results—, May, and June. We include dummies for each of these three periods and no intercept, so the coefficients are directly comparable to Figure 1. In

⁸We would expect a less pronounced relationship if we had asked about telecommutability before the pandemic started. It is likely that many people only realized how much they could actually work from home in March/April and thus answered accordingly in May.

⁹In order to economize on space, we have relegated the corresponding graphics for April and May to the Online Appendix, see Figure C.9. In line with a period of lockdown in March and April with gradual easing thereafter, the picture for April is very similar to March and the regression line is flat in May.

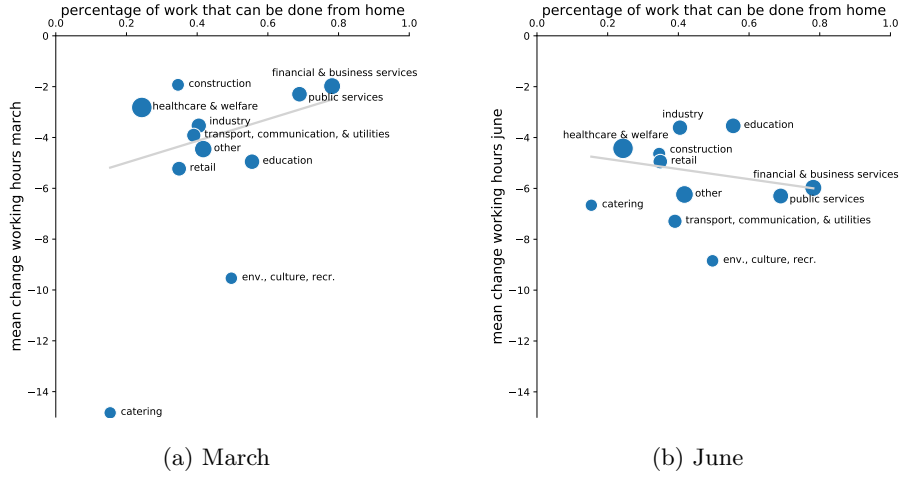


Figure 2: Changes in total hours by share of work that can be done from home in March (Panel a) and June (Panel b)

Notes: Reference period for changes is late February/early March. Sample: $18 \leq \text{age} \leq 66$; working hours of at least 10h in at least one period. Descriptive statistics are in C.1. Equivalent figures for the months March and June are shown in Figure C.9. Bubbles are proportional to sector size. The lines are predictions from OLS regression at the sector level, weighted by sector size.

addition to the variables shown in Table 2, all regressions control for gender, part-time work, gross income, and educational achievement. The full regression table can be found in the Online Appendix, Table C.4.

The first nine rows in the first column show that all basic patterns from Figure 1 continue to hold when adding these controls. Conditional on not being able to perform any tasks from home, essential workers' labor supply is more than 5 hours higher than that of other workers during the lockdown period. This difference reduces by two hours in May and June, the change being statistically significant. For non-essential workers, moving the degree of telecommutability from zero to one increases average hours by 7.6 during the lockdown. Again, this effect becomes much weaker over time, reaching just over three hours in June. For essential workers, there is—if anything—a slight effect of telecommutability during the lockdown period; in May and June the interaction effect just about cancels its direct effect. Controlling for sector by month fixed effects in Column 2 does not change any of these coefficients in a meaningful way. Any potential spillover effects within sectors thus seem to be limited during our period of analysis.

The self-employed are hit very hard initially and see an additional average loss of about 4 hours during the lockdown period and in May. The difference in hours reductions between the self-employed and employees slightly decreases

Table 2: Change in total working hours by individual and job characteristics

	change total working hours				
	(1)	(2)	(3)	(4)	(5)
march/april \times essential worker	5.5*** (0.7)	5.4*** (0.9)			
may \times essential worker	3.1*** (1.0)	3.0*** (1.1)		0.0 (1.0)	-0.2 (1.0)
june \times essential worker	3.3*** (1.0)	4.1*** (1.1)		2.0* (1.1)	1.9* (1.1)
march/april \times frac. work doable from home	7.7*** (0.7)	7.4*** (0.8)			
may \times frac. work doable from home	5.5*** (1.1)	5.2*** (1.2)		1.1 (1.1)	0.9 (1.1)
june \times frac. work doable from home	3.3*** (1.1)	3.8*** (1.2)		1.1 (1.2)	1.1 (1.2)
march/april \times essential \times work do...	-5.4*** (1.1)	-4.8*** (1.1)			
may \times essential \times work doable fro...	-5.4*** (1.7)	-3.9** (1.7)		-1.3 (1.6)	-1.0 (1.6)
june \times essential \times work doable fr...	-3.8** (1.7)	-4.9*** (1.8)		-3.1* (1.8)	-3.0* (1.8)
march/april \times self-employed	-4.4*** (0.9)	-4.4*** (1.0)			
may \times self-employed	-3.7*** (1.3)	-4.3*** (1.4)		-1.9 (1.3)	-2.1 (1.3)
june \times self-employed	-1.4 (1.2)	-1.5 (1.3)		0.1 (1.3)	-0.1 (1.3)
may \times avg. change march/april			0.62*** (0.04)	0.57*** (0.04)	0.51*** (0.04)
june \times avg. change march/april			0.41*** (0.03)	0.38*** (0.04)	0.34*** (0.04)
may \times reason red.: lost job					-10.3*** (2.4)
may \times reason red.: pandemic-rel. closure					-3.0*** (1.0)
may \times reason red.: less business					-0.4 (1.0)
june \times reason red.: lost job					-8.0*** (2.9)
june \times reason red.: pandemic-rel. closure					-1.5 (1.1)
june \times reason red.: less business					-0.5 (0.9)
month \times sector FE	No	Yes	No	Yes	Yes
demographic controls	Yes	Yes	No	Yes	Yes
N	8978	8479	5319	4307	4307
R ²	0.077	0.092	0.119	0.169	0.176

The table only shows an excerpt of all coefficients, which are shown shown in Table C.4. Further elements of the specifications include a full set of time dummies, educational achievement, personal gross income, gender, and a part-time dummy. Standard errors are clustered on the individual level. The data are an unbalanced panel restricted to individuals who worked more than ten hours at least once between early March and June. Reference period = Early March. Notes: *p<0.1; **p<0.05; ***p<0.01.

in May and falls to about one third of its initial value in June. The difference to the drop during lockdown is significant for the self-employed. In June, hours changes between the initially self-employed and employees are not different in a statistical sense anymore. This pattern is consistent with many small businesses operating in industries that are hit particularly hard by the restrictions—bars and restaurants, hairdressers, etc.—as well as firms providing insurance to their employees (Guiso, Pistaferri, and Schivardi, 2005), potentially with the help of the government (see the next section).

In terms of other control variables (see Table C.4 in the Online Appendix), income has a protective effect on hours worked and the gradient becomes somewhat steeper in May. Education has no effect whatsoever. If we leave out the “pandemic mechanism” variables—essential worker status and telecommutability—education has a strong effect during the lockdown period; the coefficients are much smaller and insignificant in May and June. Females see an extra loss of an hour. Naturally, part-time workers see smaller reductions in their total hours than full-time workers. After the lockdown, the difference between the two groups becomes much larger. We explore the gendered patterns of labor supply and childcare in a separate paper, where we also discuss the nature of part-time work in greater detail. Sectoral differences are large during lockdown. They become smaller in May and in June, the only sector emerging significantly relative to the left-out category (catering) is culture/environment/recreation. All this is consistent with the broad line of our overall results, i.e., the specific features of a pandemic recession becoming less important over time.

The last three columns of Table 2 aim to explore the persistence of shocks by including the average hours change during lockdown among the regressors. Column 3 shows that the predictive power of initial reductions is large in May, with a coefficient of about 0.6. The effect quickly fades out over time. The coefficient for June is just two thirds of its value for May. Adding the controls from Column 2 leads to a reduction in these coefficients by around eight percent each. Most of the coefficients displayed in Table 2 are small and insignificant; an exception are essential workers in June if they cannot perform much work from home. For them, the increase in hours that was visible in Figure 1b translates into a smaller reduction in hours than for other workers. Contrary to these effects, variation across sectors becomes larger than in Column 2, which is a reflection of the changing patterns displayed in Figure 2.

We asked individuals who were working before the pandemic and reported reduced or zero hours in March or April about the reasons for their work reduction. Among other options,¹⁰ the non-exclusive categories included whether they lost their job, whether the firm was closed due to infection risk (either by the government or through the firm’s decision), and whether there was less business for the firm. Job loss leads to very large reductions in hours later on. Unsurprisingly, this is the one case where the extensive margin is dominant.¹¹

¹⁰All of those turned out to have small and insignificant coefficients and including them did not change any results. We thus omit them for brevity.

¹¹Table C.3 reports regressions with the same covariates as in Table 2, but unemployment as the dependent variable. Citing job loss as a reason for reduced hours in March or April

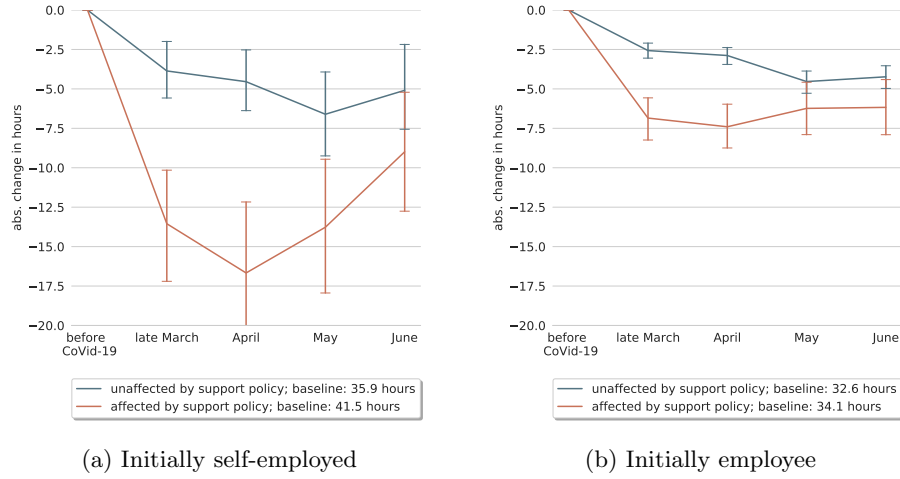


Figure 3: Total working hours and hours worked at home, by being affected by any support measure

Notes: The figure shows changes in total hours worked over time by being affected by any support measure. Reference period is late February/early March. Vertical bars depict 95 %-confidence intervals. Sample: $18 \leq \text{age} \leq 66$; working hours of at least 10h in at least one period.

In contrast to this, the effects of pandemic-related firm closures are smaller and vanish more quickly. Controlling for the reasons for job loss reduced the persistence of initial shocks by another 10 percent each. That is, about half of the initial shock persists in May and roughly one third in June.

4.4 Working hours and take-up of support programs

We now ask whether the economic relief programs enacted by the government were on target in the sense that they cushioned temporary reductions in labor demand, possibly preventing permanent separations of worker-firm matches or firm closures. While at this point in time we can only give a rough indication for various reasons detailed below, we do highlight a number of suggestive trends.

Figure 3a shows a very large discrepancy between hours lost by self-employed who were affected by any of the programs—45% of all self-employed, see Table C.9 in the Online Appendix—and those who were not. In April, the former group worked about sixteen hours less than before the crisis. The discrepancy is more than three times larger than for self-employed who did not benefit from any support measure. This eleven-hour gap starts narrowing considerably in May and is down to four hours in June.

The picture is very similar for employees, albeit at a much lower level. Figure 3b shows that during the lockdown, the drop in hours also differs by a factor is associated with an increases in the probabilities of unemployment by 40% (May) and 37% (June).

of three between respondents whose employer was covered by support measures and the rest. The absolute changes are only 7.5 and 2.5 hours, respectively. The gap between the two groups narrows to 2.5 hours in May and stays constant in June. Note that—as throughout this paper—hours are unconditional for all people who worked for at least ten hours in one of the five periods. So movements outside the labour force or to unemployment would be recorded with zero hours.

We like to think of these results as providing suggestive evidence that the programs were helpful for firms to overcome the lockdown period without major adjustments to employment relationships. Hours of work among those who benefited from programs were far below the overall average during the lockdown phase, but recovered quickly thereafter. This is unlikely to have happened had small businesses declared bankruptcy or had large shares of workers been dismissed. Frictions would likely have led to more permanent effects.

Some limitations prevent a deeper analysis at this point. First, we asked about program usage in May and directed questions at those who stated they were employed or self-employed at that time. So we cannot know whether people stopped working earlier despite program usage. This could at most be true for 4.5% of the sample, which is the fraction of those working pre-CoViD who did not work in May. Second, many of the programs are not very salient for employees; 25% of them say they do not know whether their employer applied for the most important program, the NOW. This is not surprising given that there is no requirement to reduce hours as, for example, in the German short-time work scheme, let alone to not work at all as in the British furloughing scheme (see, e.g., OECD, 2020).

The exercise we would ideally like to run is to ask whether conditional on a shock to labor supply—proxied, for example, by the drop in hours in the first week of the lockdown—and other factors, program support would reduce the risk of becoming unemployed (or leaving the labor force) down the road. Due to the nature of our data, we can do so only for the transition from May to June. However, changes in work status are very small in these two periods, so it is unsurprising that we do not see anything (last column of Tables C.2 and C.3 in the Online Appendix, respectively). Time will help us in two ways. First, we will be able to collect data over longer periods of time; the next wave of our survey is planned for September. Second, we will be able to merge our data with administrative microdata on employees and firms at the level of the individual, which will allow us to construct a measure of benefit receipt that is free from the issues outlined above.

5 Conclusion

Our analysis of high-frequency Dutch microdata for the first half of 2020 has revealed several important mechanisms for the evolution of labor markets through the CoViD-19 pandemic. First, the pandemic-specific mechanisms—ability to work from home and essential worker status—were very important to explain

hours changes early in the crisis. Second, their importance was much reduced when the social distancing restrictions were gradually eased. Third, we find a similar pattern at the sector level. There is a strong negative relation between the average ability to work from home and changes in hours during lockdown. By June, this pattern reverses. Fourth, we do find some persistence of initial hours reductions at the individual level. However, only about one third of the initial shock remains in June after controlling for unobservables and the reasons for hours reductions. Finally, our analysis of support programs suggests that these targeted the right workers and firms, helping them resume operations in a new normal.

Our findings have some implications for policy. It does appear that containing the pandemic quickly while providing support to heavy-hit sectors at the same time is a good strategy to minimize the economic impact in the short run. This is particularly true when it comes to the impact of the pandemic on inequality. Many authors have documented a disproportionate impact on population groups that are already vulnerable (Adams-Prassl et al., 2020a; Benzeval et al., 2020; Gupta et al., 2020). In the Netherlands, the generous wage subsidy schemes mean that the distribution of net household income has not changed over the months January-June 2020. While our regression analysis showed that working hours went down faster for low-income earners, the bivariate relation between equivalized household income and hours shows this pattern only during lockdown. In June, hours reductions are largest in the highest tercile of household income.¹²

With the exception of work that requires large (indoor) gatherings or travel in larger groups, the policy environment in June implied few direct restrictions on economic activity. Many individuals who had faced large reductions in working hours during lockdown already saw them recovering; others started to see reductions only from May onwards. We take this pattern as a sign that the supply shock loses in importance relative to reduced demand. While support programs were very successful initially, this pattern does beget the question of their optimal duration as some reallocation will be inevitable (e.g. Barrero, Bloom, and Davis, 2020).

References

- Adams-Prassl, Abi, Teodora Boneva, Marta Golin, and Christopher Rauh (2020a). “Inequality in the Impact of the Coronavirus Shock: Evidence from Real Time Surveys”. In: *Journal of Public Economics*. DOI: [10.1016/j.jpubeco.2020.104245](https://doi.org/10.1016/j.jpubeco.2020.104245) (cited on pages 2, 6, 18).
- Adams-Prassl, Abi, Teodora Boneva, Marta Golin, and Christopher Rauh (2020b). “Work That Can Be Done from Home: Evidence on Variation within and across Occupations and Industries” (cited on page 8).

¹²See Figures C.6 and C.7 in the Online Appendix.

- Alon, Titan, Matthias Doepke, Jane Olmstead-Rumsey, and Michèle Tertilt (2020). *This Time It's Different: The Role of Women's Employment in a Pandemic Recession*. Working Paper 27660. National Bureau of Economic Research. DOI: [10.3386/w27660](https://doi.org/10.3386/w27660) (cited on pages 2, 8, 10).
- Alstadsæter, Annette, Bernt Bratsberg, Gaute Eidsen, Wojciech Kopczuk, Simen Markussen, Oddbjørn Raaum, and Knut Røed (2020). *The First Weeks of the Coronavirus Crisis: Who Got Hit, When and Why? Evidence from Norway*. Working Paper 27131. National Bureau of Economic Research. DOI: [10.3386/w27131](https://doi.org/10.3386/w27131) (cited on pages 2, 6).
- Bachas, Natalie, Peter Ganong, Pascal J. Noel, Joseph S. Vavra, Arlene Wong, Diana Farrell, and Fiona E. Greig (2020). "Initial Impacts of the Pandemic on Consumer Behavior: Evidence from Linked Income, Spending, and Savings Data". In: *National Bureau of Economic Research Working Paper Series w27617* (cited on page 2).
- Barrero, Jose Maria, Nicholas Bloom, and Steven J Davis (2020). *COVID-19 Is Also a Reallocation Shock*. Working Paper 27137. National Bureau of Economic Research. DOI: [10.3386/w27137](https://doi.org/10.3386/w27137) (cited on page 18).
- Benzeval, Michaela, Jonathan Burton, Thomas F. Crossley, Paul Fisher, Annette Jäckle, Hamish Low, and Brendan Read (2020). *The Idiosyncratic Impact of an Aggregate Shock: The Distributional Consequences of COVID-19*. SSRN Scholarly Paper ID 3615691. Rochester, NY: Social Science Research Network. DOI: [10.2139/ssrn.3615691](https://doi.org/10.2139/ssrn.3615691) (cited on pages 6, 18).
- Bick, Alexander and Adam Blandin (2020). "Real-Time Labor Market Estimates During the 2020 Coronavirus Outbreak". In: (cited on pages 2, 6).
- Bick, Alexander, Adam Blandin, and Karel Mertens (2020). "Work from Home After the COVID-19 Outbreak". In: *Federal Reserve Bank of Dallas, Working Papers 2017*. DOI: [10.24149/wp2017](https://doi.org/10.24149/wp2017) (cited on page 8).
- Bick, Alexander, Nicola Fuchs-Schündeln, and David Lagakos (2018). "How Do Hours Worked Vary with Income? Cross-Country Evidence and Implications". In: *American Economic Review* 108.1, pages 170–199. DOI: [10.1257/aer.20151720](https://doi.org/10.1257/aer.20151720) (cited on page 4).
- Chetty, Raj, John N. Friedman, Nathaniel Hendren, Michael Stepner, and The Opportunity Insights Team (2020). "How Did COVID-19 and Stabilization Policies Affect Spending and Employment? A New Real-Time Economic Tracker Based on Private Sector Data". In: *National Bureau of Economic Research Working Paper Series w27431* (cited on page 2).
- CoViD-19 Impact Lab (2020). *LISS Questionnaire Documentation*. URL: <https://liss-covid-19-questionnaires-documentation.readthedocs.io> (visited on 2020) (cited on page 6).
- Danieli, Ana and Jane Olmstead-Rumsey (2020). *Sector-Specific Shocks and the Expenditure Elasticity Channel During the COVID-19 Crisis*. SSRN Scholarly Paper ID 3593514. Rochester, NY: Social Science Research Network. DOI: [10.2139/ssrn.3593514](https://doi.org/10.2139/ssrn.3593514) (cited on page 2).
- Dingel, Jonathan I. and Brent Neiman (2020). "How Many Jobs Can Be Done at Home?" In: *Journal of Public Economics* 189, page 104235. DOI: [10.1016/j.jpubeco.2020.104235](https://doi.org/10.1016/j.jpubeco.2020.104235) (cited on page 8).

- Giupponi, Giulia and Camille Landais (2020). “Subdizing Labor Hoarding in Recessions: The Employment & Welfare Effects of Short-Time Work”. CEPR Discussion Paper 13310. CEPR Discussion Paper 13310 (cited on pages 3, 5).
- Guerrieri, Veronica, Guido Lorenzoni, Ludwig Straub, and Iván Werning (2020). “Macroeconomic Implications of COVID-19: Can Negative Supply Shocks Cause Demand Shortages?” (Cited on page 2).
- Guiso, Luigi, Luigi Pistaferri, and Fabiano Schivardi (2005). “Insurance within the Firm”. In: *Journal of Political Economy* 113.5, pages 1054–1087. DOI: [10.1086/432136](https://doi.org/10.1086/432136) (cited on page 15).
- Gupta, Sumedha, Laura Montenegro, Thuy D Nguyen, Felipe Lozano Rojas, Ian M Schmutte, Kosali I Simon, Bruce A Weinberg, and Coady Wing (2020). *Effects of Social Distancing Policy on Labor Market Outcomes*. Working Paper 27280. National Bureau of Economic Research. DOI: [10.3386/w27280](https://doi.org/10.3386/w27280) (cited on page 18).
- Jongen, Egbert and Pierre Koning (2020). *Lessen voor de NOW*. CPB, page 12 (cited on pages 6, 9).
- Juranek, Steffen, Jörg Paetzold, Hannes Winner, and Floris Zoutman (2020). *Labor Market Effects of COVID-19 in Sweden and Its Neighbors: Evidence from Novel Administrative Data*. SSRN Scholarly Paper ID 3671259. Rochester, NY: Social Science Research Network (cited on pages 2, 6).
- OECD (2020). *Job Retention Schemes during the COVID-19 Lockdown and Beyond*. OECD (cited on pages 3, 6, 17).
- Roser, Max, Hannah Ritchie, Esteban Ortiz-Ospina, Joe Hasell, and Hannah Ritchie (2020). *Our World in Data: Coronavirus Pandemic (COVID-19)*. URL: <https://ourworldindata.org/coronavirus> (cited on page 4).
- Sheridan, Adam, Asger Lau Andersen, Emil Toft Hansen, and Niels Johannesen (2020). “Social Distancing Laws Cause Only Small Losses of Economic Activity during the COVID-19 Pandemic in Scandinavia”. In: *Proceedings of the National Academy of Sciences*. DOI: [10.1073/pnas.2010068117](https://doi.org/10.1073/pnas.2010068117). pmid: [32747573](https://pubmed.ncbi.nlm.nih.gov/32747573/) (cited on pages 2, 10).
- Von Gaudecker, Hans-Martin, Radost Holler, Lena Janys, Bettina M. Siflinger, and Christian Zimpelmann (2020). *Labour Supply in the Early Stages of the COVID-19 Pandemic: Empirical Evidence on Hours, Home Office, and Expectations*. Working Paper 13158. IZA Discussion Papers (cited on pages 1, 2, 5, 12).

Appendix A Descriptive statistics

Table A.1: Joint distribution of essential worker status and telecommutability

work doable from home	up to 10%	10-90%	more than 90%
non-essential worker	0.21	0.21	0.19
essential worker	0.21	0.13	0.04

Notes: Numbers are normalized over all observations for which both variables are non-missing.
Sample: $18 \leq \text{age} \leq 66$; working hours of at least 10h in at least one period.

Appendix B Figures relating to trends over time (Section 3)

B.1 Unemployment and labor force participation

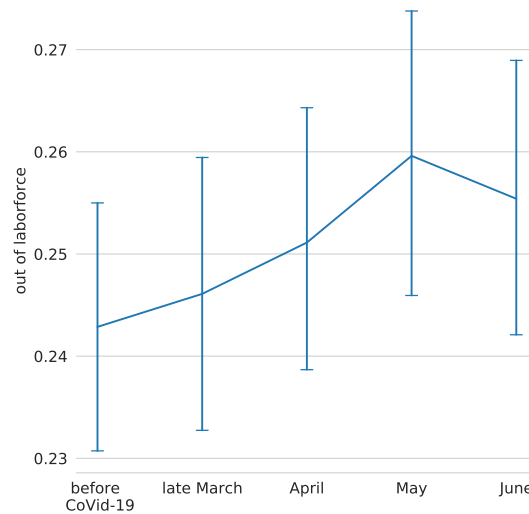


Figure B.1: Non-participation rate

The figure shows the rate of respondents in our sample over that are neither employed nor self-employed over time. Vertical bars depict 95 %-confidence intervals. Sample: Age ≤ 65 .

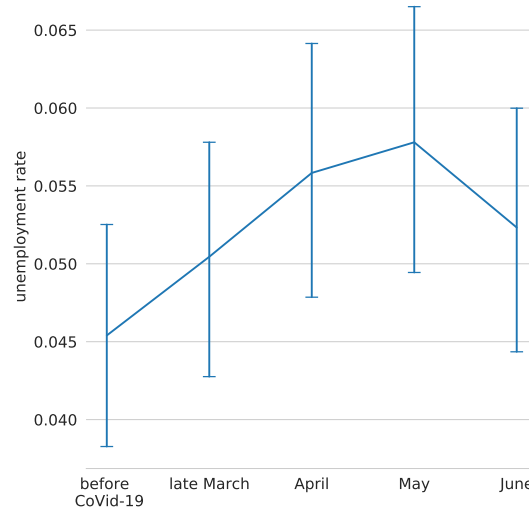


Figure B.2: Unemployment rate

The figure shows the unemployment rate in our sample over time. Vertical bars depict 95 %-confidence intervals. Sample: $18 \leq \text{age} \leq 66$; being employed, self-employed or unemployed in the respective month.

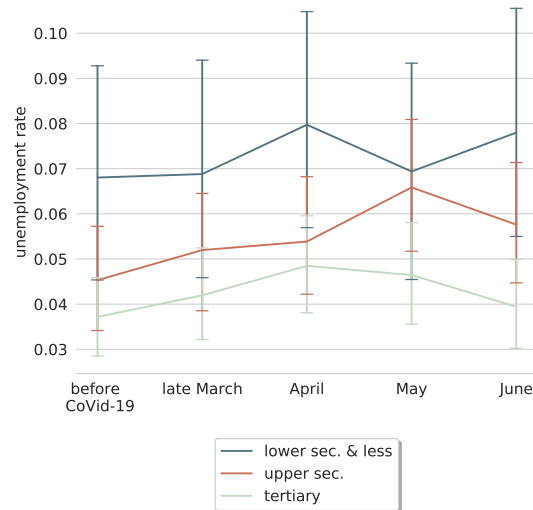


Figure B.3: Unemployment rate by education

The figure shows the unemployment rate in our sample over time by education. Vertical bars depict 95 %-confidence intervals. Sample: $18 \leq \text{age} \leq 66$.

B.2 Hours worked

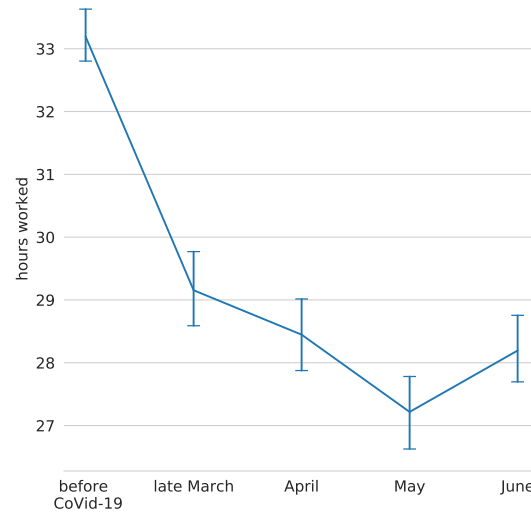


Figure B.4: Working hours

The figure shows the unemployment rate in our sample over time. Vertical bars depict 95 %-confidence intervals. Sample: $18 \leq \text{age} \leq 65$; being employed, self-employed or unemployed in the respective month.

Appendix C Tables and Figures regarding the predictors of hours changes over time (Section 4)

C.1 Bivariate relationships

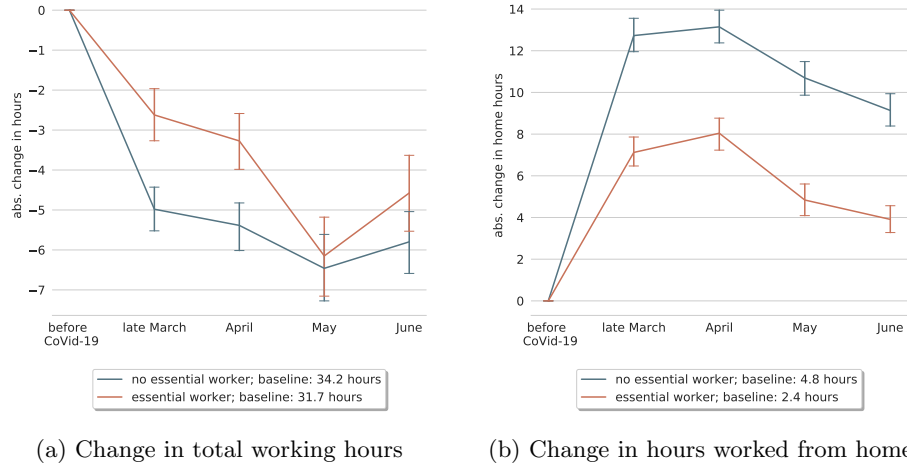
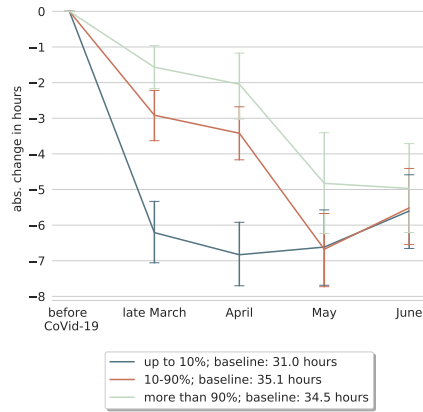
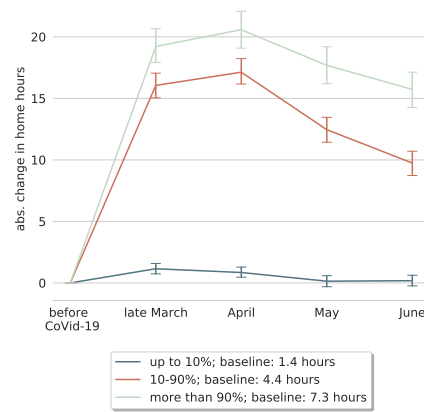


Figure C.1: Changes in total working hours and hours worked at home, by essential worker status

Notes: The figure shows total hours worked in total and from home (left side) and average individual changes in total and home hours (right side) over time by essential worker status (in three categories). Reference period is late February/early March. Vertical bars depict 95 %-confidence intervals. Sample: $18 \leq \text{age} \leq 65$; working hours of at least 10h in at least one period.



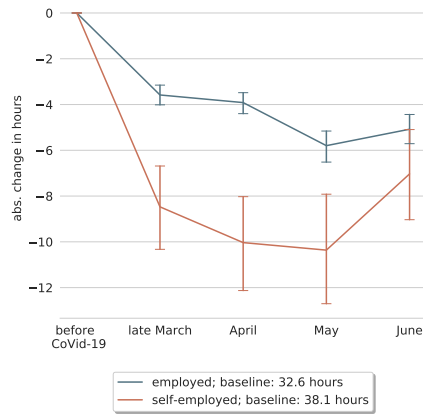
(a) Change in total working hours



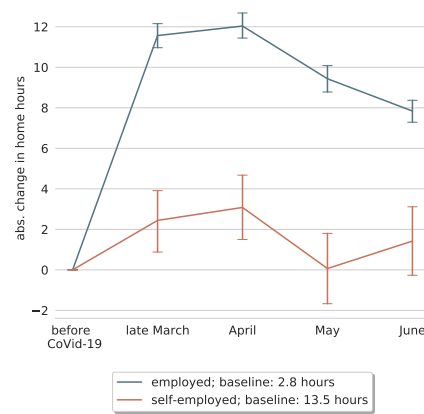
(b) Change in hours worked from home

Figure C.2: Changes in total working hours and hours worked at home, by essential worker status

Notes: The figure shows total hours worked in total and from home (left side) and average individual changes in total and home hours (right side) over time by essential worker status (in three categories). Reference period is late February/early March. Vertical bars depict 95 %-confidence intervals. Sample: $18 \leq \text{age} \leq 65$; working hours of at least 10h in at least one period.



(a) Change in total working hours



(b) Change in hours worked from home

Figure C.3: Changes in total working hours and hours worked at home, by type of employment

Notes: The figure shows total hours worked in total and from home (left side) and average individual changes in total and home hours (right side) over time for self-employed and employees. Reference period is late February/early March. Vertical bars depict 95 %-confidence intervals. Sample: $18 \leq \text{age} \leq 65$; working hours of at least 10h in at least one period.

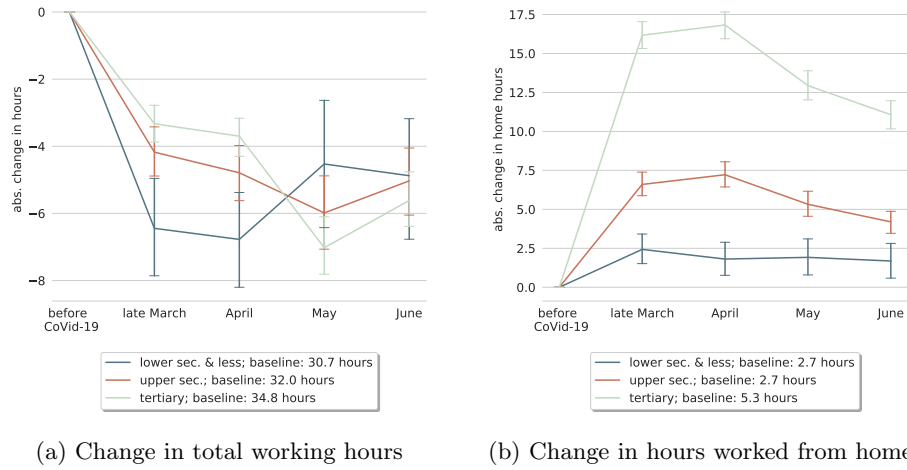


Figure C.4: Changes in total working hours and hours worked at home, by education

Notes: The figure shows total hours worked in total and from home (left side) and average individual changes in total and home hours (right side) over time by three education categories. Reference period is late February/early March. Vertical bars depict 95 %-confidence intervals. Sample: $18 \leq \text{age} \leq 65$; working hours of at least 10h in at least one period.

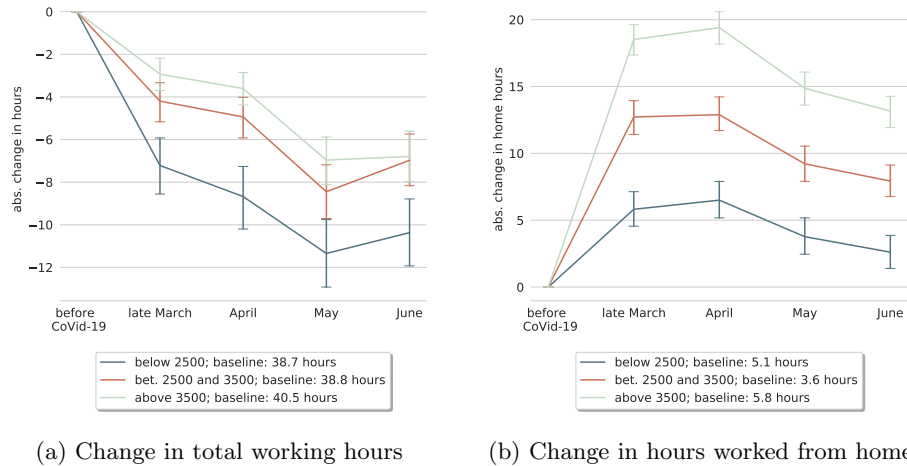


Figure C.5: Changes in total working hours and hours worked at home, by gross income before CoViD-19 (for those working at least 30 hours pre-CoViD)

Notes: The figure shows total hours worked in total and from home (left side) and average individual changes in total and home hours (right side) over time by personal gross income (in three categories). Reference period is late February/early March. Vertical bars depict 95 %-confidence intervals. Sample: $18 \leq \text{age} \leq 65$; working hours at least 30 hours pre-CoViD.



Figure C.6: Changes in total working hours and hours worked at home, by equivalized household net income before CoViD-19

Notes: The figure shows total hours worked in total and from home (left side) and average individual changes in total and home hours (right side) over time by equivalized household net income (in three categories). Reference period is late February/early March. Vertical bars depict 95 %-confidence intervals. Sample: $18 \leq \text{age} \leq 65$; working hours of at least 10h in at least one period.

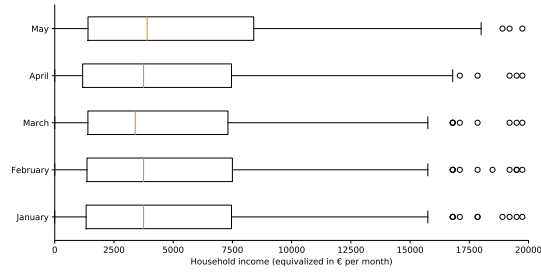


Figure C.7: The distribution of household income, January to May 2020

Notes: The figure shows distributions of household income by month, asked retrospectively in April (January, February, March) and June (April, May; all five months if respondents did not take part in the April questionnaire). The boxes indicate quartiles. Many employers pay a holiday allowance in May which is likely to explain the higher values in that month.

C.2 Sectors

Table C.1: Statistics by sector

	N March	N June	tertiary educ.	home office, March	home office, June
financial & business services	312	312	0.70	0.74	0.66
public services	235	246	0.57	0.75	0.66
education	229	237	0.82	0.74	0.44
env., culture, & recr.	79	81	0.54	0.69	0.54
other	345	352	0.39	0.42	0.37
industry	219	220	0.41	0.35	0.30
transport, comm., & utilities	162	158	0.31	0.43	0.39
construction	95	104	0.32	0.31	0.24
retail	191	176	0.25	0.31	0.22
healthcare & welfare	550	539	0.49	0.29	0.19
catering	72	71	0.20	0.32	0.18

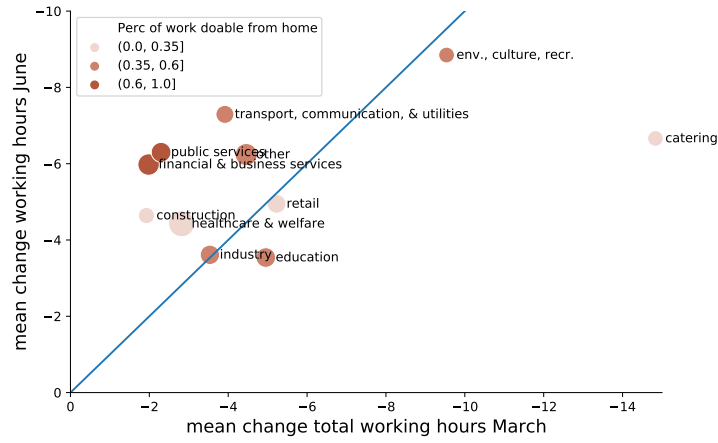


Figure C.8: Changes in total hours in late March and June 2020

Bubbles show sectors scaled by their size and colored with the average ability to work from home (three groups, $[0.0, 0.35]$, $(0.35, 0.6]$, $(0.6, 1.0]$), darker colors mean a higher share. The 45°-line is shown in blue. Descriptive statistics are in [C.1](#).

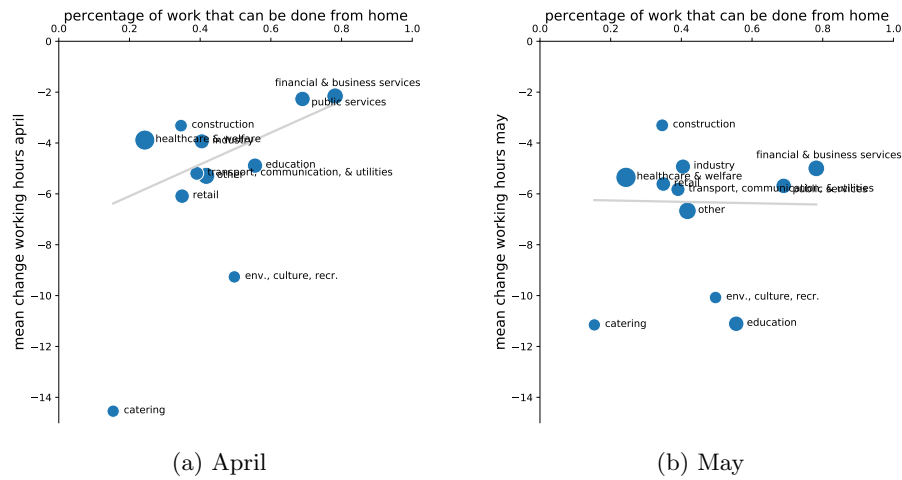


Figure C.9: Changes in total hours by share of work that can be done from home in April (Panel a) and May (Panel b)

Notes: Reference period for changes is late February/early March. Sample: $18 \leq \text{age} \leq 66$; working hours of at least 10h in at least one period. Descriptive statistics are in [C.1](#). Equivalent figures for the months March and June are shown in [Figure C.9](#)

C.3 Additional Tables and Figures for Section 4.3 Exploring broader patterns

Table C.2: Out of the labor force by individual and job characteristics

	(1)	(2)	out of the laborforce		(5)	(6)	(7)
			(3)	(4)			
march/april	0.001 (0.003)	0.004 (0.004)	-0.001 (0.003)				
may	0.056*** (0.013)	0.053*** (0.013)	0.051* (0.029)	0.028*** (0.004)	0.041 (0.028)	0.038 (0.028)	
june	0.052*** (0.014)	0.052*** (0.015)	0.038 (0.028)	0.025*** (0.003)	0.021 (0.028)	0.022 (0.028)	-0.005 (0.008)
march/april × female	0.004*** (0.001)	0.004** (0.002)	0.002 (0.001)				
may × female	-0.011 (0.009)	-0.005 (0.009)	0.001 (0.008)		-0.000 (0.008)	-0.000 (0.008)	
june × female	-0.012 (0.009)	-0.007 (0.009)	0.000 (0.008)		-0.002 (0.008)	-0.001 (0.008)	0.001 (0.005)
march/april × self-employed	-0.004*** (0.001)	-0.004** (0.002)	-0.003** (0.001)				
may × self-employed	0.002 (0.013)	0.000 (0.012)	0.002 (0.011)		-0.000 (0.012)	0.002 (0.012)	
june × self-employed	-0.002 (0.011)	-0.009 (0.011)	-0.000 (0.011)		-0.005 (0.012)	-0.002 (0.012)	-0.001 (0.006)
march/april × part time	0.002 (0.003)	0.003 (0.003)	0.003 (0.003)				
may × part time	0.026** (0.011)	0.025** (0.011)	0.027*** (0.010)		0.029*** (0.010)	0.026*** (0.010)	
june × part time	0.028*** (0.010)	0.024** (0.011)	0.021* (0.011)		0.025** (0.011)	0.023** (0.011)	0.010 (0.007)
march/april × education: upper sec.	0.000 (0.003)	-0.000 (0.003)	0.001 (0.002)				
may × education: upper sec.	-0.007 (0.013)	-0.018 (0.013)	-0.004 (0.011)		-0.004 (0.011)	-0.005 (0.011)	
june × education: upper sec.	-0.021 (0.013)	-0.020 (0.014)	-0.012 (0.013)		-0.011 (0.013)	-0.012 (0.013)	-0.005 (0.008)
march/april × education: tertiary	0.002 (0.003)	0.002 (0.004)	0.001 (0.003)				
may × education: tertiary	-0.010 (0.013)	-0.026* (0.014)	-0.011 (0.013)		-0.011 (0.013)	-0.013 (0.013)	
june × education: tertiary	-0.024* (0.013)	-0.026* (0.015)	-0.019 (0.014)		-0.019 (0.014)	-0.020 (0.014)	-0.007 (0.009)
march/april × income bet. 2500 and 3500	-0.002 (0.003)	-0.003 (0.003)	-0.002 (0.003)				
may × income bet. 2500 and 3500	-0.043*** (0.009)	-0.040*** (0.008)	-0.023*** (0.008)		-0.023*** (0.008)	-0.021*** (0.007)	
june × income bet. 2500 and 3500	-0.018** (0.009)	-0.021** (0.010)	-0.008 (0.009)		-0.008 (0.009)	-0.007 (0.009)	0.004 (0.006)
march/april × income above 3500	-0.004 (0.002)	-0.004 (0.002)	-0.003 (0.003)				
may × income above 3500	-0.032*** (0.010)	-0.032*** (0.010)	-0.015 (0.010)		-0.014 (0.010)	-0.013 (0.010)	
june × income above 3500	-0.011 (0.009)	-0.013 (0.011)	-0.000 (0.010)		0.001 (0.010)	0.002 (0.010)	0.006 (0.006)
march/april × essential worker		-0.004 (0.004)	-0.005 (0.005)				
may × essential worker		-0.012 (0.009)	-0.007 (0.010)		-0.003 (0.010)	-0.002 (0.010)	
june × essential worker		-0.012 (0.010)	-0.009 (0.011)		-0.003 (0.011)	-0.003 (0.011)	0.009 (0.008)
march/april × frac. work doable from home		-0.002 (0.005)	-0.002 (0.005)				
may × frac. work doable from home		0.031** (0.013)	0.020 (0.015)		0.024 (0.015)	0.023 (0.016)	
june × frac. work doable from home		0.010 (0.014)	-0.001 (0.016)		0.006 (0.016)	0.005 (0.017)	-0.001 (0.008)
march/april × essential × work do...		0.004 (0.005)	0.003 (0.004)				
may × essential × work doable fro...		-0.006 (0.016)	-0.002 (0.016)		-0.005 (0.017)	-0.006 (0.016)	
june × essential × work doable fr...		0.005 (0.018)	0.012 (0.018)		0.007 (0.019)	0.006 (0.019)	-0.002 (0.013)
may × avg. change march/april				-0.001* (0.000)	-0.001 (0.000)	-0.000 (0.000)	
june × avg. change march/april				-0.001 (0.000)	-0.001** (0.001)	-0.001 (0.001)	-0.000 (0.000)
may × reason red.: lost job						0.121* (0.063)	
may × reason red.: pandemic-rel. closure						0.005 (0.012)	
may × reason red.: less business						0.015 (0.011)	
june × reason red.: lost job						0.092	

Continued on next page

Table C.2: Out of the labor force by individual and job characteristics

	(1)	(2)	out of the laborforce		(5)	(6)	(7)
			(3)	(4)			
june × reason red.: pandemic-rel. closure						(0.061)	
june × reason red.: less business						-0.006	
						(0.012)	
						0.004	
						(0.011)	
march/april × sector: construction			0.003**				
			(0.001)				
march/april × sector: education			0.014*				
			(0.008)				
march/april × sector: env., culture, recr.			0.002				
			(0.002)				
march/april × sector: financial & busin...			0.003				
			(0.003)				
march/april × sector: healthcare & welfare			0.008				
			(0.006)				
march/april × sector: industry			0.004*				
			(0.002)				
march/april × sector: other			0.002				
			(0.002)				
march/april × sector: public services			0.004				
			(0.003)				
march/april × sector: retail			0.005				
			(0.003)				
march/april × sector: transport, communi...			0.004				
			(0.003)				
may × sector: construction			-0.041		-0.034	-0.035	
			(0.028)		(0.027)	(0.027)	
may × sector: education			-0.030		-0.027	-0.027	
			(0.029)		(0.029)	(0.029)	
may × sector: env., culture, recr.			-0.028		-0.026	-0.026	
			(0.034)		(0.033)	(0.034)	
may × sector: financial & business serv...			-0.013		-0.008	-0.008	
			(0.032)		(0.032)	(0.032)	
may × sector: healthcare & welfare			-0.035		-0.031	-0.030	
			(0.029)		(0.028)	(0.028)	
may × sector: industry			-0.030		-0.025	-0.023	
			(0.029)		(0.028)	(0.029)	
may × sector: other			-0.035		-0.030	-0.029	
			(0.029)		(0.029)	(0.029)	
may × sector: public services			-0.027		-0.022	-0.019	
			(0.030)		(0.030)	(0.030)	
may × sector: retail			-0.023		-0.019	-0.021	
			(0.030)		(0.030)	(0.030)	
may × sector: transport, communication, ...			-0.017		-0.013	-0.011	
			(0.031)		(0.031)	(0.031)	
june × sector: construction			-0.013		-0.003	-0.006	0.017
			(0.027)		(0.027)	(0.027)	(0.013)
june × sector: education			-0.002		0.004	0.004	0.010
			(0.026)		(0.026)	(0.026)	(0.008)
june × sector: env., culture, recr.			0.002		0.004	0.005	0.003
			(0.031)		(0.031)	(0.031)	(0.002)
june × sector: financial & business ser...			0.009		0.017	0.016	0.009*
			(0.029)		(0.028)	(0.028)	(0.005)
june × sector: healthcare & welfare			-0.014		-0.007	-0.008	0.002
			(0.025)		(0.025)	(0.025)	(0.005)
june × sector: industry			-0.018		-0.011	-0.011	0.002
			(0.025)		(0.025)	(0.025)	(0.003)
june × sector: other			-0.008		-0.001	-0.002	0.012*
			(0.026)		(0.026)	(0.026)	(0.006)
june × sector: public services			0.006		0.013	0.015	0.016
			(0.028)		(0.028)	(0.028)	(0.010)
june × sector: retail			-0.005		0.002	-0.000	0.002
			(0.027)		(0.027)	(0.027)	(0.003)
june × sector: transport, communication,...			0.019		0.024	0.025	0.024*
			(0.030)		(0.030)	(0.031)	(0.014)
june × affected by policy							0.001
							(0.005)
N	10258	8996	8492	5347	4312	4312	2005
R ²	0.028	0.029	0.025	0.002	0.022	0.030	0.010

Reference period is late February/early March. Standard errors are clustered on the individual level. Unbalanced panel restricted to individuals that worked at least once more than ten hours between early March and June. Notes: *p<0.1; **p<0.05; ***p<0.01.

Table C.3: Unemployed by individual and job characteristics

	(1)	(2)	(3)	unemployed (4)	(5)	(6)	(7)
march/april	0.006* (0.003)	0.011*** (0.004)	0.012 (0.011)				
may	0.015* (0.009)	0.032*** (0.010)	0.034 (0.023)	0.010*** (0.002)	0.003 (0.023)	0.008 (0.021)	
june	0.019** (0.009)	0.023** (0.010)	0.017 (0.018)	0.007*** (0.002)	-0.005 (0.019)	-0.004 (0.016)	-0.001 (0.008)
march/april × female	-0.001 (0.003)	-0.001 (0.004)	0.001 (0.004)				
may × female	-0.004 (0.007)	-0.001 (0.007)	0.006 (0.007)		0.002 (0.007)	0.004 (0.006)	
june × female	-0.011* (0.006)	-0.009 (0.007)	-0.007 (0.007)		-0.009 (0.007)	-0.008 (0.006)	-0.003 (0.003)
march/april × self-employed	-0.008*** (0.002)	-0.010*** (0.002)	-0.012*** (0.003)				
may × self-employed	-0.004 (0.007)	-0.010 (0.008)	-0.009 (0.009)		-0.016* (0.010)	-0.002 (0.009)	
june × self-employed	-0.006 (0.006)	-0.009 (0.007)	-0.011 (0.009)		-0.016* (0.009)	-0.004 (0.008)	-0.001 (0.006)
march/april × part time	0.004 (0.003)	0.004 (0.004)	0.005 (0.004)				
may × part time	0.011 (0.007)	0.010 (0.007)	0.015** (0.007)		0.021*** (0.007)	0.013* (0.007)	
june × part time	0.005 (0.006)	0.007 (0.007)	0.009 (0.007)		0.014* (0.008)	0.006 (0.007)	-0.001 (0.004)
march/april × education: upper sec.	0.004 (0.003)	0.006* (0.004)	0.008** (0.004)				
may × education: upper sec.	0.005 (0.008)	0.009 (0.008)	0.010 (0.009)		0.011 (0.009)	0.005 (0.008)	
june × education: upper sec.	0.004 (0.007)	0.009 (0.007)	0.010 (0.008)		0.011 (0.008)	0.006 (0.007)	-0.000 (0.004)
march/april × education: tertiary	0.004 (0.003)	0.006 (0.005)	0.009** (0.004)				
may × education: tertiary	0.003 (0.008)	0.009 (0.009)	0.012 (0.009)		0.013 (0.009)	0.007 (0.009)	
june × education: tertiary	0.003 (0.007)	0.007 (0.007)	0.008 (0.008)		0.009 (0.008)	0.004 (0.007)	0.000 (0.004)
march/april × income bet. 2500 and 3500	-0.005 (0.003)	-0.006 (0.004)	-0.004 (0.004)				
may × income bet. 2500 and 3500	-0.006 (0.007)	-0.005 (0.007)	0.002 (0.007)		0.003 (0.007)	0.007 (0.007)	
june × income bet. 2500 and 3500	-0.006 (0.006)	-0.005 (0.007)	-0.002 (0.007)		-0.001 (0.007)	0.003 (0.007)	-0.003 (0.004)
march/april × income above 3500	-0.006 (0.004)	-0.009** (0.004)	-0.006 (0.004)				
may × income above 3500	-0.009 (0.008)	-0.009 (0.007)	-0.000 (0.007)		0.003 (0.007)	0.006 (0.007)	
june × income above 3500	-0.009 (0.007)	-0.012 (0.008)	-0.006 (0.008)		-0.004 (0.008)	-0.001 (0.008)	-0.006 (0.004)
march/april × essential worker		-0.012*** (0.005)	-0.011** (0.005)				
may × essential worker		-0.034*** (0.009)	-0.025*** (0.009)		-0.016* (0.008)	-0.013 (0.008)	
june × essential worker		-0.018** (0.008)	-0.016** (0.008)		-0.009 (0.008)	-0.006 (0.008)	-0.001 (0.005)
march/april × frac. work doable from home		-0.003 (0.006)	-0.006 (0.006)				
may × frac. work doable from home		-0.028*** (0.010)	-0.026** (0.011)		-0.013 (0.011)	-0.018* (0.009)	
june × frac. work doable from home		-0.005 (0.010)	-0.006 (0.012)		0.003 (0.012)	-0.001 (0.010)	0.005 (0.006)
march/april × essential × work do...		0.009 (0.006)	0.012* (0.007)				
may × essential × work doable fro...		0.028** (0.011)	0.022* (0.011)		0.014 (0.011)	0.011 (0.010)	
june × essential × work doable fr...		0.004 (0.010)	0.006 (0.011)		-0.000 (0.011)	-0.004 (0.011)	-0.004 (0.005)
may × avg. change march/april				-0.002*** (0.000)	-0.002*** (0.000)	-0.001*** (0.000)	
june × avg. change march/april				-0.001*** (0.000)	-0.001*** (0.000)	-0.001* (0.000)	-0.000 (0.000)
may × reason red.: lost job						0.396*** (0.084)	
may × reason red.: pandemic-rel. closure						0.008 (0.010)	
may × reason red.: less business						-0.008 (0.007)	
june × reason red.: lost job						0.369*** (0.087)	
june × reason red.: pandemic-rel. closure						0.002 (0.010)	
june × reason red.: less business						0.000 (0.008)	
march/april × sector: construction			0.002				

Continued on next page

Table C.3: Unemployed by individual and job characteristics

	(1)	(2)	(3)	unemployed (4)	(5)	(6)	(7)
march/april × sector: education			(0.014) -0.013 (0.011)				
march/april × sector: env., culture, recr.			0.002 (0.019) -0.001				
march/april × sector: financial & busin...			(0.012) -0.006 (0.012)				
march/april × sector: healthcare & welfare			(0.012) -0.008 (0.011)				
march/april × sector: industry			(0.011) -0.002 (0.012)				
march/april × sector: other			(0.012) -0.011 (0.011)				
march/april × sector: public services			(0.011) -0.002 (0.013)				
march/april × sector: retail			(0.010) -0.010 (0.011)				
march/april × sector: transport, communi...			0.011 (0.033) -0.022		0.031 (0.033)	0.021 (0.029)	
may × sector: construction			(0.027) -0.022 (0.029)		-0.012 (0.026)	-0.013 (0.025)	
may × sector: education			(0.029) -0.017 (0.026)		-0.015 (0.028)	-0.013 (0.024)	
may × sector: env., culture, recr.			(0.026) -0.017 (0.026)		-0.002 (0.025)	-0.008 (0.023)	
may × sector: financial & business serv...			(0.030) -0.030 (0.025)		-0.016 (0.025)	-0.020 (0.023)	
may × sector: healthcare & welfare			(0.025) -0.020 (0.025)		-0.005 (0.025)	-0.006 (0.023)	
may × sector: industry			(0.025) -0.016 (0.025)		-0.003 (0.025)	-0.005 (0.023)	
may × sector: other			(0.027) -0.027 (0.025)		-0.013 (0.024)	-0.011 (0.022)	
may × sector: public services			(0.004) -0.029 (0.028)		0.017 (0.028)	0.008 (0.026)	
may × sector: retail			(0.029) 0.000 (0.028)		0.012 (0.028)	0.015 (0.026)	
may × sector: transport, communication, ...			0.008 (0.024) -0.005		0.021 (0.024)	0.014 (0.020)	0.003 (0.003)
june × sector: construction			(0.019) 0.000 (0.024)		(0.018) 0.004 (0.024)	(0.015) 0.008 (0.017)	(0.003) -0.000 (0.003)
june × sector: education			(0.020) -0.002 (0.019)		(0.020) 0.007 (0.018)	(0.015) 0.006 (0.015)	(0.005) 0.007 (0.005)
june × sector: env., culture, recr.			(0.019) -0.008 (0.018)		(0.018) 0.001 (0.018)	(0.015) 0.004 (0.014)	(0.005) 0.003 (0.002)
june × sector: financial & business ser...			(0.018) 0.008 (0.020)		(0.017) 0.017 (0.020)	(0.016) 0.017 (0.016)	(0.009) 0.009 (0.006)
june × sector: healthcare & welfare			(0.019) -0.006 (0.019)		(0.018) 0.003 (0.018)	(0.015) 0.008 (0.015)	(0.006) 0.009 (0.006)
june × sector: industry			(0.015) 0.023 (0.022)		(0.017) 0.023 (0.020)	(0.017) 0.015 (0.020)	(0.015) 0.015 (0.010)
june × sector: other			(0.011) 0.011 (0.022)		(0.017) 0.017 (0.022)	(0.023) 0.023 (0.019)	(0.002) 0.002 (0.002)
june × sector: public services							0.005 (0.005)
june × sector: retail							2005 0.008
june × sector: transport, communication,...							
june × affected by policy							
N	10258	8996	8492	5347	4312	4312	
R ²	0.005	0.012	0.017	0.017	0.036	0.183	

Reference period is late February/early March. Standard errors are clustered on the individual level. Unbalanced panel restricted to individuals that worked at least once more than ten hours between early March and June. Notes: *p<0.1; **p<0.05; ***p<0.01.

Table C.4: Hours worked by individual and job characteristics

	(1)	(2)	change total working hours			(6)	(7)
			(3)	(4)	(5)		
march/april	-7.8*** (0.8)	-10.7*** (0.9)	-17.2*** (2.2)				
may	-9.3*** (1.1)	-11.0*** (1.2)	-15.5*** (2.4)	-3.6*** (0.3)	-5.7*** (2.0)	-4.9** (2.0)	
june	-10.3*** (1.1)	-11.5*** (1.2)	-11.9*** (2.1)	-3.5*** (0.3)	-5.8*** (2.0)	-5.3*** (2.0)	-5.3** (2.2)
march/april × female	-1.3*** (0.5)	-1.7*** (0.5)	-1.6*** (0.5)				
may × female	-2.5*** (0.8)	-2.8*** (0.8)	-2.6*** (0.8)		-1.6** (0.7)	-1.6** (0.7)	
june × female	-1.4** (0.7)	-1.9** (0.8)	-1.7** (0.8)		-1.0 (0.8)	-1.0 (0.8)	-1.2 (0.8)
march/april × self-employed	-5.9*** (0.9)	-4.4*** (0.9)	-4.4*** (1.0)				
may × self-employed	-4.0*** (1.3)	-3.7*** (1.3)	-4.3*** (1.4)		-1.9 (1.3)	-2.1 (1.3)	
june × self-employed	-1.6 (1.1)	-1.4 (1.2)	-1.5 (1.3)		0.1 (1.3)	-0.1 (1.3)	-0.0 (1.2)
march/april × part time	3.5*** (0.5)	3.6*** (0.6)	3.6*** (0.6)				
may × part time	8.3*** (0.9)	8.5*** (0.9)	8.5*** (0.9)		6.5*** (0.9)	6.8*** (0.9)	
june × part time	8.3*** (0.8)	8.5*** (0.9)	8.7*** (0.9)		7.4*** (0.9)	7.6*** (0.9)	7.6*** (0.9)
march/april × education: upper sec.	2.0*** (0.7)	0.6 (0.7)	0.5 (0.8)				
may × education: upper sec.	-0.1 (1.0)	-0.6 (1.0)	-0.4 (1.1)		-0.8 (1.0)	-0.6 (1.0)	
june × education: upper sec.	1.2 (1.0)	0.2 (1.0)	0.2 (1.1)		-0.1 (1.1)	0.0 (1.1)	-0.1 (1.1)
march/april × education: tertiary	2.8*** (0.7)	0.1 (0.7)	0.3 (0.8)				
may × education: tertiary	-0.8 (1.0)	-2.1** (1.0)	-1.0 (1.1)		-1.3 (1.0)	-1.1 (1.0)	
june × education: tertiary	1.0 (1.0)	-0.4 (1.1)	-0.2 (1.2)		-0.4 (1.1)	-0.3 (1.1)	-0.7 (1.1)
march/april × income bet. 2500 and 3500	1.9*** (0.6)	1.3** (0.6)	0.7 (0.6)				
may × income bet. 2500 and 3500	1.9*** (0.9)	1.5* (0.9)	0.8 (0.9)		0.4 (0.8)	0.2 (0.8)	
june × income bet. 2500 and 3500	2.7*** (0.8)	2.9*** (0.9)	2.5*** (0.9)		2.4*** (0.9)	2.3*** (0.9)	2.1** (0.9)
march/april × income above 3500	3.0*** (0.6)	2.6*** (0.7)	1.9*** (0.7)				
may × income above 3500	4.2*** (1.0)	3.4*** (1.0)	2.3** (1.0)		1.3 (0.9)	1.1 (0.9)	
june × income above 3500	3.3*** (1.0)	3.4*** (1.1)	2.9*** (1.1)		2.3** (1.1)	2.2** (1.1)	2.4** (1.1)
march/april × essential worker		5.5*** (0.7)	5.4*** (0.9)				
may × essential worker		3.1*** (1.0)	3.0*** (1.1)		0.0 (1.0)	-0.2 (1.0)	
june × essential worker		3.3*** (1.0)	4.1*** (1.1)		2.0* (1.1)	1.9* (1.1)	1.6 (1.1)
march/april × frac. work doable from home		7.7*** (0.7)	7.4*** (0.8)				
may × frac. work doable from home		5.5*** (1.1)	5.2*** (1.2)		1.1 (1.1)	0.9 (1.1)	
june × frac. work doable from home		3.3*** (1.1)	3.8*** (1.2)		1.1 (1.2)	1.1 (1.2)	1.3 (1.2)
march/april × essential × work do...		-5.4*** (1.1)	-4.8*** (1.1)				
may × essential × work doable fro...		-5.4*** (1.7)	-3.9** (1.7)		-1.3 (1.6)	-1.0 (1.6)	
june × essential × work doable fr...		-3.8** (1.7)	-4.9*** (1.8)		-3.1* (1.8)	-3.0* (1.8)	-3.0* (1.8)
may × avg. change march/april				0.6*** (0.0)	0.6*** (0.0)	0.5*** (0.0)	
june × avg. change march/april				0.4*** (0.0)	0.4*** (0.0)	0.3*** (0.0)	0.3*** (0.0)
may × reason red.: lost job						-10.3*** (2.4)	
may × reason red.: pandemic-rel. closure						-3.0*** (1.0)	
may × reason red.: less business						-0.4 (1.0)	
june × reason red.: lost job						-8.0*** (2.9)	
june × reason red.: pandemic-rel. closure						-1.5 (1.1)	
june × reason red.: less business						-0.5 (0.9)	
march/april × sector: construction			10.8***				

Continued on next page

Table C.4: Hours worked by individual and job characteristics

	(1)	(2)	change total working hours				
			(3)	(4)	(5)	(6)	(7)
march/april × sector: education			(2.4) 5.6**				
march/april × sector: env., culture, recr.			(2.3) 3.4				
march/april × sector: financial & busin...			(2.5) 8.2***				
march/april × sector: healthcare & welfare			(2.3) 7.3***				
march/april × sector: industry			(2.3) 8.1***				
march/april × sector: other			(2.3) 7.6***				
march/april × sector: public services			(2.3) 7.5***				
march/april × sector: retail			(2.3) 7.1***				
march/april × sector: transport, communi...			(2.3) 6.0**				
may × sector: construction			(2.5) 9.5***		3.4	2.9	
may × sector: education			(2.6) -0.5		(2.1) -3.8*	(2.1) -4.0*	
may × sector: env., culture, recr.			(2.6) 2.5		(2.1) 0.4	(2.0) -0.0	
may × sector: financial & business serv...			(2.9) 5.3**		(2.2) 0.5	(2.2) 0.1	
may × sector: healthcare & welfare			(2.5) 4.6*		(1.9) 0.2	(1.9) -0.1	
may × sector: industry			(2.5) 5.9**		(1.8) 1.3	(1.9) 0.6	
may × sector: other			(2.5) 5.3**		(2.0) 1.0	(2.0) 0.5	
may × sector: public services			(2.4) 4.9*		(1.9) 0.5	(1.9) 0.1	
may × sector: retail			(2.5) 5.7**		(2.0) 1.5	(2.0) 1.2	
may × sector: transport, communication, ...			(2.5) 4.3		(1.9) 0.8	(1.9) 0.1	
june × sector: construction			(2.7) 2.0		(2.1) -1.6	(2.1) -1.8	-1.4
june × sector: education			(2.7) 1.6		(2.5) -0.3	(2.5) -0.4	(2.7) 0.0
june × sector: env., culture, recr.			(2.3) -3.4		(2.0) -4.4	(2.0) -4.6*	(2.1) -4.4
june × sector: financial & business ser...			(3.1) -0.7		(2.8) -3.6*	(2.8) -3.8*	(3.0) -2.8
june × sector: healthcare & welfare			(2.3) -1.2		(2.1) -3.7*	(2.1) -3.9**	(2.2) -3.5*
june × sector: industry			(2.2) 2.3		(2.0) -0.4	(1.9) -0.7	(2.1) -0.6
june × sector: other			(2.3) -0.1		(2.2) -2.6	(2.1) -2.8	(2.3) -2.4
june × sector: public services			(2.2) -0.2		(2.0) -2.8	(2.0) -3.0	(2.1) -2.4
june × sector: retail			(2.3) 0.7		(2.1) -1.7	(2.1) -1.8	(2.2) -1.4
june × sector: transport, communication,...			(2.3) -2.6		(2.1) -4.6**	(2.1) -4.9**	(2.2) -4.2*
june × affected by policy			(2.5) 0.2		(2.3) 0.2	(2.2) 0.2	(2.4) 0.2
N	10199	8978	8479	5319	4307	4307	(1.0) 2000
R ²	0.053	0.077	0.092	0.119	0.169	0.176	0.111

Reference period is late February/early March. Standard errors are clustered on the individual level. Unbalanced panel restricted to individuals that worked at least once more than ten hours between early March and June. Notes: *p<0.1; **p<0.05; ***p<0.01.

C.4 Tables and Figures relating to the targeting of support policies (Section 4.4)

Table C.5: Take-up of financial government support policies for self employed

	NOW	TOGS	tax deferral	TOZO	grekening	apa	guarantee	go	credits	loan fund
will do in the future	0.01	0.00	0.04	0.03	0.01	0.03	0.0	0.0	0.01	0.0
not applied or rejected	0.88	0.83	0.79	0.71	0.98	0.90	1.0	1.0	0.97	1.0
applied and not rejected	0.11	0.17	0.18	0.26	0.01	0.07	0.0	0.0	0.01	0.0

Table C.6: Take-up of financial government support policies for self employed

	NOW	TOGS	tax deferral	TOZO	grekening	apa	guarantee	go	credits	loan fund
I didn't know there was this arrangement.	0.01	0.01	0.01	0.02	0.06	0.04	0.06	0.08	0.07	0.06
No, I don't intend to.	0.00	0.00	0.00	0.00	0.00	0.57	0.51	0.49	0.48	0.49
No, I don't think my company qualifies.	0.20	0.58	0.30	0.44	0.14	0.00	0.00	0.00	0.00	0.00
No, I have no employees/no payroll costs.	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No, but I'm gonna do this.	0.01	0.00	0.04	0.03	0.01	0.03	0.00	0.00	0.01	0.00
No, for another reason.	0.14	0.21	0.41	0.22	0.11	0.00	0.00	0.00	0.00	0.00
No, this is too much paperwork.	0.01	0.01	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Not applicable.	0.00	0.00	0.00	0.00	0.00	0.28	0.42	0.43	0.42	0.45
Not applicable/I don't have a g-account	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00
Yes	0.00	0.00	0.00	0.00	0.01	0.07	0.00	0.00	0.01	0.00
Yes, but I don't yet know if the application ha...	0.02	0.03	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.00
Yes, but the application was rejected	0.02	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Yes, the application has been granted	0.08	0.14	0.10	0.19	0.00	0.00	0.00	0.00	0.00	0.00

Table C.7: Take-up of financial government support policies for employees

	NOW	TOGS	tax deferral
I don't know	0.27	0.33	0.41
not applied or rejected	0.60	0.62	0.55
applied and not rejected	0.13	0.05	0.04

Table C.9: Joint distribution of employment status and being affected by support policies

	unaffected by support measures	affected by any support measure
employee	0.76	0.14
self-employed	0.06	0.05

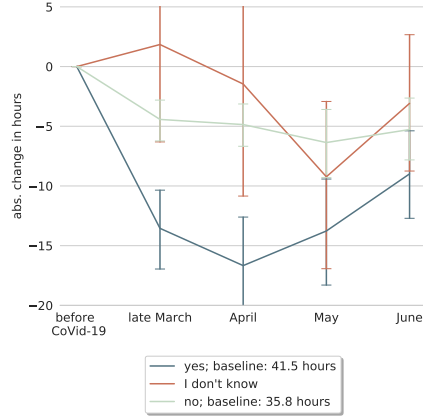
Notes: Numbers are normalized over all observations for which both variables are non-missing. Sample: $18 \leq \text{age} \leq 66$; working hours of at least 10h in at least one period.

Table C.8: Take-up of financial government support policies for employees

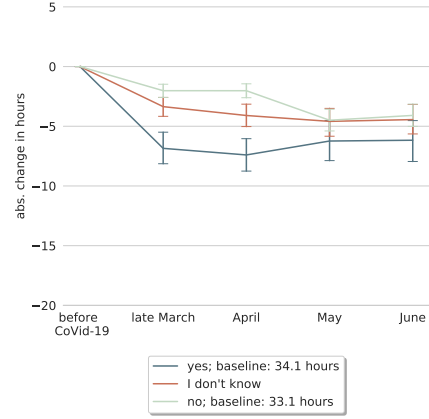
	NOW	TOGS	tax deferral
I don't know	0.25	0.32	0.39
No, I don't think it's necessary	0.44	0.41	0.42
No, I don't think it's possible	0.16	0.21	0.13
No, but I think my employer is gonna do this	0.02	0.01	0.02
Yes, but I don't yet know if the application ha...	0.06	0.02	0.02
Yes, but the application was rejected	0.01	0.00	0.00
Yes, the application has been granted	0.07	0.02	0.02

Table C.10: Take-up of financial government support policies by sector

	mean change total hours March, April, May	change unem- ployment until May	total hours, pre- CoViD	NOW	TOGS	tax defer- ral	TOZO	any policy
total	-4.96	0.010	33.04	0.13	0.06	0.05	0.03	0.18
catering	-12.91	0.028	28.20	0.37	0.21	0.08	0.02	0.41
env., culture, recr.	-9.88	0.012	32.62	0.32	0.15	0.06	0.13	0.44
education	-6.95	0.005	32.79	0.02	0.01	0.00	0.01	0.03
other	-5.61	0.012	33.87	0.20	0.08	0.10	0.06	0.29
retail	-5.49	0.027	32.35	0.25	0.13	0.10	0.04	0.31
transport, communication, & utilities	-5.01	0.019	35.22	0.16	0.08	0.06	0.02	0.19
industry	-4.16	-0.004	36.88	0.18	0.02	0.08	0.00	0.21
healthcare & welfare	-3.97	0.006	28.79	0.07	0.05	0.02	0.02	0.11
public services	-3.24	0.000	34.58	0.01	0.00	0.00	0.00	0.01
financial & business services	-3.04	0.007	36.13	0.12	0.05	0.08	0.02	0.22
construction	-2.64	0.032	38.27	0.04	0.02	0.03	0.01	0.07



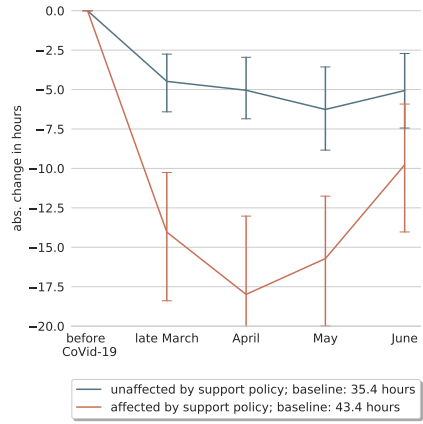
(a) Initially self-employed



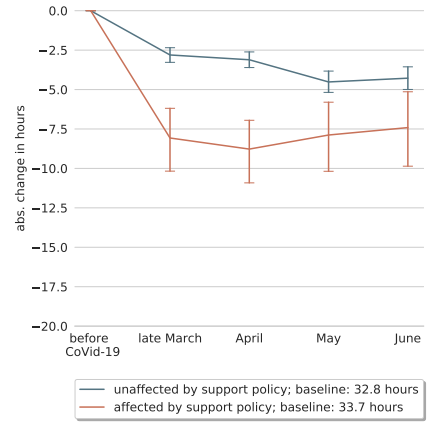
(b) Initially employee

Figure C.10: Total working hours and hours worked at home, by being affected by any support measure (including I don't know category)

Notes: The figure shows changes in total hours worked over time by being affected by any support measure (broad definition). The category "I don't know" is assigned if the respondent never answered 'yes' and responded "I don't know" for at least one support program. Reference period is late February/early March. Vertical bars depict 95 %-confidence intervals. Sample: $18 \leq \text{age} \leq 66$; working hours of at least 10h in at least one period.



(a) Initially self-employed



(b) Initially employee

Figure C.11: Total working hours and hours worked at home, by being affected by any support measure (narrow definition)

Notes: The figure shows changes in total hours worked over time by being affected by any support measure (narrow definition). Reference period is late February/early March. Vertical bars depict 95 %-confidence intervals. Sample: $18 \leq \text{age} \leq 66$; working hours of at least 10h in at least one period.

Table C.11: Take up of policies by individual characteristics, job characteristics, and experienced change in work hours

	affected by any support policy			affected by NOW	affected by TOGS	affected by tax deferral
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.178*** (0.008)	0.272*** (0.031)	0.333*** (0.062)	0.303*** (0.062)	0.189*** (0.048)	0.072* (0.037)
avg. hours change march/april	-0.009*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)	-0.001* (0.001)
female		-0.034* (0.018)	-0.015 (0.019)	-0.006 (0.016)	-0.027** (0.011)	-0.016 (0.011)
self-employed		0.162*** (0.033)	0.131*** (0.034)	-0.111*** (0.024)	0.080*** (0.025)	0.078*** (0.025)
part time		0.008 (0.021)	0.014 (0.021)	-0.002 (0.017)	-0.012 (0.012)	-0.013 (0.011)
education: upper sec.		0.066** (0.026)	0.072*** (0.026)	0.053** (0.023)	0.008 (0.018)	0.014 (0.015)
education: tertiary		0.006 (0.027)	0.044 (0.028)	0.028 (0.024)	-0.002 (0.018)	-0.002 (0.016)
income bet. 2500 and 3500		-0.074*** (0.021)	-0.032 (0.022)	0.001 (0.019)	-0.018 (0.014)	-0.001 (0.013)
income above 3500		-0.036 (0.025)	0.003 (0.025)	0.019 (0.021)	-0.004 (0.016)	0.023 (0.017)
essential worker		-0.183*** (0.025)	-0.143*** (0.027)	-0.106*** (0.025)	-0.077*** (0.019)	-0.032* (0.017)
frac. work doable from home		-0.062** (0.030)	-0.059* (0.032)	-0.064** (0.027)	-0.064*** (0.020)	0.002 (0.019)
essential × work doable from home		0.112*** (0.039)	0.133*** (0.041)	0.100*** (0.035)	0.061*** (0.023)	0.024 (0.023)
sector: construction			-0.273*** (0.068)	-0.255*** (0.065)	-0.155*** (0.051)	-0.075* (0.041)
sector: education			-0.278*** (0.061)	-0.265*** (0.062)	-0.107** (0.049)	-0.059 (0.038)
sector: env., culture, recr.			0.015 (0.080)	0.006 (0.081)	-0.046 (0.063)	-0.038 (0.046)
sector: financial & business services			-0.101 (0.065)	-0.154** (0.065)	-0.081 (0.051)	-0.009 (0.042)
sector: healthcare & welfare			-0.171*** (0.062)	-0.187*** (0.063)	-0.058 (0.050)	-0.021 (0.039)
sector: industry			-0.123* (0.066)	-0.127* (0.067)	-0.123** (0.049)	-0.014 (0.042)
sector: other			-0.062 (0.063)	-0.082 (0.065)	-0.074 (0.050)	0.017 (0.040)
sector: public services			-0.287*** (0.061)	-0.278*** (0.062)	-0.110** (0.048)	-0.071* (0.039)
sector: retail			-0.012 (0.067)	-0.036 (0.069)	-0.009 (0.055)	0.019 (0.043)
sector: transport, communication, & utilities			-0.088 (0.068)	-0.105 (0.070)	-0.052 (0.054)	-0.025 (0.042)
N	2572	2374	2230	2151	2150	2150
R ²	0.060	0.119	0.160	0.106	0.095	0.049

Reference period is late February/early March. Standard errors are clustered on the individual level. Unbalanced panel restricted to individuals that worked at least once more than ten hours between early March and June. Notes: *p<0.1; **p<0.05; ***p<0.01.