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**Adopting Telework. The causal impact of working from home on
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**Guillaume Gueguen
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JEL Codes: I31, M5

Keywords: Work from Home, Life Satisfaction, Mental Health, Covid-19



Adopting Telework. The causal impact of working from home on subjective wellbeing.

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Abstract

We study the impact of work from home on subjective wellbeing during the Covid period, where self-selection of individuals into telework is ruled out, at least part of the time, by stay-at-home orders. We use a difference-in-difference approach with two-way fixed-effects and identify the specific impact of switching to telecommuting, separately from any other confounding factor. In particular, our identification strategy avoids the influence of inter-personal heterogeneity by exploiting the multiple entries into telework, by the same individuals, at different times. On average over the period, switching to work from home -especially full-time, worsens mental health. We also distinguish a positive but imprecisely measured impact of part-time telework on life satisfaction. However, this hides a dynamic evolution, whereby the initial deterioration gives place to an adaptation process after a couple of months. We also uncover a particularly pronounced fall in subjective wellbeing of women with children's subjective, especially in the first months; this could be associated with home-schooling.

Keywords: Work from Home, Life Satisfaction, Mental Health, Covid-19

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The data used for this paper is freely and publicly made available by UK data services.

1 Introduction

One of the major legacies of the Covid-19 pandemic will certainly be the extension of IT-based distant interactions, in particular telework. In most countries, nonpharmaceutical interventions against the pandemics included a massive and forced use of telecommuting whenever it was possible to carry out one’s job from home. In the UK for instance, this concerned about one third of all jobs, mostly in the service sector. This shock has come as an acceleration of an ancient but slow ongoing evolution led by digital technology, that enabled work to be done outside the premises of the firm, at home, in remote offices, or in co-working spaces. Once the pandemic is over, a return to the *statu quo ante* is unlikely, as the potential stigma that was associated with remote work has disappeared, and workers and companies have made substantial investments in the equipment needed in order to work from home (Barrero et al. 2021). Although Dingel and Neiman (2020) calculated that, on average, 37% of U.S. jobs could technically move to full telecommuting, this proportion could reach much higher levels in some sectors and occupations, such as managers (Hensvik et al. 2020). The stakes are high, as a massive and sustained shift to telework would set off a chain of far-reaching consequences, not only for work arrangements, but also for land use, the housing market, labour costs, employment levels and macroeconomic growth (Bergeaud and Ray 2021). Whether work from home (WFH) will stay eventually depends on its impact on productivity (from the labour demand side) and on the value that workers see in this possibility. We are interested here in the labour supply side: is telework conducive to workers’ wellbeing?

We analyse the question through the lens of self-reported life satisfaction and mental health. In this literature, self-declared life satisfaction is considered as a synthetic over-arching concept that subsumes sub-domains, such as job satisfaction, family satisfaction, satisfaction with leisure, etc. (Van Praag et al. 2003). Mental health indicators, on the other hand, are based on a clinical approach of subjective wellbeing.

We study the impact of work from home (WFH) due to the lockdown episode imposed by the Covid pandemics, although, once the pandemics is over, the workers may also consider the possibility of distant work outside the premises of their firm in other locations than home, such as shared working spaces or remote offices made available by the firm, for example. We discuss how this restricts the generality of the results.

The influence of work from home on subjective wellbeing is likely to transit principally through job satisfaction, but not exclusively, and its net impact is a priori ambiguous, although working from home has often been an unmet demand on behalf of workers, usually considered with suspicion by employers. Firstly, each of the main drivers of wellbeing at work that have been identified by the literature, i.e. autonomy (Csikszentmihályi, 1990; Karasek and Theorell, 1990), social capital (Helliwell and Huang 2010, 2011), progression perspectives (Loewenstein and Sicherman, 1991, Frank and Hutchens, 1993; Senik, 2005), purpose (Cremer, 1993, Fehr and Schmidt, 1999; Cassar and Meier, 2018; Bailey et al., 2019; Henderson and Van den Steen, 2015; Yeoman et al. 2019), job security and work-life balance (Warr 1999, 2007; Clark 2001; Green 2006; Gallie, 2009, 2013), could be either enhanced or attenuated by WFH. We hypothesize that distant working is likely to be favourable to autonomy and work-life balance, but detrimental to social capital, purpose, future perspectives, and job security, because of the impoverishment of inter-personal interactions, and the remoteness from the firm’s locus of control. One can thus expect life satisfaction to be improved by telework thanks to the alleviation of commuting constraints (Stutzer and Frey, 2008; Bryson and MacKerron, 2017) and a general increased freedom

on one’s time use, but that mental health would deteriorate for those who benefit from the firm as a social integration structure. We also expect these negative effects to be stronger for those who work entirely from home than for workers who split their time between home and the firm, and thus benefit from the continuation of “in person” social contacts. We are also interested in the dynamic effect of working from home: do people feel increasingly isolated as they spend more time in this arrangement, or do they adapt progressively? Overall, as Mas and Pallais (2020)’s survey illustrates, the net impact of telecommuting on subjective wellbeing is a priori ambiguous. We test for these different effects using the life satisfaction question included in the survey, as well as the twelve dimensions of the general health questionnaire (GHQ) of mental health, which address several of the aforementioned channels.

In terms of empirical evidence, pre-Covid and Covid episodes also offer ambiguous lessons. Prior to the health crisis, and despite the rarity of telework, which concerned 3% to 5% of workers in OECD countries (Flex Jobs 2017; ONS 2019), many empirical studies had examined the relationship between work from home and subjective wellbeing, without reaching consistent results (Gajendran and Harrison 2007; Bailey and Kurland 2002; Oakman et al. 2020). The meta-analysis led by Oakman et al. (2020) pointed to the less beneficial health effect of work from home on women, certainly due to the blurring of work-home boundaries. Famous experiments conducted within companies suggest a positive effect of telecommuting on wellbeing, but it is difficult to generalize the lessons drawn from these particular cases (Bloom et al. 2015; Mas and Pallais 2017; Delanoeije 2020).

Early empirical studies of the massive telework episode due to Covid-19 often conclude to the negative effect of telework, especially for women (Lyttelton et al. 2020; Xiao et al. 2021), but do not really disentangle the impact of telework *per se* from that of the health crisis (Gibbs et al. 2021; Etheridge et al. 2020; Barrero et al. 2021). The fall in subjective wellbeing due to the context has been abundantly documented (e.g. Pierce et al. 2020; Pelly et al. 2021; Sibley et al. 2020; Anaya et al. 2021; Banks and Xu 2020; Brodeur et al. 2021; Schmidtke et al. 2021), but while in the early days of the lockdown, increased symptoms of depression and anxiety were often attributed to telecommuting, with the easing of restrictions, many surveys revealed that the vast majority of workers do not want to return to the office 5 days a week (e.g. Felstead and Reuschke 2020).

Only a few studies are able to disentangle the pure effect of work from home from that of the Covid context, thanks to longitudinal panel data, especially when they cover pre-Covid and Covid periods. Close to our work, a report by Felstead and Reuschke (2020), based on the same British data, documents the fall in mental health indicators of newly home-centered workers, as compared to pre-Covid time, especially in April and May 2020. Our paper complements this report, whose ambition is to describe more broadly the extent, composition and impact of telework on several outcomes, but not life satisfaction, and who only uses 3 early Covid waves of the survey. Another recent study is that of Bertoni et al. (2021) who use longitudinal data from the SHARE survey of senior Europeans and estimate the causal effect of switching to remote work during the COVID-19 pandemic on mental health. The paper uncovers negative effects of telework for respondents with children at home, but a positive effect for men and for respondents with no co-residing children. The limitation of that study is imposed by the data, which is restricted to senior workers and only contains mental health outcomes, but not life satisfaction. A study by Schifano et al. (2021) tracks self-declared wellbeing

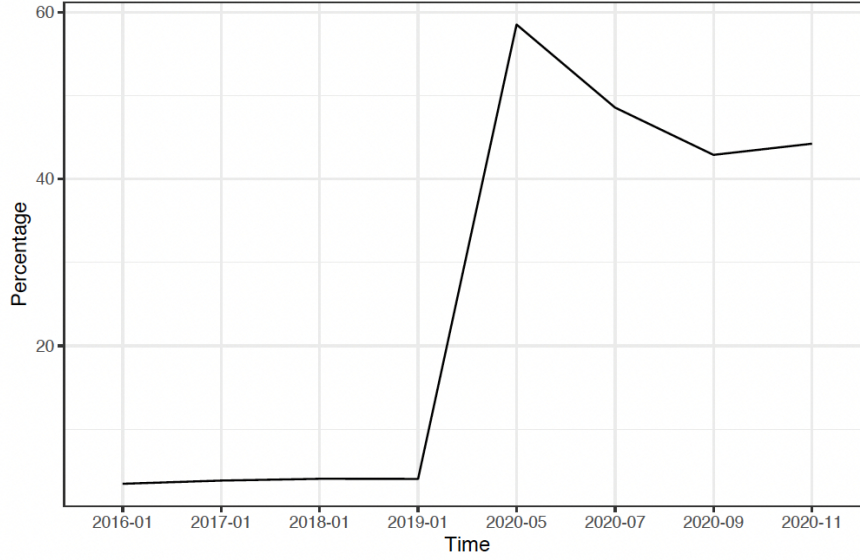


Figure 1: Fraction of people working from home (UKHLS)

measures of individuals across five European countries, using four waves of a longitudinal survey covering the period May-November 2020. They find no effect of switching into working at home, except for a small drop in anxiety. This could be due to the small size of their sample, which only contains 9700 observations for 5 countries and 4 waves, as well as the fact that the survey does not cover a pre-Covid benchmark period; it could also be due to the fact that they measure the average impact of switching to telework, whereas it is likely that the impact unfolds over time, as we will show.

In this paper, we identify the specific impact of switching to telework on subjective wellbeing, separately from a set of confounding factors such as the context of the health crisis (fear of contagion, recession, stress), potential heterogeneity between people who hold teleworkable jobs versus not, and unobserved individual heterogeneity in general. This is allowed by the long panel dimension and the high frequency of the data during the pandemic, as we use the United Kingdom Household Longitudinal Survey (UKHLS), which is usually run on a yearly basis, but has developed an additional Covid-19 module with frequent waves since April 2020, and contain both life satisfaction and mental health measures.

The fact that teleworking was imposed overnight by stay-at-home orders rules out the usual problem of self-selection of individuals into telework, at least during the most stringent lockdown periods. In the UK, the legal obligation to work from home whenever possible, was enforced during the entire period under study, with a particular strength during the lockdown episodes, i.e. between March 26th and June 23rd, 2020, as well as between November 5th and December 2nd, 2020. But, as there was no explicit legal list of service jobs that were obliged to switch to telework, some firms could keep or call their employees back on site when they considered it as “absolutely necessary”. We thus assume that during the Covid-19 episode, a person was working from home if this had been decided by the government or their employer. We also discuss the possibility some degree of self-selection into WfH. Figure 1 illustrates the massive switch to telework starting in March 2020.

As many people have alternatively been telecommuting and working on site, and as we observe people at eight different points of times during Covid, between April 2020 and March 2021, we can identify the specific impact of working from home for these people, (i.e. those who hold a teleworkable job), hence exploit the intra-individual variations in a person’s working arrangement during the Covid episode. We thus follow a difference-in-difference approach with individual and time fixed-effects, and estimate the impact of switching to telework on subjective wellbeing measures. Hence, within the group of people who did not use to telework before the Covid crisis, we compare the subjective wellbeing of those who work at home at some point during the Covid episode in 2020 and 2021 to that of people who are not teleworking at that time (including themselves at times they do not telework). In the language of difference-in-difference analysis, we consider the situation of being working at home during Covid as a “treatment”, we call “intention to treat” (ITT) people who did not telework before 2020 and do telework at least once during the eight waves of 2020 and 2021. Hence “treated” people are ITT individuals who are actually working from home in a given wave of the special Covid survey; and not ITT are people who never telework in 2020 or 2021.

We also identify the impact of the duration of working from home. In this regard, one can potentially expect two opposite effects: positive adaptation to new social, technological and organisational constraints, or an increasingly negative desocializing impact of distance to firm and colleagues. We expect the results to be different from the ones uncovered by other studies that only contrast work from home and work on site during the Covid period because their data do not cover the pre-Covid time or because they do not have panel data. But we also expect to find different results from studies that only have one point in time for the Covid period, hence cannot observe the subjective wellbeing of the same workers depending on whether they are working from home or not during Covid times: these studies cannot distinguish the effect of switching to WfH from the differential impact of the crisis on workers depending on whether they hold a teleworkable job.

We show that in average over the Covid period, work from home exerts a positive, but imprecisely measured impact on self-declared life satisfaction, but a rather negative effect on mental health (GHQ score), depending on the intensity of distant work: In average, “always” working from home is detrimental to mental health, but there is no effect of “often” WfH. The average negative impact of full telework on workers’ global score of mental health hides a dynamic evolution, as the initial deterioration disappears after a period of adaptation of several consecutive months of WfH. we also observe a stronger negative effect of telework on women with children under 15 years old, especially over the April-July 2020 period - an effect that is likely to be related to home-schooling. Our identification strategy relies on the assumption that workers have not had the choice whether to work from home or not. Inasmuch as this assumption is correct, our results suggest that working entirely from home is prone to have a detrimental effect on mental health, but that people can adapt to this arrangement, both psychologically and by taking the necessary practical adjustments. However, we also consider the possibility that some workers have had the possibility of choosing their working arrangement, especially at the end of the period. In June 2020, September 2020, and January 2021, surveyed workers were asked: “Once *social distancing measures are relaxed and workplaces go back to normal, how often would you like to work from home? (Always, often, sometimes, never)*”. We do find a small correlation between declaring a desire to work “often” or “always” from home in the future and the likelihood that one is actually teleworking

in the subsequent waves of the survey. Hence, although this cannot be interpreted as causal, we cannot exclude a certain degree of self-selection. We thus refrain from concluding to the possibility of enforcing generalized full work from home as the norm without psychological harm.

We are aware of the limits of this study, as it relies on the Covid-based lockdown episode which had two specific features: The first one is that people had to work from home in the literal sense, with the specific implications of this arrangement, such as possible confusion between private and professional life, especially for women. After Covid, distant work may persist, but it can also take place in tier-places such as co-working spaces or distant offices, with potentially different effects on mental health. The second one is that distant work was explicitly extended to its furthest possible limits, thus excluding stigma or any other feeling of particular exclusion, privilege, or guilt by those who were concerned. After the end of the Covid crisis, the effect on people’s mental health will depend on the general coordination among workers and firms, and on the specific arrangement chosen by each firm, in particular whether they treat distant work as an objective or as a privilege. Keeping these limitations in mind, we proceed to studying the impact of work from home on subjective wellbeing in the context of the Covid crisis in 2020 and early 2021.

2 Data and Identification Strategy

We use the UK Household Longitudinal Survey (UKHLS), a rich yearly panel survey, which allows to track the same individuals over time and covers a wide range of topics, including self-reported wellbeing measures. An additional Covid-19 module was added, with waves in April, May, June, July, September and November 2020 as well as January, March and September 2021 (Understanding Society 2020b, 2020a). We use four pre-Covid waves (2016-2019) and eight of the aforementioned Covid waves (we leave September 2021 out of the sample, as it is too distant in time from the previous wave).

Our sample comprises employed people with a positive number of working hours in each wave. After dropping individuals for whom information on telework is missing from the Covid module, or who changed place between 2019 and 2020, it contains 9284 different individuals.

We run our analysis on the entire unbalanced panel formed by the individuals who are surveyed in the pre-Covid waves as well as in some Covid waves. For robustness, we considered using a strictly balanced panel, but this would leave us with roughly 1/13th of the initial sample size (727 observations), which would obviously induce a selection large bias and lower precision of the results. We chose to follow an intermediate approach, which consists in constructing a “quasi- balanced” panel, where we keep people who are observed in at least four out of the eight Covid waves, i.e. 4346 individuals. We also experiment with other variants of “quasi-balanced panel”, i.e. keeping people who are observed in at least three (5255 individuals), or five (3416 individuals) times out of the total eight waves of the Covid panel.

Our main dependent variables are the standard measures of subjective wellbeing: self-declared life satisfaction and the GHQ12 scores (OECD, 2013). Life satisfaction is scaled on a 1-7 scale. It was measured at each wave, except in April and June 2020. As is classic in this research domain, we analyse it as a cardinal measure (Ferrer-i-Carbonell and Frijters 2004). The GHQ module (included in all waves) contains 12 questions

related to different dimensions of mental health, i.e. concentration, loss of sleep, the feeling of playing a useful role, being capable of making decisions, feeling constantly under strain, problem overcoming difficulties, enjoying day-to-day activities, ability to face problems, feeling unhappy, feeling depressed, losing self-confidence, feeling worthless. For each of the 12 questions, for example “Have *you recently been able to concentrate on whatever you are doing?*”, respondents must tick an answer out of four modalities: *much less than usual (0)*, *less than usual (1)*, *same as usual (2)*, *better than usual (3)*. We also create a synthetic variable by summing the answers to the 12 questions (dropping observations for which one dimension is missing). The obtained global (recoded) GHQ score runs from 0 (the most distressed) to 36 (the least distressed). These measures of subjective wellbeing address most of the potential impacts of working from home, as discussed in Section 1.

Over its thirty years of development, the subjective wellbeing literature has questioned the validity and reliability of these outcome measures. One of their drawbacks is that they may reflect two types of unobserved individual heterogeneity: first, the way people transform the circumstances of their life into wellbeing, and, second, the way they express their latent level of wellbeing on a discrete scale. However, provided that these are time-invariant personality traits, these problems can be surmounted by using longitudinal panel data, such as the UKHLS, that allow controlling for individual fixed-effects. Other criticisms have pointed to the difficulties of using a subjective discrete scale (Bond and Lang 2019), but in practice these measures have proven their consistency and their predictive power, and are now considered as mainstream tools (Frey and Stutzer 2002; Kahneman and Krueger 2006; Layard 2011, Barrington-Leigh, 2022). In view of our specific exercise, it is particularly important to be able to follow the same individuals before and during Covid, as well as to observe them several times during Covid. This is because it allows controlling for individual heterogeneity in the way people (in different occupations for instance) react to the Covid crisis, and to distant work itself. Other analyses of the impact of telework on subjective wellbeing that are based on data that do not cover the pre-Covid data, or only observe individuals once during the Covid period, are unable to avoid these problems.

The regular main module of the UKHLS asks “*Do you work mainly at...*”, where a possible answer “*At home*” is available. We use this to identify people working from home between 2016 and 2019. The Covid-19 module of the UKHLS contains the following question: “*During the last four weeks how often did you work at home?*”, with four response modalities: *Always*, *Often*, *Sometimes*, and *Never*. We consider separately the “always” and “often” modalities as different intensities of WfH and “sometimes” and “never” as not WfH (Felstead and Reuschke, 2020). We understand “always” as a situation where people work fully from home, and “often” as one where they sometimes work within the premises of the firm. We verify that the WfH intensities (“often” versus “always” or not WfH) are roughly the same over the different Covid waves (Appendix Table A1), hence are not driven by time-effects.

We use difference-in-difference estimates with two-ways (individual and wave) fixed-effects. We assume that the obligation to work from home during lockdown episodes was an exogenous shock imposed by the government or by their firm on individuals who held a teleworkable job. We will discuss this assumption latter. We define an individual bimodal variable that takes value 1 if we see a person working from home at least once in 2020 or 2021 but not before 2020, and 0 otherwise. In the language of Randomized Experiments, this variable identifies “Intention To Treat” individuals (ITT). We then define a binary variable “Treated”, which

Table 1: Description of the different populations of interest

Year	Waves	N	On Site	WFH	ITT	ITT not Treated	Treated	%WFH
2016	1	6811	6575	236	2996	2996	0	3
2017	2	7043	6772	271	3087	3087	0	4
2018	3	7142	6852	290	3085	3085	0	4
2019	4	7778	7463	315	3375	3375	0	4
2020-04	5	7682	4412	3270	3403	489	2914	43
2020-05	6	4311	1807	2504	2589	321	2268	58
2020-06	7	4292	1977	2315	2507	414	2093	54
2020-07	8	3708	1921	1787	2098	486	1612	48
2020-09	9	3473	2015	1458	1894	602	1292	42
2020-11	10	3315	1860	1455	1782	493	1289	44
2021-01	11	3163	1575	1588	1774	356	1418	50
2021-03	12	3303	1725	1578	1873	474	1399	48
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(5)/(3)

takes value 1 if, at a given Covid time, an ITT individual is actually teleworking. This “Treated” variable is constructed as:

$$Treated_{i,t} = Covid_t * ITT_i * Telework_{i,t} \quad (1)$$

For example, consider ITT individuals who work from home in April, May and June 2020, go back to work on site in July, September and November 2020 and work again from home in January and March 2021: these people are identified as “ITT” in all periods, but their “Treated” variable will take values 1 - 1 - 1 - 0 - 0 - 0 - 1 - 1 respectively during our 8 Covid waves. Note that in the sample, a small number of individuals declared that they were working from home in pre-Covid waves. As we are interested in the impact of exogenously switching to telework, we are not considering these people as part of the ITT group. ITT identifies people who hold a teleworkable job but did not telework before 2020. Alternative specification where we drop these individuals from the sample leave the results essentially unchanged.

Table 1 describes our regression sample, which contains about 50,200 observations for 9216 different individuals. As one can see, before the pandemic, roughly 3% of the sample declared working from home. Following the Covid-19 outbreak, this percentage peaks to roughly 58% in May 2020 and remains above 42% afterwards. The descriptive statistics of the regression sample appear in the Appendix Table A1 .

Figure 2 offers a clear picture of the evolution of life satisfaction for four groups of workers (excluding those who teleworked before Covid-19): people who never telework (red line), people who are not teleworking at the time they are interviewed (ITT not teleworking, purple line), people who “always” telework at the time they are interviewed (blue line), and people who “often” telework (green line). Before May 2020, all ITT are in the same group (ITT, purple). From May 2020 onwards, the ITT group splits in two parts: treated (blue and green lines) or untreated (purple). Pre-Covid-19, the trends in life satisfaction and GHQ are the same whether people hold a teleworkable job or not.

The figure shows that during Covid, life satisfaction is higher among people who are working from home,

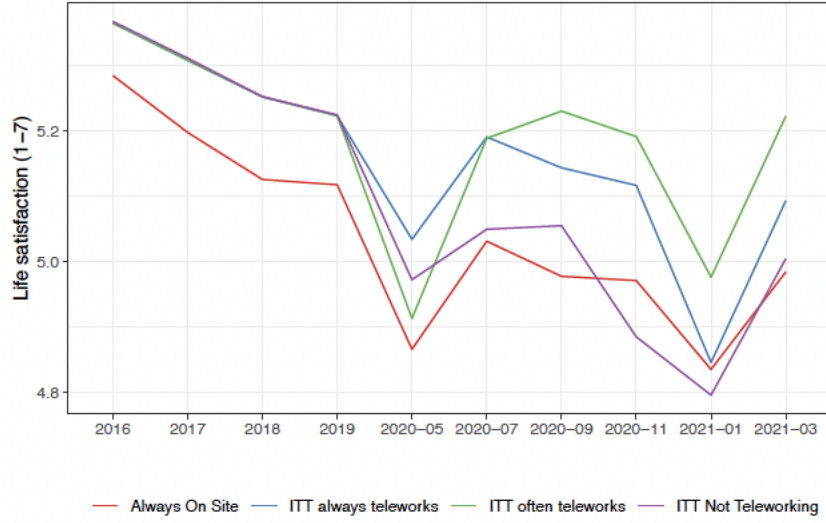


Figure 2: Evolution of life satisfaction over time by telework intensity

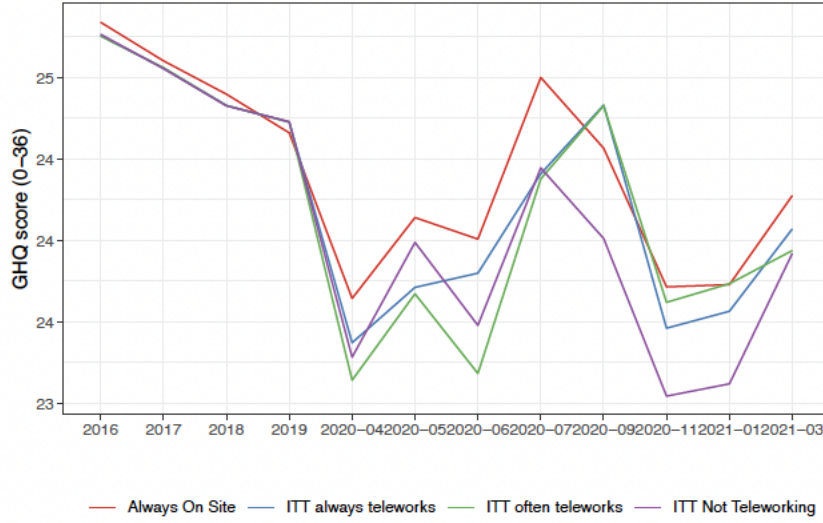


Figure 3: Evolution of GHQ score over time by telework intensity

relative to ITT individuals who are not, especially for people who “often” work from home rather than “always”. Except in the first Covid wave, people who “often” WfH report a higher level of life satisfaction than any other group. People who are not teleworking, whether they hold a teleworking job or not, report a lower level of life satisfaction.

The dynamics of the GHQ score (Figure 3) is different, as people who do not hold a teleworkable job almost always report a higher score of mental health (red curve). Starting in June 2020, those who work from home (green and blue) fare better than those who hold a teleworkable job but work on site (purple).

In order to go beyond this descriptive approach, we run econometric estimates of the causal impact of WfH on subjective wellbeing. We use a difference-in-difference estimation with two-way fixed-effects (individual and

wave level), following equation (2) :

$$Y_{i,t} = \alpha + \beta * Covid_t + \gamma * ITT_i + \phi * Covid_t * ITT_i + \delta * \text{TreatedALWAYS}_{i,t} + \lambda * \text{TreatedOFTEN}_{i,t} + \theta * X_{i,t} + \psi * X_{i,t} * Covid_t + W_t + \mu_i + \epsilon_{i,t} \quad (2)$$

with:

$$TreatedALWAYS_{i,t} = Covid_t * ITT_i * Telework_{i,t}[ALWAYS]$$

and:

$$TreatedOFTEN_{i,t} = Covid_t * ITT_i * Telework_{i,t}[OFTEN]$$

where $Y_{i,t}$ is alternatively the GHQ (0 - 36) or the life satisfaction (1 - 7) score; $Covid_{i,t}$ is a dummy indicating whether the survey takes place during Covid time (after March 2020), so that β catches the impact of the health crisis on life satisfaction and mental health W_t are waves fixed effects. Parameter γ on ITT_i captures the difference in subjective wellbeing of ITT individuals, as compared to non ITT. Parameter ϕ on $Covid_t * ITT_i$ identifies the specific reaction of ITT individuals to the Covid-19 crisis, compared non ITT individuals.

Our parameters of interest are δ and λ , which, under the assumptions that ITT individuals did not have the choice to telework or not, identifies the causal effect of working from home during Covid, either “always” or “often”. They compare the difference in wellbeing of individuals who are “always” teleworking at time t (δ) or “often” teleworking at time t (λ) versus ITT individuals who are not teleworking at time t (control group). By construction, all these individuals hold a teleworkable job. Note that parameters δ and λ capture a mix of between-individuals and within-individual effects, as they estimate the wellbeing difference between ITT individuals who are currently teleworking and ITT who are not, including themselves in other Covid waves.

$X_{i,t}$ is a vector containing the usual socio-demographic controls, i.e. the logarithm of net monthly household income, size of the household, gender, age and age squared of the respondent, 1-digit ISCO occupational codes, highest diploma completed, number of worked hours, dummy variables for living with a 0-15 years old child, and in a rural area. We interact all these controls with the Covid-19 dummy ($X_{i,t} * Covid_t$) in order to account for the possibility that reactions to the crisis differed across groups of the population (as in Pierce et al. 2020). Suppose, for instance, that men were more negatively affected by the health crisis than women, and were also more likely to be teleworking, then not controlling for the interaction would lead to underestimate parameter δ . These controls and interactions enable to purge parameter δ from individual-specific reactions to Covid-19 shock. We include all these controls in all our estimates, even when not displayed in the tables for space reasons. μ_i stands for individual fixed-effects. This specification controls for unobserved individual heterogeneity, in particular any trait that could have oriented people towards a teleworkable versus non teleworkable job (education, skills, taste, etc.). Finally $\epsilon_{i,t}$ is the error term.

2.1 Dynamic analysis

We also study the dynamic effect of the duration of telework. This evolution is a *priori* ambiguous, as workers could feel increasingly disconnected from their colleagues, or, alternatively, could adapt to their new work arrangement both psychologically and by taking the necessary logistic adjustments. We are interested in the

impact of consecutive months of telework on subjective wellbeing. We thus estimate the impact of “always” (resp. “often”) working from home for one month, i.e. 1 wave (δ_1 , resp. λ_1), for the second consecutive month (λ_2), the third consecutive month (λ_3), the fourth consecutive months (λ_4), and so on. Our estimates follow the structure of equation (3):

$$Y_{i,t} = \alpha + \beta * Covid_t + \gamma * ITT_i + \phi * Covid_t * ITT_i + \sum_{n=1}^{n=8} \delta_n * \mathbf{TreatedALWAYS} * [n^{th}Wave] + \sum_{n=1}^{n=8} \lambda_n * \mathbf{TreatedOFTEN} * [n^{th}Wave] + \theta * X_{i,t} + \psi * X_{i,t} * Covid_t + W_t + \mu_i + \epsilon_{i,t} \quad (3)$$

For each wave, this specification operates a partition of ITT individuals in groups characterized by the wave and the telework intensity, with “not currently working from home” as the reference category. Each parameter δ_n and λ_n measures the wellbeing impact of being in one’s n^{th} consecutive wave of WfH, as opposed to not being currently working from home.

2.2 Heterogeneity

We also run tests of the heterogeneity of the effects, asking whether work from home was more beneficial or detrimental to women or men, younger or older persons, people with or without children, living in cities or the countryside, etc. We are particularly interested in the presence of children, which is likely to have caused work-family tensions when home-schooling was in order. This may have impacted teleworkers more, as they were home with their children, or on the contrary, created more organizational difficulties for parents who had to leave their children at home, unattended. When running these treatments, we follow the logic of equation (2), separating the pure effect of WfH from the Covid context, and interacting the Treated variable with the hypothesized source of heterogeneity, as in equation (4).

$$Y_{i,t} = \alpha + \beta * Covid_t + \delta_1 * \mathbf{Treated}_{i,t} + \delta_2 * \mathbf{Treated}_{i,t} * \mathbf{couple}_{i,t} + \theta * X_{i,t} + \psi * X_{i,t} * Covid_t + W_t + \mu_i + \epsilon_{i,t} \quad (4)$$

We also estimate equation (2) on the sub-samples of women and men, with and without children under 15.

2.3 Self-selection

Although the identification of a causal impact of working from home relies on the assumption that this arrangement was imposed on people rather than chosen, one cannot be totally sure that there was absolutely no decisional latitude on behalf of workers. To enquire, we use a question that was included in the questionnaire at three points of time- June 2020, September 2020, and January 2021, and asked respondents: “*Once social distancing measures are relaxed and workplaces go back to normal, how often would you like to work from home? Always, often, sometimes, never*”. We then estimate the correlation between the answer to this question and the likelihood of being actually working from home in later points of time following equation (5).

$$Treated_{i,t+n} = \alpha + WFH_{future_{i,t}} + \theta * X_{i,t} + \epsilon_{i,t} \quad (5)$$

We interpret this correlation as the maximum possible self-selection, i.e. assuming that any association between wishing to work from home and actually doing so is due to the person’s decision, which of course is far from the truth. We cannot go further than this exercise because of two data limitations: first, the question was only asked in three out of eight the waves of the Covid survey; second, it was only asked to people who were actually working from home, and these are not the same at all waves. Hence, the information is missing for a large number of individuals. This precludes using this question as a control in the estimates of equation (2) or equation (3).

3 Results

3.1 Average effects of working from home

Table 2 displays the estimates of life satisfaction and a selection of GHQ scores following equation (2). (For space reasons, we display the results for the remaining GHQ questions in Appendix Table A3). Switching to working from home, whether “often” or “always” is positively associated with life satisfaction, but the effect is imprecisely measured and not statistically significant. By contrast, being “always” in distant work negatively impacts people’s global score of mental health. This is true of most of the GHQ dimensions, i.e. concentration, usefulness, enjoyment, decision, self-confidence, overcoming problems, and depression. By contrast, “often” working from home exerts no precisely measured impact on mental health.

The opposite effect of “always” working from home on life satisfaction versus mental health (GHQ) reveals that the channel from WfH to these two dimensions of subjective wellbeing are not the same. For example, people may be happy because they do not have to commute to work, and are able to spend more time in their home, which is usually seen as a private and comfortable place (*gemutlich*), but have more mixed emotions concerning their work situation, such as feeling disorganized or demotivated by distant work. Note also that the dimensions of the GHQ that are obviously related to the work domain, such as ability to concentrate, self-confidence, and feeling useful, are the most negatively affected by telework. This interpretation is compounded by the fact that working “often” from home does not have a negative impact on mental health. Partial work from home corresponds to a situation where the contact with the firm is maintained, which preserves the social integration and identity dimensions of work.

3.2 Dynamic effects

Figures 4 and 5 plot the coefficients δ_n with and λ_n with $n \in [1, 8]$ in the estimates of life satisfaction and the global GHQ score following equation (3).

Life satisfaction initially slightly increases for those who always work from home, in May and July 2020 (as well as those who “often” WfH, but the coefficients are imprecisely measured) but these effects wither

Table 2: Impact of telework on life satisfaction and mental health

	<i>Dependent variable:</i>						
	Lsat	GHQ	concentration	useful	enjoy	confidence	depressed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treated Always	0.049* (0.029)	-0.247*** (0.091)	-0.061*** (0.011)	-0.031*** (0.011)	-0.031** (0.012)	-0.036*** (0.013)	-0.039*** (0.014)
Treated Often	0.054 (0.036)	0.009 (0.109)	-0.021 (0.013)	0.013 (0.013)	0.001 (0.015)	-0.017 (0.016)	-0.010 (0.017)
Log income	0.067*** (0.024)	0.193** (0.081)	-0.006 (0.010)	0.008 (0.010)	0.002 (0.011)	0.039*** (0.012)	0.024* (0.013)
ITT*Covid	-0.026 (0.031)	-0.069 (0.100)	-0.013 (0.012)	-0.022* (0.012)	0.002 (0.014)	-0.003 (0.015)	0.008 (0.016)
Log income*Covid	-0.037 (0.025)	-0.032 (0.085)	0.013 (0.010)	0.024** (0.010)	-0.001 (0.011)	-0.019 (0.012)	-0.003 (0.013)
Observations	46,410	54,746	54,844	54,838	54,845	54,833	54,844
R ²	0.003	0.005	0.004	0.005	0.002	0.003	0.003
Adjusted R ²	-0.233	-0.188	-0.189	-0.187	-0.190	-0.190	-0.190

Note:

*p<0.1; **p<0.05; ***p<0.01

Controls include the following variables and their interactions with Covid: income, education dummies, occupation dummies, household size, age, age squared, sex, living in a rural area, hours worked, being in couple, having a child, ITT.

afterwards. Concerning mental health, the transition to working from home is initially detrimental for those who “always” work from home, but this negative effect disappears after June 2020. Figures 6 and 7 plot the same coefficients for specific components of the GHQ12, namely concentration and feeling useful. The patterns are similar: these outcomes are initially negatively affected by WfH, especially for those who “always” telework, but this negative impact disappears after a few consecutive months.

This dynamic evolution, also noted by Felstead and Reuschke (2020), sheds light on the result found by other studies, such as Schifano et al. (2021), who find no intra-individual effect of switching to telework. This could be due to the progressive adaptation to telework, which cannot be captured by a single average measure.

3.2.1 Attrition

One could worry that the dynamic improvement in mental health that we observe is due to attrition, whereby people whose mental health continues to deteriorate because of distant work end up dropping out from the panel. To enquire, we estimate equation (2) using a “quasi-balanced” panel, where we keep people who are observed in at least in four out of the eight Covid waves, i.e. 4346 individuals. As shown by Appendix Tables A7 and A8, the results are essentially unchanged as concerns mental health, i.e. the GHQ score deteriorates for those who “always” work from home. Concerning life satisfaction, the positive effect is more precisely measured,

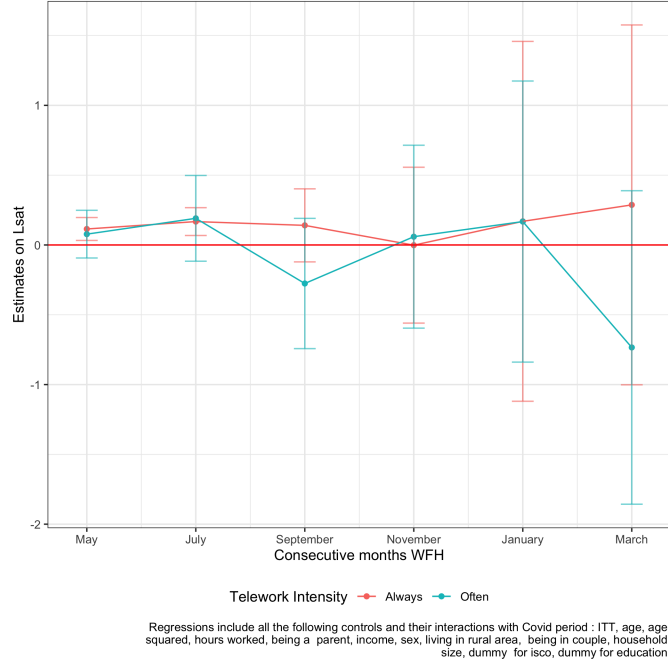


Figure 4: Estimates of the dynamic effect of work from home on Life Satisfaction

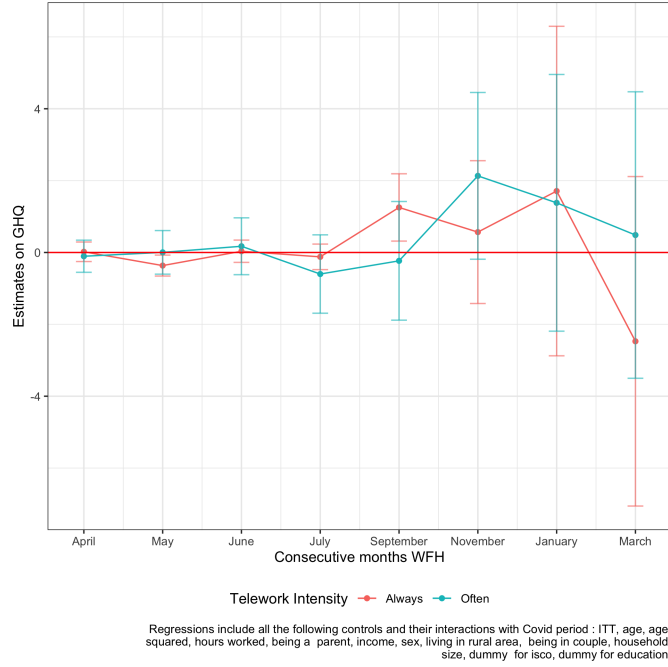


Figure 5: Estimates of the dynamic effect of work from home on the global GHQ score

especially for those who “often” work from home. “Often” working from home also attract a positive coefficient in the estimate of GHQ on this restricted panel. We also checked that the patterns of the results hold when we keep people who are observed in at least three (5255 individuals), or five (3416 individuals) times out of the total eight waves of the Covid panel; identically, dynamic analysis based on the estimation of equation (3) shows the same results (now shown for space reasons).

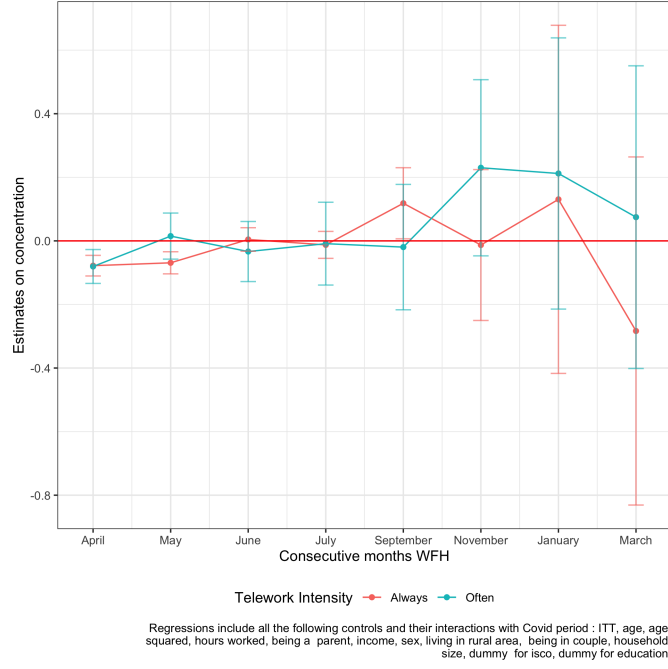


Figure 6: Eq (3) - GHQ: Have you recently been able to concentrate on whatever you're doing?

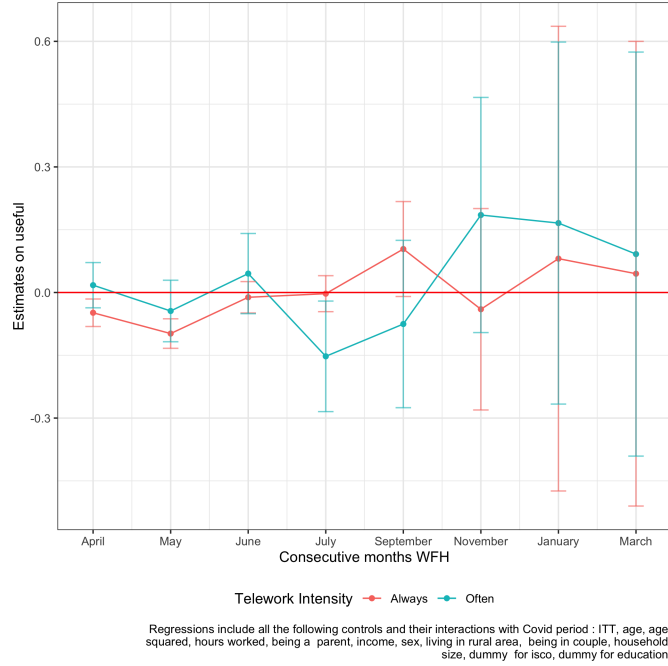


Figure 7: Eq (3) - GHQ: Have you recently felt that you were playing a useful part in things

3.3 Self-selection

Dynamic analysis shows that the average impact of work from home over the period under study is essentially driven by the two first waves of observation, i.e. April and June 2020. These are also the months of the first lockdown, which may have been particularly strict. Hence, we tend to trust these results as revealing of the

causal effect of WfH. In July 2020, people seem happy to work from home, both in terms of life satisfaction and GHQ, but this is the time when the lockdown was lifted (although not the social distancing strategy), and possibly the beginning of summer holidays for some of them. Starting in September, no statistically significant impact of having been working from home since the start of Covid is distinguishable. This suggests that people have adapted to work from home, both psychologically and as in terms of logistical and ergonomic organization. However, the fact that mental health improves over time for people who keep working from home could also reflect some degree of self-selection.

In our difference-in-difference setting, perfect identification of the causal effect of telework would require that workers have absolutely no say on whether they work at home at any point of time, which we are unable to verify. It is true that the gravity of the health situation, the successive stringent lockdown measures and the omnipresence of the slogan “*stay at home, protect the NHS, save lives*” provided strong civic incentives for firms and workers to abide. Nonetheless, there might have been some degree of self-selection in and out of telework when the lockdown was less stringent. Unfortunately, the UKHLS data is not precise enough to allow ruling out this suspicion by isolating the episodes and regions of strict lockdown, because the timing of data collection for each wave, and the period to which the question about telework refers (“*During the last four weeks how often did you work at home?*”).

As explained in Section 1.4, we use a question about the willingness to work from home when the Covid is over in order to detect possible signs of self-selection. Using equation (5), we uncover a small correlation with the probability of being actually working from home in subsequent months. As displayed in table A4, A5 and, A6, the correlation between declaring in June 2020 that one wants to WfH when the pandemics is over (either “often” or “always”) and being actually working from home in the subsequent months, is of about 0.08. It increases to about 0.10 to 0.12 for those who declare so in September 2020 or January 2021. However, there seems to be no self-selection in the intensity of the correlation between wishing to work from home “always” in the future and the probability of being actually “always” working from home in the subsequent months: the correlation, if any, is negative. Identically, there is a weak (0.04) or no statistically significant correlation between wishing to “often” WfH at a given point of time, and being actually “often” working from home in subsequent periods.

As noted, the question was only asked to people who were currently working from home when the question was included in the survey, i.e. in three of the eight Covid waves. The small number of observations that are concerned precludes any further use of this variable, such as using it as a control or a selection variable.

Overall, we tend to be confident that the results for the period April to June reflect causality, and to interpret the subsequent period as a mix of adaptation and self-selection. But we also consider the possibility that distant schooling, which was more widespread before September 2021, may have weighted differently on parents depending on their workplace. We address this issue in the next section.

Table 3: Heterogenous impact of telework on life satisfaction and GHQ score

	<i>Dependent variable:</i>							
	Lsat				GHQ			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated	0.105** (0.051)	0.115*** (0.039)	0.057 (0.035)	-0.018 (0.062)	-0.115 (0.159)	-0.058 (0.120)	-0.038 (0.108)	0.037 (0.191)
Female	-0.460 (0.598)	-0.449 (0.598)	-0.451 (0.598)	-0.457 (0.598)	-2.982 (1.993)	-2.915 (1.993)	-2.917 (1.993)	-2.857 (1.993)
Parent	0.082** (0.033)	0.098** (0.043)	0.082** (0.033)	0.085** (0.034)	0.028 (0.114)	0.054 (0.147)	0.033 (0.114)	0.034 (0.114)
Couple	0.032 (0.029)	0.030 (0.029)	0.031 (0.029)	0.081** (0.040)	0.089 (0.096)	0.088 (0.096)	0.084 (0.096)	0.114 (0.130)
Treated * Female	-0.077 (0.064)				0.061 (0.197)			
Treated * Parent		-0.150** (0.063)				-0.021 (0.193)		
Treated * Rural			0.004 (0.072)				-0.117 (0.223)	
Treated * Couple				0.099 (0.071)				-0.142 (0.218)
Observations	46,410	46,410	46,410	46,410	54,746	54,746	54,746	54,746
R ²	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.005
Adjusted R ²	-0.233	-0.233	-0.233	-0.233	-0.188	-0.188	-0.188	-0.188

Note: *p<0.1; **p<0.05; ***p<0.01

Controls include the following variables and their interactions with Covid: income, education dummies, occupation dummies, household size, age, age squared, sex, living in a rural area, hours worked, being in couple, having a young child, ITT.

4 Heterogeneity

We finally ask whether our results depend on the specific situation of workers in terms of gender, family situation, place of residence, etc. We first estimate equation (4) and look at the interaction term between each of these categories and being working from home (Treated). We uncover a statistically significant negative impact of telework on the life satisfaction of parents (Table 3). To explore this finding, we successively run estimates of equation (2) on the sub-samples of women and men, with and without children under 15 (Table 4). It turns out that the influence of telework (both often and always) is particularly negative for women's life satisfaction and mental health when they have children. by contrast, we detect no specific effect of children for men who telework. Because of the dynamic adaptation phenomenon that we uncovered, and because we suspect that part of this negative effect is due to the burden of home-schooling, which predominantly accrued

to women, and was more prevalent before the summer 2020, we split the sample into two sub-periods: April-July 2020, and September 2020-March 2021. As expected, we observe that the impact of children is essentially concentrated in the first sub-period. It also seems that women without children benefit more from telework in the second period.

Table 4: Heterogenous Effects of Telework by Sub-Period

	Always WfH LS	Often WfH LS	Always WfH GHQ	Often WfH GHQ
Entire sample	+		-	
Women w. children t1		-	-	-
Women w. children t2		-		
Childless women t1	+			
Childless women t2	+	+		+
Men with children t1				
Men with children t2		+		
Childless men t1	-			
Childless men t2		+		

Notes : T1 refers to April 2020-July 2020; T2 refers to September 2020-March 2021

5 Conclusions and Discussion

With the health crisis, the sudden and unexpected obligation to work from home and the massive extension of this arrangement create the condition for identifying the causal effect of telework on subjective wellbeing, in the way of a “natural experiment”. Overall, our results suggest that in average over the period, working entirely from home has deteriorated workers’ mental health, in particular concentration, self-confidence, or feeling useful. We also detect a small and imprecisely measured positive effect on life satisfaction. However, after a couple of months, these effects withered for those who remained in telework for several consecutive months.

Can the dynamic effects that we uncover be interpreted as pure adaptation? The fact that mental health improves over time for people who keep working from home could also reflect some degree of self-selection. In our difference-in-difference setting, perfect identification of the causal effect of telework would require that workers have absolutely no say on whether they work at home at any point of time, which we are unable to verify. It is true that the severity of the health situation, the successive strict lockdowns and the ubiquitous slogan “*stay at home, protect the NHS, save lives*” have created strong incentives for companies and workers to comply. Nonetheless, might have been some self-selection in and out of telework when the lockdown was less strict. Unfortunately, the timing UKHLS data collection is not precise enough to allow ruling out this suspicion by isolating the episodes and regions of strict lockdown. De facto, we document a small correlation between the willingness to work from home in the future when the pandemics is over, as declared by respondents when the question is included in the survey (in three out of eight waves), and the probability of being actually in that work arrangement in subsequent months. Note however, that we do not find a positive correlation between the desired intensity (“often” or “always”) of WfH and the actual situation in which respondent were observed in

subsequent months.

We thus acknowledge two possible interpretations of our findings, especially concerning the impact of the duration of WfH, i.e. the initial deterioration in SWB, and its later recovery for people who remain in full telework for several consecutive months. The first interpretation is adaptation to an exogenous switch into telework: people are initially demotivated and unable to concentrate, but they progressively adjust to their new working conditions, both psychologically, and by investing in the needed equipment, logistics and ergonomics. The second interpretation is self-selection: people are initially forced into telework by the lockdown, but they later on enjoy some leeway about how long to keep working from home, so that the rebound in SWB is driven by workers for whom telework is beneficial and who actually choose to remain in that work arrangement. De facto, the negative impact of telework on mental health disappears in July 2020, which is the time when the first and strictest lockdown is lifted.

In view of the negative impact of WfH that we estimate, at least in the first months, it is surprising that many employees around the world manifest the desire to continue working from home, as documented by many surveys. This is probably because most of them aspire to work partly from home, as in our “often” category, rather than fully from home, or because they have adapted to this arrangement over time, as found in our section 3.2. Alternatively, this could be a case of misperception, as they keep associating the idea of home to a pleasant state, and fail to acknowledge the negative consequences of that arrangement on their mental health. This interpretation is consistent with the positive partial correlation coefficient between WfH and life satisfaction. The latter is positive in the first months of telework, although it is imprecisely measured in average over the period.

With respect to this last point, let us remark again that this study applies to work from home in the literal sense, with all the consequences that stem not only from working away from the firm’s premises, but also from working in one’s house, which is usually the domain of family and privacy, and in that case also a place where the blurring of the boundaries between private and professional life is likely to create tensions. In the future, distant work can take several other forms, such as co-working spaces or remote offices, which may not have the same drawbacks as being “home” in the literal sense.

In the same vein, as discussed, the greater negative impact of telework on women with children is likely to be due to the burden of having to take care of homeschooling - a feature that has no reason to be tied to work from home in the future. However, it reveals the greater porosity of work and family constraints for women, which rejoins previous findings of the literature.

Another limitation to the generality of the study is that it assesses the impact of working from home in a time when this arrangement was as pervasive as possible. When things are back to normal, the consequence of working from home may not be the same depending on the context, i.e. whether it remains a widespread practice, or turns back into an exception, and whether it is considered by a person’s firm as a privilege or an obligation. In sum, the general coordination in terms of work arrangements will matter to their impact on subjective wellbeing.

Keeping these qualifications in mind, our results bear several possible implications in terms of policy conclusions. Absent self-selection, they suggest that, in average, everybody will be able to adjust without

psychological harm to this work arrangement, after an initial stage of adaptation. On the other hand, in case the improvement in workers' mental health is partly due to self-selection, it follows that this possibility should be offered rather than imposed on them.

Because both interpretations certainly contain some truth, we conclude that telework cannot be judged universally good or bad for workers' wellbeing if it is imposed on them without any decisional latitude, but will be beneficial if it is offered as a possibility, a new degree of freedom, after a period of trial.

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7 Appendix

7.1 Main sample

Table A1: Descriptive statistics of the regression sample

GROUP	N = 59,461 [†]
Living area	
City	45,318 (76%)
Rural	14,143 (24%)
Sex	
Female	34,255 (58%)
Male	25,206 (42%)
Household size	2.93 (1.29)
Hours Worked	32.95 (11.72)
Parents of 0-15 yo child	
Not parent	44,734 (75%)
Parent	14,546 (25%)
(Missing)	181
Household income	3,903.47 (2,443.98)
Marital statut	
Couple	39,390 (66%)
Single	20,070 (34%)
(Missing)	1
Age	45.58 (12.02)
Highest Diploma	
A-level etc	12,041 (20%)
Degree	26,460 (44%)
GCSE etc	9,385 (16%)
inapplicable	383 (0.6%)
No qualification	720 (1.2%)
Other higher degree	8,063 (14%)
Other qualification	2,409 (4.1%)
ISCO-88	
Clerks	8,591 (16%)
Craft and related trades workers	1,911 (3.5%)
Elementary occupations	3,416 (6.2%)
Legislators, senior officials and managers	8,547 (16%)
Plant and machine operators and assemblers	2,357 (4.3%)
Professionals	11,296 (21%)
Service workers and shop and market sales workers	8,309 (15%)
Skilled agricultural and fishery workers	263 (0.5%)
Technicians and associate professionals	10,392 (19%)
(Missing)	4,379
Group	
ITT	27,636 (46%)
Not ITT	31,825 (54%)
[†] n (%); Mean (SD)	

Table A2: Workplace location of the regression sample

Waves	Dates	Always	Often	Sometimes or Never	Total
1	2016	0	0	1	1
2	2017	0	0	1	1
3	2018	0	0	1	1
4	2019	0	0	1	1
5	April-20	0.367	0.082	0.55	1
6	May-20	0.485	0.099	0.417	1
7	June-20	0.435	0.112	0.453	1
8	July-20	0.379	0.107	0.513	1
9	Sept-20	0.310	0.119	0.571	1
10	Nov-20	0.331	0.114	0.555	1
11	January-21	0.412	0.099	0.489	1
12	March-21	0.331	0.114	0.555	1

Table A3: Impact of telework on other GHQ dimensions

	<i>Dependent variable:</i>						
	problem	overcome	decision	sleep	happiness	worthless	strain
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treated Always	-0.001 (0.009)	-0.013 (0.013)	-0.014 (0.009)	-0.0004 (0.014)	-0.002 (0.011)	-0.002 (0.011)	-0.008 (0.014)
Treated Often	-0.002 (0.011)	0.012 (0.016)	0.008 (0.011)	0.017 (0.016)	0.012 (0.014)	-0.010 (0.014)	0.012 (0.017)
Log income	0.011 (0.008)	0.039*** (0.012)	-0.002 (0.008)	0.023* (0.012)	0.005 (0.010)	0.043*** (0.010)	0.005 (0.012)
ITT*Covid	-0.013 (0.010)	-0.023 (0.014)	0.004 (0.010)	0.005 (0.015)	-0.001 (0.013)	-0.011 (0.013)	-0.005 (0.015)
Log income*Covid	-0.004 (0.009)	-0.016 (0.012)	0.013 (0.008)	-0.018 (0.013)	0.006 (0.011)	-0.019* (0.011)	-0.004 (0.013)
Observations	54,843	54,846	54,847	54,850	54,840	54,836	54,850
R ²	0.003	0.004	0.005	0.003	0.002	0.004	0.005
Adjusted R ²	-0.190	-0.189	-0.187	-0.190	-0.190	-0.188	-0.188

Note:

*p<0.1; **p<0.05; ***p<0.01

Controls include the following variables and their interactions with Covid: income, education dummies, occupation dummies, household size, age, age squared, sex, living in a rural area, hours worked, being in couple, having a child, ITT.

7.2 Attrition

Table A4: Wants to WFH in the future, JUNE

	<i>Dependent variable:</i>				
	TW_t8	TW_t9	TW_t10	TW_t11	TW_t12
	(1)	(2)	(3)	(4)	(5)
wfhfut01	0.091*** (0.023)	0.082*** (0.023)	0.072*** (0.022)	0.081*** (0.023)	0.088*** (0.022)
Constant	0.708*** (0.221)	0.430** (0.215)	0.324 (0.214)	0.386* (0.219)	0.454** (0.215)
Observations	2,385	2,385	2,385	2,385	2,385
R ²	0.042	0.045	0.044	0.032	0.046
Adjusted R ²	0.033	0.036	0.034	0.022	0.036

Note: *p<0.1; **p<0.05; ***p<0.01

Table A5: Wants to WFH in the future, SEPTEMBER

	<i>Dependent variable:</i>		
	TW_t10	TW_t11	TW_t12
	(1)	(2)	(3)
wfhfut01	0.037 (0.028)	0.127*** (0.028)	0.105*** (0.028)
Constant	0.572** (0.248)	0.297 (0.247)	0.380 (0.246)
Observations	1,673	1,673	1,673
R ²	0.029	0.042	0.042
Adjusted R ²	0.015	0.028	0.028

Note: *p<0.1; **p<0.05; ***p<0.01

Table A6: Wants to WFH in the future, January

<i>Dependent variable:</i>	
	TW_t12
wfhfut01	0.112*** (0.027)
Constant	0.879*** (0.237)
Observations	1,743
R ²	0.060
Adjusted R ²	0.047
<i>Note:</i> *p<0.1; **p<0.05; ***p<0.01	

7.3 Balanced panel

Table A7: Impact of telework on life satisfaction and mental health. Quasi-balanced panel.

	<i>Dependent variable:</i>						
	Lsat	GHQ	concentration	useful	decision	confidence	depressed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treated Always	0.047 (0.031)	-0.277*** (0.095)	-0.068*** (0.012)	-0.043*** (0.011)	-0.015* (0.009)	-0.038*** (0.014)	-0.041*** (0.015)
Treated Often	0.068* (0.037)	0.033 (0.113)	-0.019 (0.014)	0.003 (0.014)	0.007 (0.011)	-0.012 (0.016)	-0.006 (0.018)
Log income	0.039 (0.030)	0.145 (0.099)	-0.015 (0.012)	0.004 (0.012)	-0.009 (0.010)	0.040*** (0.014)	0.023 (0.016)
ITT*Covid	-0.040 (0.033)	-0.167 (0.108)	-0.010 (0.013)	-0.048*** (0.013)	0.005 (0.010)	-0.021 (0.016)	-0.005 (0.017)
Log income*Covid	-0.015 (0.030)	-0.009 (0.101)	0.017 (0.012)	0.023* (0.012)	0.017* (0.010)	-0.021 (0.015)	-0.004 (0.016)
Observations	31,714	38,675	38,721	38,720	38,721	38,710	38,718
R ²	0.003	0.006	0.005	0.006	0.005	0.004	0.003
Adjusted R ²	-0.178	-0.138	-0.138	-0.137	-0.138	-0.139	-0.140

Note: *p<0.1; **p<0.05; ***p<0.01

Controls include the following variables and their interactions with Covid: income, education dummies, occupation dummies, household size, age, age squared, sex, living in a rural area, hours worked, being in couple, having a child, ITT. Individuals observed at least in four out of the eight Covid waves.

Table A8: Impact of telework on life satisfaction and mental health. Quasi-balanced panel.

	<i>Dependent variable:</i>						
	problem	overcome	enjoy	sleep	happiness	worthless	strain
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treated Always	−0.005 (0.010)	−0.018 (0.014)	−0.031** (0.013)	−0.004 (0.014)	0.0003 (0.012)	−0.005 (0.012)	−0.002 (0.015)
Treated Often	−0.005 (0.011)	0.017 (0.016)	0.005 (0.016)	0.021 (0.017)	0.014 (0.014)	−0.012 (0.014)	0.023 (0.017)
Log income	0.006 (0.010)	0.026* (0.014)	0.003 (0.014)	0.017 (0.015)	−0.002 (0.013)	0.047*** (0.012)	0.002 (0.015)
ITT*Covid	−0.015 (0.011)	−0.033** (0.015)	0.003 (0.015)	−0.006 (0.016)	−0.011 (0.014)	−0.024* (0.013)	−0.008 (0.017)
Log income*Covid	−0.002 (0.010)	−0.008 (0.014)	0.003 (0.014)	−0.011 (0.015)	0.007 (0.013)	−0.021* (0.012)	−0.002 (0.016)
Observations	38,716	38,720	38,719	38,723	38,714	38,709	38,722
R ²	0.003	0.005	0.003	0.003	0.002	0.005	0.005
Adjusted R ²	−0.141	−0.139	−0.140	−0.140	−0.141	−0.139	−0.138

Note:

*p<0.1; **p<0.05; ***p<0.01

Controls include the following variables and their interactions with Covid: income, education dummies, occupation dummies, household size, age, age squared, sex, living in a rural area, hours worked, being in couple, having a child, ITT. Individuals observed at least in four out of the eight Covid waves.