Well-being and working from home during COVID-19*

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Abstract

Purpose – The authors track the well-being of individuals across five European countries during the course of the coronavirus disease 2019 (COVID-19) pandemic and relate their well-being to working from home. The authors also consider the role of pandemic-policy stringency in affecting well-being in Europe.

Design/methodology/approach – The authors have four waves of novel harmonised longitudinal data in France, Italy, Germany, Spain and Sweden, covering the period May–November 2020. Well-being is measured in five dimensions: life satisfaction, a worthwhile life, loneliness, depression and anxiety. A retrospective diary indicates whether the individual was working in each

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month since February 2020 and if so whether at home or not at home. Policy stringency is matched in per country at the daily level. The authors consider both cross- section and panel regressions and the mediating and moderating effects of control variables, including household variables and income.

Findings – Well-being among workers is lower for those who work from home, and those who are not working have the lowest well-being of all. The panel results are more mitigated, with switching into working at home yielding a small drop in anxiety. The panel and cross-section difference could reflect adaptation or the selection of certain types of individuals into working at home. Policy stringency is always negatively correlated with well-being. The authors find no mediation effects. The well-being penalty from working at home is larger for the older, the better-educated, those with young children and those with more crowded housing.

Originality/value – The harmonised cross-country panel data on individuals' experiences during COVID-19 are novel. The authors relate working from home and policy stringency to multiple well-being measures. The authors emphasise the effect of working from home on not only the level of well-being but also its distribution.

Keywords Working from home, Well-being, COVID-19, Life satisfaction, A worthwhile life, Loneliness, Depression, Anxiety

Paper type Research paper

1. Introduction

The coronavirus disease 2019 (COVID-19) pandemic has had a profound impact on everyday life for the majority of the World population and continues to present challenges for the way in which we live our lives. Part of the policy response to the pandemic has been lockdown and social-distancing measures. While these measures have helped limit the spread of the virus (Anderson *et al.*, 2020; Hsiang *et al*., 2020), they have also had substantial impacts on economic activity and individual well-being. A survey of a number of the consequences of COVID-19 is provided by Brodeur *et al*. (2021b), and an attempt to integrate many of the costs and benefits of lockdown appears in Layard *et al*. (2020). One of the key elements in the calculus of these costs and benefits is the well-being of the population, and we here evaluate how well-being is related to changes in the way we work.

To the best of our knowledge, our contribution here is the first to use individual-level longitudinal data from multiple countries to explore the effects of the COVID-19 pandemic on individual well-being. One of the pandemic's most important impacts on peoples' daily routines has been the sudden and massive change in the workplace, from the office to the home. The sheer size of this unexpected movement provides an unprecedented opportunity to evaluate the potential well-being consequences of workplaces in the future, where physical presence may be less ubiquitous. This type of evaluation would have been more unreliable in pre-pandemic times, as so few people worked at home (and those that did were unlikely to be representative of the general population).

We will use pooled cross-section and panel regression analysis to establish the relationship between working from home and five measures of subjective well-being: life satisfaction, individuals' feelings that what they were doing in their life was worthwhile, loneliness, depression and anxiety. Our baseline model considers how place of work and pandemic policy stringency are related to well-being, conditional on a small number of demographic control variables. We then turn to the role of a number of potential mediators of working from home and well-being (such as income). This will allow us to see whether any advantage or disadvantage from working from home works via income (for example) or can be assigned to other unmeasured variables. Last, we ask whether working from home hurts some people more than it does others in a moderation analysis. While the main regressions will identify the average effect of working from home on well-being, some groups may well fare worse than others. We would wish to identify these groups both in terms of policy responses and the measurement of inequality (here in terms of subjective well-being) on the labour market.

The remainder of the paper is organised as follows. Section 2 discusses some of the existing work in this area in the context of COVID-19 and presents our hypotheses, and Section 3 describes the data we use here. Section 4 then introduces our empirical analysis and discusses the results. Last, Section 5 concludes.

2. The literature and hypotheses

Following the outbreak of COVID-19, there has been great interest in the pandemic's consequences on individual well-being. During the rapid spread of the SARS (severe acute respiratory syndrome) virus in the early 2000s, research revealed that individuals who had been in quarantine showed symptoms of post-traumatic stress disorder and depression (Reynolds *et al*., 2008). The length of quarantine is important, with longer periods exacerbating these symptoms (Hawryluck *et al*., 2004). One key factor in the development of psychological disorders was quarantine's associated fall in income (Mihashi *et al*., 2009), and this is one of the questions that we will address via our mediation analysis. These negative effects of lockdown on mental health seem to have persisted for a number of years (Liu *et al*., 2012).

The COVID-19 outbreak offers a new possibility to examine the well-being of those living under mobility restrictions. Fancourt *et al.* (2020) consider lockdown and mental health in the UK, via a longitudinal observational study (the UCL COVID-19 Social Study). They find that depression and anxiety levels fell during the weeks following the introduction of lockdown, suggesting some adaptation to the new modes of life. Felstead and Reuschke (2020) explicitly look at working from home and mental health, finding this relationship to be negative, especially for those working from home for the first time; they also uncover evidence of adaptation. In Patrick et al. (2020), parents reported worse mental health for themselves and worse behavioural health of their children in the United States between March and June 2020. Sibley *et al*. (2020) find worse mental health after the introduction of lockdown in panel data from New Zealand, and during the first two weeks of the Coronavirus outbreak, one-fifth of the Spanish population reported elements of potential depression or anxiety diagnosis (González-Sanguino *et al*., 2020). Last, a survey in Austria revealed that individuals were more exposed to depression and had a lower quality of life during COVID-19 relative to before the outbreak (Pieh *et al*., 2020). Research in this area has suggested

that those who are most affected by the COVID-19 measures were already in at-risk groups, such as women, young adults, those with lower education or income and those living alone (Bu *et al*., 2020): as such the pandemic has increased well-being inequality.

One of the specific measures taken to reduce interactions between individuals, and so the risk of infection, has been the advent of working from home: what De Fraja *et al.* (2020) call the "zoomshock". Working from home has risen spectacularly during 2020. British Household Panel Survey data reveals that only around two per cent of workers did so in the early 2000s (see www.iser.essex.ac.uk/bhps/documentation/volb/wave18/rindresp8.html#rjbpl for the 2008 Wave 18 figure), with an analogous figure of 5% across all of the EU in 2019 (ec.europa.eu/jrc/sites/jrcsh/files/jrc120945_policy_brief_-_covid_and_telework_final.pdf). Following the pandemic, the percentage working at home rose from 8% in February 2020 to 35% in May 2020 in the US, despite the milder lockdown conditions there than in Europe. In July 2020, more than one worker in three worked only at home in the EU-27 (www.eurofound.europa.eu/publications/report/2020/living-working-and-covid-19). Dingel and Neiman (2020) estimate that over one-third of jobs in the US can now be carried out entirely at home, and Alipour *et al.* (2020) suggest that working from home is feasible for over half of the jobs in Germany.

Working from home has had public-health benefits (Alipour *et al.,* 2021; Angelucci *et al*., 2020) and has been suggested to lead to greater worker productivity (Bloom *et al.*, 2015). However, there are likely also costs. Working from home leads to a greater blurring of the boundaries between work and non-work. In this context, Molino *et al.* (2020) discuss the "technostress" that comes from permanent interaction with digital technology that will increase disruption in individuals' work–life balance. The European Parliament has passed a non-binding resolution arguing that individuals have a "right to disconnect" (www.europarl.europa.eu/news/en/press-room/20201126IPR92512/meps-call-for-an-eu-wide-right-to-disconnect), arguing that homeworking has led to adverse effects on both mental and physical health. Bellmann and Hübler (2021) consider the relationship between working at home, on the one hand, and work–life balance and job satisfaction on the other in three waves of German panel data, with mixed results. Xiao *et al.* (2021) conducted an online survey with mostly US respondents, between April and June 2020, targeting people who had switched to working from home. They find lower mental and physical well-being and a greater number of mental issues, as compared to pre-working from home. The home work environment and reduced communication with co-workers are suggested as potential culprits for this reduced well-being, and it has been shown that teleworking may generate a lack of support and a sense of isolation (Tavares, 2017). A survey of the relationship between working at home and health appears in Oakman *et al.* (2020), where it is emphasised that working at home may have negative or positive impacts on mental health.

It is worth reflecting on what impact we might have expected this drastic reorganisation in the world of work to have had on the well-being of the employed.

In general, researchers in social science are interested in how the organisation of work affects both firm profits and workers' income and subjective well-being. The combination of the willingness of firms to allow working from home and of workers to do is key factors behind its prevalence.

The typical problem in establishing these effects on firm and worker outcomes is endogeneity: certain types of firms and workers may be more likely to be engaged in working from home, and we have an omitted-variable bias. In this case, it is difficult to tease out a causal relationship that would tell us about the consequences of a major roll-out of home working.

One of the consequences of the pandemic has been to change the work environments of tens of millions of people across Europe (and the world), independently of what they, and their firms, may have wished. We can consider the pandemic to have changed outcomes independently of worker and firm preferences, which can realistically have been expected to remain fixed around Easter 2020.

The subsequent effect of working from home on worker well-being will then depend on whether there was pent-up demand for homeworking amongst workers. In normal times, firms may not have responded to this demand for homeworking for agency or co-ordination reasons. If there was pent-up demand, then the increase in homeworking during the pandemic will produce a better match between what workers value and the characteristics of their jobs and so increase their well-being. If this was not the case, then workers did not want to work from home; hence, we expect their well-being to fall. We do not know which of these situations predominated at the start of the pandemic and are thus agnostic about what the empirical analysis will produce regarding home working and worker well-being: this is the first relationship we test.

It is important to separate the effect of restrictions from that of the pandemic itself. In the context of our work here, the shift to working from home was not exogenous and reflected the restrictions brought about by the pandemic's spread. As the latter has almost certainly affected well-being, including that of workers, it needs to be held constant (i.e. it is a confounder). We will do so by controlling for the COVID-19 policy-stringency index in all of our empirical analyses.

While we may not know a priori in which direction working from home is correlated with well-being, we can make some more unambiguous predictions regarding mediation and moderation: these are the second and third empirical relationships that we will estimate. With respect to mediation, working from home might lead to lower income, which in turn will reduce well-being (as in Mihashi *et al.*, 2009). For moderation, we suspect that those who have greater resources (larger houses) or fewer demands on their time (fewer young children at home) will do better when they work from home, as in Bu *et al.* (2020).

Our empirical contribution to the literature on working from home and worker well-being uses data from a novel high-frequency harmonised panel survey that has been carried out in five European countries since Easter 2020. This survey includes five separate well-being constructs, based on validated psychometric scales. The data we use allow us to examine the relationship between working from home and well-being at different phases of the COVID-19 crisis. We broadly find that working at home is associated with lower levels of well-being, but with some evidence of an initial boost at the time of the transition. On the contrary, the stringency of the policy response to the pandemic is consistently associated with lower well-being on all five of our scales.

3. Data

Our data come from the ongoing COME-HERE (COVID-19, MEntal HEalth, REsilience and Self-regulation) panel survey run by the University of Luxembourg. This survey is conducted by Qualtrics using representative samples (by age, gender and region) from France, Germany, Italy, Spain and Sweden. Respondents complete on-line questionnaires that take approximately 20 min. Ethics approval was granted by the Ethics Review Panel of the University of Luxembourg. This dataset includes information at both the individual and household levels and is longitudinal, with the same individuals being interviewed repeatedly at the different waves. The first four survey waves were conducted around May 1st, June 9th, September 5th and November 20th 2020. At least four more waves are planned in 2021. COME-HERE data have recently been used to analyse the evolution of income inequality (Clark *et al.*, 2021), which rose but then fell to below its initial level, and poverty (Menta, 2021), which rose and then partially recovered.

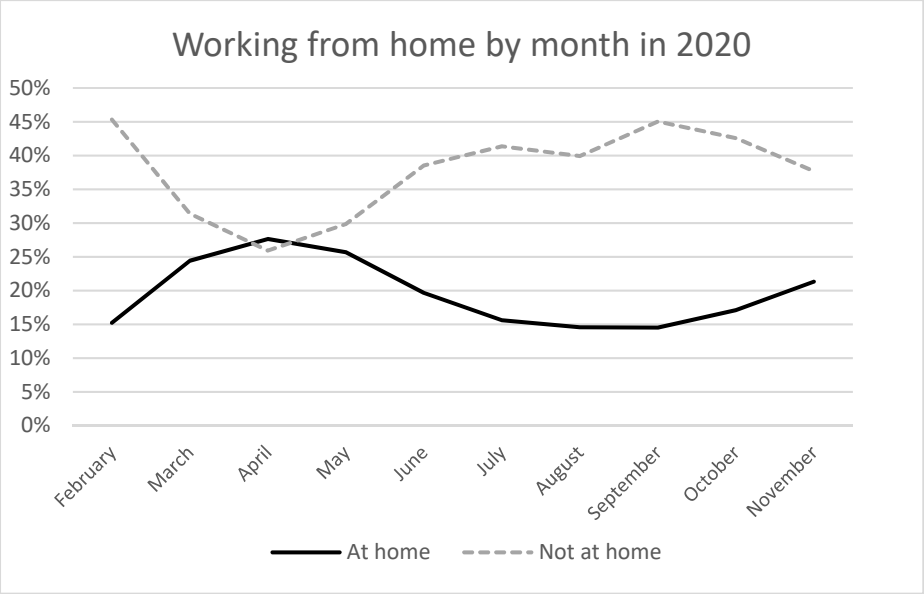
Over 8,000 individuals took part in the first wave and were then invited to reply to the subsequent waves. A total of 83% of Wave-1 respondents replied to at least one more survey: 42% appear in all four surveys, 25% in three surveys and 16% in two surveys. The working at home diary information comes from Wave 4, and our empirical analysis will be carried out on an unbalanced panel of individuals who replied to at least this wave. This produces a sample of a little over 9,700 observations.

The survey collected a battery of information on living and mental-health conditions during COVID-19 and the changes and events in individuals' lives. Standard sociodemographic characteristics, such as age, gender, education, labour force and marital statuses, were also recorded. Special modules in different waves addressed topics such as risk attitudes, time discounting, preferences for redistribution, income comparisons and working conditions.

Our key variables are subjective well-being and working from home. We have five measures of the former that are available in all survey waves: life satisfaction, a worthwhile life, loneliness, depression and anxiety.

Working from home information comes from a diary that was proposed to all Wave-4 respondents (in November 2020) about their work in each month since February 2020: they could report working mostly from home, working mostly not at home or not working. Our working from home dummy variable (WH_{it}) indicates that individual i was working at home in month t. The time profile of working at home/not at home in every month in the retrospective diary appears in Figure 1: the complement of these two numbers is respondents who are not working (which shows relatively little trend over the period).

Figure 1: Working from home by month in 2020.



Note(s). These figures show the percentage of Wave-4 COME-HERE respondents who reported working at home and working not at home for each month in February 2020 through November 2020. The omitted category is those who were not working

Working from home peaked in April at almost 30% of all respondents (and over 50% of those working), before falling to 15% in August and September (25% of those working) and then starting to rise again as the autumn progressed. We match the respondents' replies from this diary question to the date at which the well-being information was supplied by the individual in the various survey waves. For example, the working-at-home status in May from the diary of an individual who replied to Wave 4 in November will be matched to the SWB_{iMay}, well-being scores that the same individual reported when interviewed in Wave 1.

The five dependent well-being variables come from validated psychological scales, as follows.

3.1 Life satisfaction and Life worthwhile

These come from two similarly-phrased questions: *Overall, in the past week, how satisfied have you been with your life? and in the past week, to what extent have you felt the things you are doing in your life are worthwhile?* Both are answered on a 11-point scale from 0 to 10, where 0 is labelled as "Not at all" and 10 "Completely".

3.2 Loneliness

This is measured by the reduced eight-item version of the UCLA Loneliness Scale (ULS-8: Hays and DiMatteo, 1987). The items are, over the last two weeks, *1) How often do you feel that you lack companionship? 2) How often do you feel that there is no one you can turn to? 3) How often do you feel outgoing and friendly? 4) How often do you feel left out? 5) How often do you feel isolated from others? 6) How often do you feel you can find companionship when you want it? 7) How often do you feel shy? 8) How often do you feel that people are around you but not with you?*

Each of these eight questions is answered on a one-to-four scale of Never, Rarely, Sometimes and Often. The sum of these answers produces a figure between 8 and 32, which we invert so that higher scores refer to greater well-being (less loneliness).

3.3 Depression

We measure depression via the nine-item Patient Health Questionnaire (PHQ-9: Löwe *et al.*, 2004), which is widely used to assess mental disorders. Respondents state how often over the last two weeks they have been bothered by the following problems: *1) Little interest or pleasure in doing things. 2) Feeling down, depressed or hopeless. 3) Trouble falling or staying asleep or sleeping too much. 4) Feeling tired or having little energy. 5) Poor appetite or overeating. 6) Feeling bad about yourself, or that you are a failure or have let yourself or your family down. 7) Trouble concentrating on things, such as reading the newspaper or watching television. 8) Moving or speaking so slowly that other people could have noticed? Or the opposite– being so fidgety or restless that you have been moving around a lot more than usual. 9) Thoughts that you would be better off dead or of hurting yourself in some way*. The replies are on a 0–3 scale: Not at all, Several days, More than half of the days and Nearly every day. The sum of the answers produces a scale from 0 to 27, which we again reverse so that higher scores refer to greater well-being.

3.4 Anxiety

The Generalized Anxiety Disorder seven-item (GAD-7) Scale (Spitzer *et al.*, 2006) contains seven questions regarding the incidence of problems over the last two weeks: *1) Feeling nervous, anxious or on edge. 2) Not being able to stop or control worrying. 3) Worrying too much about different things. 4) Trouble relaxing. 5) Being so restless that it is hard to sit still. 6) Becoming easily annoyed or irritable. 7) Feeling afraid as if something awful might happen*. The responses are on the same scale as those for the PHQ-9 above, producing an overall anxiety score of 0–21; this is again reverse-coded.

We include an array of control variables. The demographic information consists of age in three groups (we retain working-age respondents only and split the sample 18–29, 30–49 and 50–64) and dummy variables for male and living with a partner. Education is coded into three mutually-exclusive categories: up to age 16, up to age 18 or a non-degree post-high school qualification and a Bachelor degree or higher.

Last, household disposable income at the time of the survey is recorded in the following bands: “0 to 1,250 euros”, “1,250 to 2,000 euros”, “2,000 to 4,000 euros”, “4,000 to 6,000 euros”, “6,000 to 8,000 euros” and “Over 8,000 euros”. As this latter is measured in bands, we take the mid-point in Euros and in PPP (using 2019 Euros for household final consumption expenditures as the reference). We attribute a value of 11,090 euros to the open-ended top income category: this value produces the best fit for our survey data to the information produced by Eurostat in 2019 on the income distribution in January 2020. Income will be entered in logarithmic form.

The household characteristics include a series of dummies for the presence of children aged between 0 and 3, 4 and 12, and 13 and 18, as well as the presence of a partner. Regarding housing, we know whether the accommodation has a balcony, a terrace, a rooftop, a large garden, a small

garden or a park. We combine this information into two dummies, having a garden or a park and having a balcony, rooftop or terrace. We equally consider the number of rooms per person in the house (excluding children under 4), taking on three values "less than one", "one" and "more than one". Residential urbanisation is measured as under 10,000 inhabitants, 10,000–50,000 inhabitants and over 50,000 inhabitants.

We last include the stringency index from Our World in Data (2020), which picks up the government-policy response to the COVID-19 crisis. This is available daily from January 2020 to December 2020 for 192 countries across the world and takes on values from 0 to 100, with higher values indicating greater stringency in restrictions. We match the stringency index to individual responses at the country and day-of-response level. We divide the index by 100 in order to see the estimated regression coefficients more clearly: in our sample of countries and months this stringency index ranges from 0.44 to 0.94. Stringency changed during 2020: the sample mean stringency index was 0.83 during the first wave in May, fell to 0.60 in June and 0.55 in August, and then rose again to 0.72 between November and December. We control for stringency in order to isolate the effect of working at home independently of other mobility restrictions.

The descriptive statistics of all of the variables described above appear in Appendix Table A1. Note that age, sex, education, household and housing characteristics and country of residence are only asked in Wave 1 and therefore are not considered to change over the seven months that we analyse here. Average purchasing power parity (PPP) monthly disposable household income is around 3,300 euros. A little over half of the observations come from men. We will present two broad specifications in terms of the control variables. The first will look at well-being and working controlling only for variables that we consider as exogenous over the seven months of our panel data: stringency, age, sex and education (as well as country and wave dummies): this reveals the overall average relationship between working from home and our measures of subjective well-being. The second extended set of controls includes variables that may well mediate the relationship between working from home and well-being: income, household composition and housing characteristics and will also address moderation (whereby working from home affects some groups more than others). As we wish to consider here the relationship between working from home and subjective well-being, we restrict our sample to individuals who were of working age (18–64) and in work at Wave 1 and who are not students. Last, we exclude the few respondents who say that they live with more than six children.

4. Working from home and well-being

We present our results on the correlation between well-being and working from home in a number of blocks. The first, as noted above, uses a minimal set of exogenous controls, and the second a broader set in order to investigate mediation and moderation (for example, mediation via household income and moderation by age). We also show both pooled cross-section and panel results: standard errors in all analyses are clustered at the individual level. All estimations are linear, and all of the subjective well-being dependent variables have been standardised, so that the effect sizes from the estimated coefficients should be read in terms of percentages of a well-being standard deviation.

4.1 Baseline results

The simplest specification is set out in Equation (1), relating the subjective well-being of individual *i* at time *t* (*i.e.* in one of the four survey waves)), SWB_{it},, to dummies for working at home, WH_{it}, and not working, NW_{it},, and the other controls: the stringency index SI_{it} of the respondent's country the day the individual filled out the survey questionnaire, and X_i a set of exogenous characteristics that do not change over time. Last, T_t is the survey wave fixed effect and C_i is the country fixed effect.

$$SWB_{it} = \beta_0 + \beta_1 WH_{it} + \beta_2 NW_{it} + \beta_3 SI_{it} + \beta_4 X_i + \beta_5 T_t + \beta_6 C_i + \epsilon_{it}. \quad (1)$$

The pooled cross-section results from this estimation appear in Table 1. Compared to those who work but not at home (the omitted category), working from home is associated with lower well-being of around 0.1 of a standard deviation in all five of the columns. Well-being is even lower for those who do not work at all, with the gap between not working and working at home being significant for life satisfaction and worthwhile in the first two columns. The stringency index itself, conditional on these two working variables, also attracts negative coefficients (which are significant in three out of the five columns). The estimated coefficient in the life-satisfaction regression implies that a one standard deviation rise in stringency (of 0.14, from Appendix Table A1) reduces life satisfaction by around 0.05 of a standard deviation. There are two, not necessarily conflicting, ways of reading this negative correlation. The first is that stringency itself, via its restrictions on activity and human interaction, has caused a drop in well-being; the second is that stringency is reflecting the severity of the course of the pandemic, which is responsible for the evolution of well-being in our data.

Table 1: Working from home and well-being. Baseline specification.

	Life satisfaction	Worthwhile	Not lonely	Not depressed	Not anxious
At home	-0.09***	-0.07**	-0.08**	-0.09***	-0.09***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Not working	-0.22***	-0.20***	-0.13***	-0.14***	-0.12***
	(0.05)	(0.05)	(0.04)	(0.05)	(0.04)
Stringency Index	-0.31***	-0.21*	-0.19*	-0.03	-0.08
	(0.11)	(0.11)	(0.10)	(0.10)	(0.10)
30-49 years old	0.04	0.17***	0.29***	0.36***	0.28***
	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
50-64 years old	0.10**	0.33***	0.51***	0.61***	0.51***
	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)
Male	0.09***	0.03	0.08**	0.16***	0.20***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Upper Secondary/Vocational	0.03	0.03	0.14**	0.17***	0.14***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Bachelor degree or more	0.04	0.07	0.21***	0.18***	0.15***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Germany	0.18***	0.03	-0.01	0.07	0.07
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)

Italy	-0.05	0.07	-0.24***	-0.25***	-0.34***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Spain	0.05	-0.02	0.06	-0.15***	-0.18***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Sweden	-0.05	-0.18***	0.02	0.03	0.08
	(0.06)	(0.06)	(0.07)	(0.06)	(0.06)
June	0.08**	-0.05	0.07**	0.03	0.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
August	0.17***	-0.04	0.04	0.08**	0.12***
	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)
November	0.03	-0.10***	0.01	0.01	0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Constant	0.03	-0.04	-0.35***	-0.53***	-0.41***
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Observations	9713	9713	9713	9713	9713
Adjusted R^2	0.027	0.018	0.049	0.069	0.079

*Note(s): These are OLS regressions on four waves of COME-HERE data. Standard errors clustered at the individual level are in parentheses. *p < 0.1, **p < 0.05 and ***p < 0.01.*

The other control variables in this basic cross-section analysis indicate that well-being is higher for men, older respondents and the better-educated. Relative to France (the omitted country), lower well-being is often found in Italy and (to an extent) Spain. Last, relative to Wave 1 (May), well-being was notably higher during August in Wave 3.

We next turn to the panel analysis, in which an individual fixed effect is introduced into Equation (1). This specification relates changes in the right-hand side variables over time to changes in subjective well-being. In our case, the estimated coefficients on working at home and not working reflect the experience of individuals who change working category over the seven months of our panel survey. Table 2 shows the transition matrix in our sample between the three working statuses, relating the status at wave *t* to that at wave *t+1*. The most-common experience for those who are working is immobility from one wave to the next, as shown in the diagonal cells. This in particular applies to over 70% of those working at home and over 80% of those working not at home. However, there is a certain amount of mobility in the off-diagonal cells, and it is this variability that is used in the panel regressions. And it is notable that the dominant transition for those not working is to be back in work outside of the home at the next wave: recall that our sample consists only those who were in work at Wave 1, so that this transition likely reflects the end of furlough.

The panel results in Table 3 tell a somewhat different story to the cross-section results in Table 1. The estimated coefficients on not working continue to be negative, but are not here significant. This may reflect relatively few workers losing their jobs over this period with the furlough programmes that were in force (from Table 2, only 3.7% of those working from home switched to not working, with an analogous figure of 3.9% for those working not at home). However, switching to working from home reduces anxiety but also the sense of a worthwhile life. Stringency continues to be negatively significantly correlated with life satisfaction and a worthwhile life, with estimated coefficients that are somewhat attenuated from those in the cross-section regressions. Last, well-being is again higher in August (note that the country dummies are absorbed into the individual fixed effects in the panel regressions).

Table 2: Transition matrix of working from home in our sample.

t/t+1	At home	Not working	Not at home	***Total***
At home	*72.2%*	3.7%	24.2%	***1767***
Not working	13.4%	*30.9%*	55.7%	***544***
Not at home	8.9%	3.9%	*87.4%*	***3805***
Total	***1683***	***378***	***4 055***	***6 116***

Table 3: Working from home and well-being. Baseline panel specification.

	Life satisfaction	Worthwhile	Not lonely	Not depressed	Not anxious
At home	-0.03	-0.07**	0.03	0.03	0.05*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Not working	-0.02	-0.05	-0.05	-0.02	-0.02
	(0.04)	(0.04)	(0.03)	(0.03)	(0.04)
Stringency Index	-0.20**	-0.17*	-0.12	0.01	-0.00
	(0.10)	(0.10)	(0.09)	(0.09)	(0.09)
June	0.13***	-0.02	0.08***	0.06**	0.05
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
August	0.21***	-0.03	0.08**	0.11***	0.16***
	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)
November	0.05**	-0.09***	0.03	0.03	0.04*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Constant	0.06	0.18**	0.04	-0.06	-0.07
	(0.08)	(0.09)	(0.07)	(0.08)	(0.08)
Observations	9713	9713	9713	9713	9713
Overall R2	0.013	0.003	0.003	0.001	0.002

*Note(s): These are linear panel regressions using four waves of COME-HERE data. Standard errors clustered at the individual level are in parentheses. *p < 0.1, **p < 0.05 and ***p < 0.01.*

The comparison of the cross-section and panel results could therefore reflect some kind of selection into working from home. Those who are more anxious, depressed etc. would prefer to work from home if possible all the time: as such, we do not observe them changing work status between May and November. A second possibility is adaptation, in that the movement from work at the office to home relieves anxiety around the time it takes place, but this effect vanishes and indeed switches sign, over time, producing an average positive correlation between working at home and anxiety in the cross-section. In their analysis of Google Trends data, Brodeur *et al.* (2021a) find evidence of mean-reversion in the effect of lockdowns on a number of measures of well-being in Europe and the US. Equally, in Fancourt *et al.* (2020) depression and anxiety levels gradually dropped off in the weeks following the introduction of lockdown in the UK.

4.2 Mediation

We now move to the extended set of control variables in Table 4. We rely on mediator theory to understand whether our results are driven by factors that are caused by our key explanatory variable, working from home and themselves influence well-being. For example, part of the

negative correlation between working from home and life satisfaction could flow via lower income or family living arrangements. The part that goes through these third variables is called a mediator effect (Wu and Zumbo, 2008).

The data reveal almost no evidence of mediation of the working-status variables via income (nor via household characteristics): the estimated coefficients on the working-status variables are almost identical in Tables 1 and 4. The furlough programme that was applied in all of our sample countries guaranteed a significant part of earnings for those who stopped working (so that the well-being effect of the latter is largely independent of income). Equally, the income of those who switched from work at home to/from not at home was likely only little affected by this shift in the workplace. We should also underline here that we only have information on the household and housing variables in Wave 1, so these can only mediate working from home that started before the date of the Wave-1 interview in early May. The same conclusion applies to the stringency index, the estimated coefficients on which are very similar in Tables 1 and 4. Overall, we find no mediation for working at home or stringency, with all of the estimated coefficients continuing to be negative and with a significance pattern that is unchanged from that in Table 1.

It is worth noting that the introduction of housing and income does somewhat attenuate the estimated (positive) coefficients on education, as might be expected: part of the well-being return to education works via higher income and wealth (as reflected in housing). In terms of the country dummies, those on Italy and Spain in Table 5 are a little less negative than those in Table 1, suggesting that income, housing, family etc. (as compared to France) are partly behind the lower well-being in these two countries. There is no change in the wave dummies. The significant coefficients on the extended control variables reveal that living with a partner consistently attracts a positive estimated coefficient (and very notably so for loneliness); on the contrary, children are associated with greater levels of depression and anxiety (a not unusual empirical finding: see Blanchflower and Clark, 2021, for a recent contribution). Log income is positive and significant in all of our well-being regressions, with an estimated coefficient that is fairly consistent at around 0.15 (so that doubling monthly income increases well-being by around 0.1 of a standard deviation). The somewhat larger coefficient on life satisfaction than on the "affect" variables of depression and anxiety is consistent with the US findings in Kahneman and Deaton (2010).

Table 4: Working from home and well-being. Extended specification.

	Life satisfaction	Worthwhile	Not lonely	Not depressed	Not anxious
At home	-0.10***	-0.08***	-0.08**	-0.08**	-0.08**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Not working	-0.18***	-0.16***	-0.11**	-0.12**	-0.10**
	(0.05)	(0.05)	(0.04)	(0.05)	(0.04)
Stringency Index	-0.32***	-0.21*	-0.20**	-0.04	-0.08
	(0.11)	(0.11)	(0.10)	(0.10)	(0.10)
30-49 years old	-0.02	0.11**	0.22***	0.37***	0.30***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
50-64 years old	0.05	0.27***	0.39***	0.52***	0.44***
	(0.05)	(0.05)	(0.06)	(0.06)	(0.06)
Male	0.06*	-0.00	0.05	0.14***	0.19***

	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Upper Secondary/Vocational	-0.01	-0.01	0.10*	0.14***	0.12**
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Bachelor degree or more	-0.06	-0.03	0.14***	0.14***	0.12**
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Log monthly income	0.21***	0.18***	0.12***	0.12***	0.10***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Living with a partner	0.04	0.07*	0.25***	0.06*	0.01
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Having children between 0-3	0.08	0.09**	-0.07	-0.15**	-0.16***
	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)
Having children between 4-12	0.02	0.04	-0.10**	-0.14***	-0.14***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Having children between 13-18	0.01	0.06	0.00	-0.13***	-0.12***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
One room per person	0.16**	0.19**	0.16*	0.14	0.09
	(0.08)	(0.07)	(0.08)	(0.09)	(0.08)
More than 1 room per person	0.19***	0.26***	0.31***	0.32***	0.27***
	(0.07)	(0.07)	(0.07)	(0.08)	(0.08)
Garden or park	0.11***	0.08**	-0.01	-0.03	-0.03
	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)
Balcony, rooftop or terrace	0.06	0.10**	0.05	-0.02	-0.02
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
10000-50000 inhabitants	-0.08*	-0.07	-0.07	-0.13***	-0.11**
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Over 50000 inhabitants	-0.01	0.02	-0.04	-0.16***	-0.14***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Germany	0.16***	0.01	-0.02	0.07	0.06
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Italy	0.01	0.11**	-0.20***	-0.17***	-0.27***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Spain	0.14***	0.05	0.13**	-0.04	-0.09*
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Sweden	-0.02	-0.16***	0.06	0.08	0.11*
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
June	0.09***	-0.04	0.08***	0.04	0.03
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
August	0.19***	-0.03	0.05	0.09**	0.13***
	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)
November	0.03	-0.10***	0.01	0.01	0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Constant	-1.78***	-1.75***	-1.53***	-1.54***	-1.24***
	(0.23)	(0.23)	(0.23)	(0.24)	(0.23)
Observations	9713	9713	9713	9713	9713
Adjusted R^2	0.056	0.048	0.078	0.097	0.102

*Note(s): These are OLS regressions using four waves of COME-HERE data. Standard errors clustered at the individual level are in parentheses. *p < 0.1, **p < 0.05 and ***p < 0.01.*

Table 5: Working from home and well-being. Extended panel specification.

	Life satisfaction	Worthwhile	Not lonely	Not depressed	Not anxious
At home	-0.03	-0.07**	0.03	0.03	0.05*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Not working	-0.02	-0.05	-0.05	-0.03	-0.02
	(0.04)	(0.04)	(0.03)	(0.03)	(0.04)
Stringency Index	-0.20**	-0.17*	-0.12	0.01	-0.00
	(0.10)	(0.10)	(0.09)	(0.09)	(0.09)
Log monthly income	0.07**	0.01	-0.00	0.04	0.01
	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)
June	0.13***	-0.02	0.08***	0.07**	0.05
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
August	0.21***	-0.03	0.08**	0.12***	0.16***
	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)
November	0.05**	-0.09***	0.03	0.03	0.04*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Constant	-0.51**	0.08	0.05	-0.38*	-0.15
	(0.26)	(0.27)	(0.20)	(0.23)	(0.22)
Observations	9713	9713	9713	9713	9713
Overall R2	0.029	0.006	0.003	0.007	0.003

*Note(s): These are linear panel regressions using four waves of COME-HERE data. Standard errors clustered at the individual level are in parentheses. *p < 0.1, **p < 0.05 and ***p < 0.01.*

The log income coefficient for life satisfaction, 0.21 in column 1 of Table 4, is almost exactly equal to the average of those estimated in four major social science datasets in Table 2.2 of Clark *et al.* (2018). Regarding housing, rooms per person attracts a large positive coefficient, and housing amenities are associated with higher life satisfaction and worthwhile life. Last, more urban areas are often associated with lower well-being (and particularly so for depression and anxiety). This is a common finding in the subjective well-being literature: see Piper (2015), for example.

The panel "extended" well-being regressions appear in Table 5; compared to Table 3, the only additional control is the log of monthly income. As in the cross-section analysis, controlling for income makes barely any difference to the estimated coefficients on working at home and stringency. The estimated panel coefficient on income is always positive, but only significantly so for life satisfaction; it is also smaller in size than that in the cross-section regression in Table 4, which is often the case in the literature (reflecting either attenuation due to measurement error in panel data or an omitted variable that is correlated with both income and well-being: see Chapter 2 of Clark *et al.*, 2018).

4.3 Moderation

We last consider the question of the moderation of the main effects of working at home and not working described above. Baron and Kenny (1986, p. 1,174) define a moderator as "a qualitative (e.g. sex, race, class) or quantitative (e.g. level of reward) variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable". The moderation effect is commonly known as the interaction effect (Wu and Zumbo, 2008). In words, we wish to see whether the relationship between working from home and

subjective well-being is weaker or stronger for certain groups of people. Oakman *et al.* (2020), for example, highlight that studies on the relationship between mental health and working at home should be considered in light of the (home) working environment.

The results for the cross-section specification appear in Table 6. There is only little evidence that some of the variables we have introduced moderate the relationship between working at home and well-being. Despite the expectation of gender differences, in particular with respect to housework and childcare during the pandemic (see, for example, Cheng *et al.*, 2021; Cotofan *et al.*, 2021), we do not find that men's and women's well-being reacts any differently to working at home. There is equally no difference by level of education. It is however notable that older workers tend to do worse when working at home, particularly so for life satisfaction and loneliness. Last, considering loneliness, depression and anxiety, those who are not working in Italy and Spain fare better than their counterparts in France (the omitted category).

Table 7 then shows the equivalent moderation analysis for the panel specification. While we cannot include a main effect for gender, say, in panel regressions, we can ask whether the well-being of men and women changes in the same way as they move to working at home or go back to the office. The results are to an extent consistent with those in Table 6. Older workers notably experience sharper falls in life satisfaction as they move to working at home (and greater rises when they go back to the office). There is again little consistent evidence that the relationship between home working and well-being is moderated by sex. Last, working at home to an extent produces greater falls in well-being for the better-educated.

We can carry out the same analyses for the extended specifications that appeared in Tables 4 and 5. We do not show these here, for space reasons (they are available on request). Broadly, workers with young children dislike working at home more, while on the contrary workers living in more urban areas and those in more spacious accommodation (with more rooms per person) do better. Last, there are no significant interactions with either having a partner or household income.

Table 6: Working from home and well-being. Moderation in the baseline specification.

	Life satisfaction	Worthwhile	Not lonely	Not depressed	Not anxious
At home	0.08	-0.03	-0.09	-0.03	0.11
	(0.15)	(0.14)	(0.15)	(0.14)	(0.14)
Not working	-0.39**	-0.48**	-0.35**	-0.39**	-0.26
	(0.19)	(0.19)	(0.16)	(0.18)	(0.17)
Stringency Index	-0.34***	-0.21*	-0.20*	-0.06	-0.11
	(0.11)	(0.11)	(0.10)	(0.10)	(0.10)
30-49 years old	0.05	0.16***	0.31***	0.40***	0.32***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
50-64 years old	0.17***	0.37***	0.56***	0.64***	0.55***
	(0.06)	(0.07)	(0.07)	(0.07)	(0.07)
Male	0.08**	0.02	0.08**	0.17***	0.22***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Upper Secondary/Vocational	0.02	0.01	0.08	0.13**	0.14**
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Bachelor degree or more	0.06	0.09	0.22***	0.17***	0.16***

	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)
30-49 years old # At home	-0.11	0.02	-0.09	-0.09	-0.12
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
30-49 years old # Not working	0.15	0.03	0.05	-0.03	-0.06
	(0.13)	(0.13)	(0.11)	(0.13)	(0.12)
50-64 years old # At home	-0.27***	-0.16	-0.22**	-0.12	-0.13
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
50-64 years old # Not working	0.08	0.04	0.12	0.06	0.06
	(0.14)	(0.15)	(0.13)	(0.14)	(0.13)
Male # At home	0.05	0.03	-0.01	-0.04	-0.04
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Male # Not working	0.01	0.08	-0.02	0.03	-0.01
	(0.10)	(0.10)	(0.09)	(0.09)	(0.09)
Upper Secondary/Vocational # At home	-0.05	-0.03	0.25*	0.09	-0.02
	(0.13)	(0.12)	(0.13)	(0.13)	(0.13)
Upper Secondary/Vocational # Not working	0.09	0.21	0.02	0.17	0.04
	(0.16)	(0.16)	(0.12)	(0.14)	(0.12)
Bachelor degree or more # At home	-0.15	-0.13	0.03	0.01	-0.07
	(0.13)	(0.12)	(0.13)	(0.12)	(0.12)
Bachelor degree or more # Not working	0.12	0.20	0.03	0.10	0.06
	(0.15)	(0.15)	(0.12)	(0.14)	(0.13)
Germany	0.18***	0.04	-0.01	0.06	0.09
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Italy	-0.08	0.03	-0.28***	-0.28***	-0.36***
	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)
Spain	0.03	-0.06	-0.02	-0.19***	-0.23***
	(0.05)	(0.05)	(0.06)	(0.06)	(0.06)
Sweden	-0.06	-0.23***	0.02	0.03	0.08
	(0.08)	(0.07)	(0.08)	(0.07)	(0.07)
Germany # At home	0.01	-0.01	-0.04	0.01	-0.08
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Germany # Not working	-0.23	-0.09	0.10	-0.05	-0.07
	(0.21)	(0.23)	(0.15)	(0.18)	(0.16)
Italy # At home	0.15*	0.12	0.04	0.03	-0.01
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Italy # Not working	-0.11	0.09	0.25**	0.21*	0.21*
	(0.12)	(0.12)	(0.11)	(0.12)	(0.12)
Spain # At home	0.08	0.12	0.19**	0.06	0.05
	(0.09)	(0.09)	(0.10)	(0.09)	(0.09)
Spain # Not working	0.05	0.13	0.21*	0.32***	0.30***
	(0.12)	(0.13)	(0.12)	(0.12)	(0.11)
Sweden # At home	0.02	0.19	-0.09	-0.06	-0.07
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
Sweden # Not working	0.17	0.09	0.25	0.09	0.01
	(0.24)	(0.22)	(0.23)	(0.18)	(0.18)
June	0.07**	-0.06	0.07**	0.02	0.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)

August	0.16***	-0.04	0.04	0.07*	0.11***
	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)
November	0.03	-0.10***	0.02	0.01	0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Constant	0.03	-0.01	-0.34***	-0.51***	-0.42***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Observations	9713	9713	9713	9713	9713
Adjusted R^2	0.029	0.020	0.053	0.070	0.079

*Note(s): These are OLS regressions using four waves of COME-HERE data. Standard errors clustered at the individual level are in parentheses. *p < 0.1, **p < 0.05 and ***p < 0.01.*

Table 7: Working from home and well-being. Moderation in the baseline panel specification.

	Life satisfaction	Worthwhile	Not lonely	Not depressed	Not anxious
At home	0.27*	0.13	-0.12	0.16	0.15
	(0.14)	(0.13)	(0.12)	(0.13)	(0.14)
Not working	-0.12	-0.42***	-0.04	-0.09	-0.02
	(0.16)	(0.16)	(0.14)	(0.16)	(0.17)
Stringency Index	-0.24**	-0.22**	-0.11	-0.02	-0.01
	(0.10)	(0.11)	(0.09)	(0.09)	(0.09)
30-49 years old # At home	-0.20*	-0.11	0.13*	-0.00	-0.02
	(0.11)	(0.10)	(0.08)	(0.08)	(0.08)
30-49 years old # Not working	0.20*	0.17	-0.06	0.01	-0.06
	(0.12)	(0.13)	(0.10)	(0.11)	(0.11)
50-64 years old # At home	-0.32***	-0.13	0.05	0.04	0.04
	(0.12)	(0.11)	(0.08)	(0.09)	(0.09)
50-64 years old # Not working	0.20	0.21	-0.01	0.04	0.05
	(0.13)	(0.14)	(0.10)	(0.11)	(0.11)
Male # At home	0.06	0.03	0.05	-0.02	-0.03
	(0.06)	(0.05)	(0.05)	(0.05)	(0.06)
Male # Not working	-0.01	0.03	-0.04	-0.05	-0.11
	(0.08)	(0.08)	(0.06)	(0.07)	(0.07)
Upper Secondary/Vocational # At home	-0.16	-0.21**	0.02	-0.20	-0.13
	(0.12)	(0.10)	(0.12)	(0.12)	(0.13)
Upper Secondary/Vocational # Not working	-0.08	0.13	0.04	0.05	0.01
	(0.12)	(0.12)	(0.10)	(0.12)	(0.12)
Bachelor degree or more # At home	-0.12	-0.16*	-0.02	-0.16	-0.11
	(0.11)	(0.09)	(0.11)	(0.12)	(0.13)
Bachelor degree or more # Not working	-0.13	0.09	-0.06	0.02	0.01
	(0.11)	(0.11)	(0.10)	(0.12)	(0.12)
Germany # At home	0.00	-0.02	-0.14*	0.03	0.04
	(0.09)	(0.09)	(0.07)	(0.09)	(0.08)
Germany # Not working	0.15	0.43***	-0.00	0.13	0.01
	(0.17)	(0.16)	(0.12)	(0.13)	(0.14)

Italy # At home	0.04	0.12	0.00	0.10	0.01
	(0.09)	(0.08)	(0.07)	(0.07)	(0.08)
Italy # Not working	-0.06	0.05	0.08	-0.06	-0.06
	(0.11)	(0.11)	(0.08)	(0.09)	(0.09)
Spain # At home	-0.04	0.09	0.18***	0.01	0.06
	(0.08)	(0.07)	(0.07)	(0.08)	(0.08)
Spain # Not working	0.03	0.17	0.13	0.17*	0.25**
	(0.10)	(0.12)	(0.09)	(0.09)	(0.10)
Sweden # At home	-0.02	-0.08	0.11	-0.01	0.03
	(0.18)	(0.15)	(0.11)	(0.11)	(0.11)
Sweden # Not working	0.55**	0.49**	0.01	0.03	-0.05
	(0.22)	(0.23)	(0.17)	(0.12)	(0.18)
June	0.12***	-0.04	0.09***	0.05*	0.04
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
August	0.20***	-0.04	0.08***	0.10***	0.16***
	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)
November	0.05**	-0.09***	0.04*	0.03	0.04*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Constant	0.09	0.22**	0.03	-0.04	-0.07
	(0.09)	(0.09)	(0.07)	(0.08)	(0.08)
Observations	9713	9713	9713	9713	9713
Overall R2	0.011	0.001	0.005	0	0.002

*Note(s): These are linear panel regressions using four waves of COME-HERE data. Standard errors clustered at the individual level are in parentheses. *p < 0.1, **p < 0.05 and ***p < 0.01.*

5. Conclusions

We have here used four waves of European panel data collected regularly since Easter 2020 to consider the relationship between working from home, not working and five measures of subjective well-being. Our main broad result is that the working from home that has become so widespread during the COVID-19 pandemic is associated with lower levels of well-being in the cross-section analysis. However, the results in panel data (where we look only at people who switch status) are less clear on this front, with even a small fall in anxiety when moving to working from home. Harking back to our hypotheses in Section 2, we thus find little strong evidence of pent-up demand by employees for working from home.

The difference between the panel and the cross-section results here could reflect either adaptation over time or selection of certain types of individuals into working at home: if it is the latter, then the analysis of cross-section data will be misleading in terms of the effect of working at home on well-being. It should however be underlined that our panel analysis is not able to provide a complete picture, as a number of the survey respondents were already working from home in Wave 1 and continued to do so: we cannot observe the change in well- being for this group as they changed working status prior to the start of the survey.

We uncover a consistent negative correlation between well-being and stringency in both the cross-section and panel regressions. As such, the public-health measures to restrict social interactions have come at a cost to population well-being, which should be factored in to calculations of any future optimal lockdown policy (as in Layard *et al*., 2020). It is also worth underlining that not

working is associated with lower well-being than both working at home and working away from home.

We find almost no evidence of mediation in these analysis via income or household variables. The furlough programmes in place have seemingly ensured that the lower well- being from not working has not transited via sharply lower income.

Not all workers have been equally affected by working from home. The associated well- being penalty is larger for the older, the better-educated, those with young children and those with more crowded housing. As such, lockdown and its associated policies have not only had an effect on the distribution of income but also that of well-being.

We last note that our analysis here is based on an ongoing survey. Lockdowns and their impact on people and their place of work will continue to evolve throughout 2021. Future waves of the panel data that we use here will allow us track the work and well-being of individuals as these changes unfold.

Our results, in combination with follow-up work on their persistence over time, contribute to the identification of the short- and long-term effects of social-distancing measures and working from home on individual well-being. These numbers are essential inputs for the evaluation of the welfare consequences of the different policy responses to current and future public-health crises and for the focusing of resources on those who have suffered more from mobility restrictions.

There are a number of limitations related to data collection. First, we use unbalanced panel data, meaning that not all respondents are observed in all four waves. We have limited this problem here by using information from individuals who are observed at least twice (in Waves 1 and 4). Second, information on home working was collected retrospectively during Wave 4. This could potentially produce measurement error, as individuals may not remember exactly when their working status changed. This measurement error may attenuate the estimated coefficient on the working from home variable. However, posing this question retroactively may help the comparability of the working-status information over the four waves (as the individual is in the same frame of mind when providing the information). Last, we do not observe the transition into working from home for all those who currently do so and so cannot correlate their change in subjective well-being with the change in working arrangements. With restrictions being variously relaxed and reintroduced in our survey countries, it is likely that we will be able to appeal to more changes in working from home (and changes in well-being) in future survey waves.

In terms of practice, it is important to establish the longer-run effects of working from home on well-being. As argued by Barrero *et al.* (2021), working from home may be here to stay for a number of reasons, including perceptions of home working that have become more positive and little evidence of significant falls in productivity. These suggest that both workers and firms may have misperceived the benefits from home working. Barrero *et al.* (2021) note that US firms expect the number of days worked from home post-pandemic to triple relative to the pre-pandemic number. The shift on the worker side is even more striking, with the average desire to work from home being over two days per week; Taneja *et al.* (2021) find an almost identical figure for the

UK. With the results from the (enforced) experience of working from home for both firms and workers, what seemed very unlikely in the past may become commonplace in the future.

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Appendix

Table A1: Descriptive statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
Life satisfaction	9713	6.28	2.12	0	10
Worthwhile	9713	6.71	2.21	0	10
Lack of loneliness	9713	23.47	5.17	8	32
Lack of depression	9713	20.23	6.30	0	27
Lack of anxiety	9713	15.03	5.30	0	21
Working (D)					
At home	9713	0.30			
Not working (D)	9713	0.07			
Not at home (D)	9713	0.62			
Stringency index	9713	0.69	0.14	0.44	0.94
Age (W1)	9713	43.53	10.88	18	64
Male (D; W1)	9713	0.52			
Education (D; W1)					
Primary/secondary O-level	9713	0.13			
Upper Secondary or Vocational	9713	0.35			
Bachelor degree or more	9713	0.52			
Log(monthly income)	9713	7.82	0.65	6.14	9.35
Living with partner (D; W1)	9713	0.64			
Children 0-3 (D; W1)	9713	0.10			
Children 4-12 (D; W1)	9713	0.27			
Children 13-18 (D; W1)	9713	0.22			
Garden or park (D; W1)	9713	0.49			
Balcony, terrace or rooftop (D; W1)	9713	0.82			
Less than one room pp (D, W1)	9713	0.06			
One room pp (D; W1)	9713	0.13			
More than 1 room pp (D; W1)	9713	0.81			
Population density (D; W1)					
Under 10000 inhabitants	9713	0.25			
10000-50000 inhabitants	9713	0.21			
Over 50000 inhabitants	9713	0.54			
Residence (W1)					
France	9713	0.24			
Germany	9713	0.21			
Italy	9713	0.21			
Spain	9713	0.23			
Sweden	9713	0.11			
Month					
May	9713	0.28			

June	9713	0.20
August	9713	0.24
November	9713	0.28

Note(s): D refers to a dummy variable and W1 to information collected at Wave 1 only.