

# Preference for working from home – subjective perceptions of COVID-19 matter more than objective information on occupational exposure to contagion

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## Abstract

We investigate how subjective and objective assessment of COVID-19 risks affect preferences toward working from home (WFH) and whether informing workers about the level of exposure to contagion in their occupation affects these preferences. In the summer of 2021, we conducted a discrete choice experiment combined with an information provision experiment with more than 11 000 workers in Poland. Estimating willingness to pay for WFH, we find that, on average, workers are willing to give up 3.2%, 95% CI [2.8%; 3.6%] of earnings for such an option. The subjective assessment of COVID-19 risk matters as workers who perceive COVID-19 as a threat are willing to sacrifice a higher share of earnings for WFH than those who do not (4.1%, vs. 1.3% [ $p < 0.00$ ]). However, the preferences toward WFH differ to a smaller extent between workers in occupations with high or low exposure to COVID-19 [3.8% vs. 2.7%,  $p = 0.01$ ]. Informing workers about occupational exposure to contagion generally does not affect preferences toward WFH.

Keywords: working from home, discrete choice, information provision experiment, occupational exposures.

JEL: J21, J44, C35, I12

## 1. Introduction

During the COVID-19 pandemic, many companies used flexible working arrangements, such as working from home (WFH), to limit contact between workers and reduce the risk of contagion (Alipour et al., 2021). These measures were necessary, given that respiratory diseases, including COVID-19, often spread through social interactions in the workplace (Qiu et al., 2020;

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Lewandowski, 2020; Markowitz et al., 2019; Adda, 2016). The possibility to work from home emerged as a critical job amenity that reduces work-related exposure to contagion and allows continuing work despite various restrictions. COVID-19 will remain endemic, and outbreaks of other respiratory diseases, such as influenza, are highly likely. Workplace interactions tend to be the main source of social contact among people in the working age (Mossong et al., 2008). Therefore, firms may use flexible working arrangements in the future to reduce infection risks and continue economic activity during potential outbreaks.<sup>1</sup> Understanding the interactions between workers' awareness of risks, health messaging, and labour market behaviour is essential to evaluate the potential role of remote working in the post-COVID economy, both for health and labour market policy. Important questions arise. First, do workers perceive remote work as a way to reduce the risk of contagion and are willing to forego other job amenities, especially wages, for the option to work from home? Second, what matters more in this regard - subjective perceptions of COVID-19 risks or objective occupational exposures to contagion? Third, can communication about occupational exposures to contagion affect workers' preferences toward WFH?

We address these questions by conducting a discrete choice experiment combined with an information provision experiment with 11 166 workers in occupations that can be done from home. The discrete choice method allows investigating how workers value non-pecuniary amenities such as flexible work arrangements (Lewandowski et al., 2023; Maestas et al., 2023; Mas & Pallais, 2017). A randomised information provision experiment enables assessing the causal impact of messaging on workers' preferences toward WFH. Information experiments have been used previously to evaluate the effectiveness of health-messaging interventions (Banerjee et al., 2020; Breza et al., 2021; Torres et al., 2021). In our study, workers chose between job offers that differed in wages and the option of WFH. Before making a choice, a randomly selected group received information about the exposure to COVID-19 contagion in their occupation. We conducted the study in Poland, a country with a low incidence of WFH before the COVID-19

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<sup>1</sup> WFH is also an amenity that allows time savings on commuting, may improve work-life balance, and job satisfaction. These angles are covered in multiple studies (Aksoy et al., 2022; Choudhury et al., 2022; Mas & Pallais, 2017) and we do not focus on them here. We intend to evaluate if the health-related motivation, which was the key factor driving unprecedented increase in the WFH incidence during the COVID-19 pandemic, remained critical.

pandemic. WFH became more widespread during the pandemic. At the same time, in 2020-2021, Poland had one of Europe's highest excess mortality rates (Eurostat). The confluence of WFH novelty and pandemic severity makes Poland an interesting case for investigating how COVID-19-related risks affect workers' preferences toward risk-mitigation activities, such as WFH.

Our first contribution is to provide evidence on the role of subjective and objective assessments of COVID-19-related risks for workers' preferences toward WFH. We bridge existing gaps in the literature by investigating the willingness to pay for flexible job amenities in the context of the COVID-19 pandemic. Recent studies showed that workers value remote work, especially in a hybrid mode that combines WFH for 2-3 days per week with working in the office on the other days (Aksoy et al., 2022; Barrero et al., 2021; Choudhury et al., 2022; Lewandowski et al., 2023). Less is known about the role of various COVID-related risks in these preferences. Individuals who perceive COVID-19 as a threat or are at higher risk of infection are more willing to participate in risk mitigation activities, such as vaccination, social distancing, or improved hand hygiene (Caserotti et al., 2021; Harper et al., 2021; Papanastasiou et al., 2022; Plohl & Musil, 2021). General trust also seems to be associated with preventive behaviour attitudes (Umer, 2022). However, we are not aware of any research focused on economic activities in this context. We investigate whether similar mechanisms affect labour market behaviours, particularly WFH, which can be a risk-mitigating job amenity. To our knowledge, no studies have investigated the role of subjective perceptions and objective risks on the preferences toward WFH. Our study also stands out with comprehensive coverage of occupations: we focus on jobs that can be performed remotely, which constituted 50% of employment in Poland in 2020-2021.

We find that subjective perceptions of COVID-19 risks matter much more for preferences for working remotely than objective occupational exposures to contagion. Workers who perceived COVID-19 as a threat were willing to sacrifice a higher share of earnings for the possibility of WFH than workers who did not perceive COVID-19 as a threat (4.1% vs. 1.3% [ $p < 0.00$ ]). At the same time, the differences between workers in occupations with high and low exposure to contagion were much less pronounced [3.8% vs. 2.7%,  $p = 0.01$ ]. These results hold for different subgroups of workers. Workers who perceived COVID-19 as a threat were willing to sacrifice a higher share of earnings for the possibility of WFH regardless of the modes WFH mode (2-3 days a week combined

with working in the office on other days, or 5 WFH days a week). Workers in occupations with high occupational exposure were slightly more willing to sacrifice their earnings for fully remote work (WFH 5 days a week) [1.7% vs. -0.1%,  $p < 0.00$ ].

Our second contribution is to assess whether informing workers about the level of their occupational exposure to COVID-19 contagion affects preferences toward WFH. We bridge gaps in the literature by framing the studies on willingness to pay for job-related amenities with studies that evaluate the effectiveness of health-messaging interventions on risk-mitigating health behaviours which is a novelty in the literature. Previous studies mainly investigated information's effects on health-oriented behaviours (health symptoms, hand-washing, vaccination, etc.). Working from home has become a critical job amenity that reduces work-related exposure to contagion (Alipour et al., 2021). Some occupations require more frequent social contact, higher physical proximity, or even direct contact with infections at work, making some workers more exposed to contagion (Lewandowski, 2020). Hence, we hypothesise that some workers might perceive remote work as a way to reduce the risk of contagion and are willing to forego other job amenities (especially wages) for the option to work from home. Perhaps workers are unaware of their occupational exposures, especially those in highly exposed occupations that are not trained to deal with infections. This could explain why workers in highly exposed occupations are as interested in working remotely as those in occupations with low exposure. Therefore, informing workers about the risks of contagion in their occupation may change their willingness to engage in a risk-mitigating activity such as WFH. Information about preventive behaviours and nudges can increase the reporting of health symptoms, COVID-19 knowledge, hand-washing (Banerjee et al., 2020; Torres et al., 2021; Tzikas & Koulterakis, 2023), decrease the mobility of people (Breza et al., 2021; Banerjee et al., 2020) or increase the willingness to get a vaccine (Alsan et al., 2021). However, there is also evidence that providing information alone does not affect COVID-19 preventive behaviours (Bahety et al., 2021). The explicit framing of the WFH in terms of COVID-19 risk is a novelty in the literature on the effectiveness of health messaging.

We find that learning about the level of occupational contagion risk generally did not affect workers' preferences toward WFH. The WTP was similar in the treatment and control groups

regardless of the levels of occupational exposure to contagion or perception of the COVID-19-related risks.

Our findings suggest that influencing workers' preferences toward WFH with risk-mitigation messaging can be challenging. Workers' preferences toward WFH may depend on factors that are not readily observable, such as workers' perceptions of the health risks associated with COVID-19, risk aversion, or personality traits. Health information may be important for behavioural change but not necessarily sufficient. Information campaigns may be more effective when they contain precise information on what behaviours to take up (Banerjee et al., 2020) and when they are transferred by community members, peers or celebrities – individuals whom people trust, feel a connection with, or respect (Alatas et al., 2024; Alsan et al., 2021; Banerjee et al., 2019). As the information we provided was rather impersonal, the participants might not have found it salient enough. Moreover, information campaigns' impact may also be reduced by financial cost, increased effort, and perceived or real side effects associated with health behaviour. Therefore, financial subsidies seem effective instruments that increase adherence to rules (Leveré et al., 2016; Papanastasiou et al., 2022). Some participants might have been discouraged by potential costs and efforts to adjust their home to a workplace, especially given that remote work was rather rare in Poland before the COVID-19 pandemic.

The paper is structured as follows. In the second section, we describe the experimental design and data collection, and present the descriptive statistics. In the third section, we outline the econometric methodology. In the fourth section, we present the econometric results. The fifth section concludes.

## 2. Experimental design

### 2.1. Data collection and the design of the study

We conducted an online discrete choice experiment combined with an information provision experiment. We recruited individuals working or actively searching for a job in professional, clerical, and service occupations (groups 1-5 according to the ISCO-08 classification except for health professionals) with relatively high levels of teleworkability (Dingel & Neiman, 2020). We deliberately omitted healthcare occupations who are well aware of exposure to contagion and

trained to minimize the infection risks. Participants were between 20 and 64 years of age, resided in a city with at least 100,000 inhabitants (or within a 45-minute commute to such city) and worked or were willing to work at least 20 hours a week. We recruited them from a nationwide research panel with around 300 000 registered users whose socio-demographic structure corresponds with the structure of Polish Internet users. Workers were surveyed between July and August 2021. By this time almost all COVID restrictions on mobility and business activity had been lifted and the economy had returned to normal. The vaccination started several months before the study, in December 2020. Firstly, we collected information about the participants' socio-demographic characteristics, occupations, workplace characteristics, earnings and opinions on the risks related to the COVID-19 pandemic. Then, we displayed to participants five screens with two job offers on each screen (job A and job B). We provided information on the occupation, working hours, the possibility of WFH, and wages of each job offer. Each pair of jobs varied regarding the possibility of WFH and earnings. In job offer A, the WFH was not possible. In job offer B, the WFH was possible either five days a week or 2-3 days a week (we randomised the number of WFH days). In job A, workers could get the same wage as in their current workplace (workers provided information on their earnings in the survey). In job B, the wage level was randomised in the range from 24% lower to 24% higher than the wage in job A (4 pp. intervals). The jobs A and B were randomly displayed on the left or right side of the screen. We conducted a pilot survey among 332 participants before conducting the full-scale study to evaluate the survey software's quality, the questions' clarity, and the choice tasks parameters. Before presenting a job offer, we randomly allocated participants to the treatment (TG) and the control (CG) groups (based on the date of birth - individuals born on even days were assigned to the treatment group, and individuals born on odd days were assigned to the control group). The TG saw a message about the level of exposure to COVID-19 contagion in their occupation. We assigned the level of occupational exposure to COVID-19 contagion based on Lewandowski (2020). It considers the intensity of social contacts in various occupations. It is similar to a job-exposure matrix (JEM) often used in occupational medicine to assess exposure to potentially hazardous agents in large populations (Nieuwenhuijsen, 2009).

Table 1 presents information provided to the TG, Table 2 summarises the vignettes' attributes and values, Diagram 1 in Appendix A shows the study design, Table A1 in Appendix A – a detailed list of

occupations with their level of teleworkability and occupational exposure to COVID-19 contagion, Table A4 in Appendix A – an example of a vignette displayed to participants. We also informed participants how to understand the term 'work from home' and showed them some examples (Tables A2 and A3 in Appendix A).

**Table 1. Information provided to the treatment group**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Social distancing and limits on mobility and interpersonal contacts are necessary to prevent the spread of COVID-19.</p> <p>Research shows that people spend most of the day at work. Meeting other employees or clients increases the risk of transmitting infectious diseases such as COVID-19.</p> <p>Some occupations require more frequent social contact, more physical proximity to others, or even direct contact with infectious individuals. As a result, some workers are more exposed to contagion than others.</p> <p>We identified occupations in which the risk of contagion is higher or lower. You will see this information on the following screens.</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Source: Own elaboration.

**Table 2. Vignettes' attributes and values**

| Attributes                                           | Values                                                               |                                                                                                                       |
|------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
|                                                      | Job offer A                                                          | Job offer B                                                                                                           |
| Occupation                                           | Occupation indicated by study participants in the survey             |                                                                                                                       |
| Work hours                                           | Full-time position. Work from Monday to Friday from 9 a.m. to 5 p.m. |                                                                                                                       |
| Ability to work from home                            | Cannot work from home                                                | (1) Can work from home 2 or 3 days a week<br>(2) Work from home 5 days a week. Cannot work from the office.           |
| Wage                                                 | Wage indicated by study participants in the survey                   | The difference in comparison to job offer A: {-24%, -20%, -16%, -12%, -8%, -4%, 0%, +4%, +8%, +12%, +16%, +20%, +24%} |
| <b>Additional attribute presented to the TG only</b> |                                                                      |                                                                                                                       |
| Occupational exposure to COVID-19                    | High or low                                                          |                                                                                                                       |

Source: Own elaboration.

Our sample size (N = 11,166; N in the TG = 5,512; N in the CG = 5,654) is sufficient to investigate the primary effect size between the TG and CG, as well as the effects in various subgroups –

approximately 1,960 participants per group are required (and sufficient) to estimate the effect size of around 2 pp. in the binary outcome (choosing to work from home) with standard parameters of alpha (the significance level) equal to 0.05 and power equal to 0.80.

In vignette studies, participants are typically presented with hypothetical scenarios. While these scenarios can be carefully crafted to represent real-life experiences, they may not fully capture the complexity of real-life situations. To address the "inattention bias", we asked participants to solve two simple equations (2+2 and 20-7). To address the "hypothetical bias", we informed participants that the study results would be presented to the policymakers, which we did. To make our study more realistic, we invited to participate in our study workers and employers for whom working from home was a possible option; we asked them about occupations they are familiar with and presented them with wages that correspond to real wages. We also measured their confidence level after each choice regarding job offers they made. Since less than one per cent of participants solved the equation incorrectly and the overall confidence in choices was high (median at 90 points on the 0-100 scale), we argue that participants' inattention did not bias our study (see details in Table A5 in Appendix A. The evidence of earlier studies shows a correlation between choices made in a factorial survey and real life (Drasch, 2019; Maestas et al., 2023; Mas & Pallais, 2017). Our results (WTP of around 6% for hybrid work) are similar to the estimates reported by studies conducted in a more real-life context in the US (Maestas et al., 2023; Mas & Pallais, 2017). Therefore, we believe our study offers valuable insights into labour market decision-making.

We received approval from the Rector's Committee for Ethics of Research with Human Participants at the University of Warsaw (decision 88/2021). We pre-registered the experiment in the American Economic Association's registry for randomised controlled trials (RCT ID: AEARCTR-0007373).

## 2.2. Sample size and structure

We recruited 11,166 participants. The sample structure aligns well with the population of workers aged 20-64 employed in occupations ISCO 1 to 5 regarding main socio-economic characteristics and the structure of occupational exposure to contagion (Table 3). We weighted the data to match the distribution of key socio-demographic variables and occupational groups to ensure representativeness.



The randomisation in the information provision experiment delivered a well-balanced TG (5,512 individuals, 49.4% of the sample) and CG (5,654, 50.6%). We performed a battery of mean t-tests to check for no statistically significant differences between the TG and CG. We accounted for socio-demographic variables (gender, age, education, place of residence), labour market variables (occupation, contract type, working hours), and household structure (children present in the household, single-person household). In all cases, the differences in the means between the groups were small (less than 2 pp.) and were statistically insignificant (see Table A6 in Appendix A).

Table 3. Sample characteristics

|                                           | Sample structure |      |              | Population structure |
|-------------------------------------------|------------------|------|--------------|----------------------|
|                                           | N                | %    | % (weighted) | %                    |
| <b>Gender</b>                             |                  |      |              |                      |
| <b>Women</b>                              | 5861             | 52.5 | 56.4         | 56.4                 |
| <b>Men</b>                                | 5304             | 47.5 | 43.6         | 43.6                 |
| <b>Age group</b>                          |                  |      |              |                      |
| <b>20-34</b>                              | 4535             | 40.6 | 32.0         | 32.0                 |
| <b>35-49</b>                              | 4193             | 37.6 | 45.7         | 45.7                 |
| <b>50-64</b>                              | 2437             | 21.8 | 22.3         | 22.3                 |
| <b>Education</b>                          |                  |      |              |                      |
| <b>Secondary or lower</b>                 | 4900             | 43.9 | 43.7         | 43.7                 |
| <b>Tertiary</b>                           | 6265             | 56.1 | 56.3         | 56.3                 |
| <b>Occupational exposure to contagion</b> |                  |      |              |                      |
| <b>Low</b>                                | 5568             | 49.9 | 52.8         | 52.9                 |
| <b>High</b>                               | 5597             | 50.1 | 47.2         | 47.1                 |

Note: we weighted the sample to match the 2020 Polish Labour Force Survey (LFS) population of workers in occupations from groups 1-5 of the ISCO-08 classification (except for health professionals).

Source: Own calculations using data gathered for the experiment and Poland's Labour Force Survey data for 2020.

### 2.3. Descriptive results

Most participants chose a job that offered a remote option (62.3%, Table 4), more often in a hybrid mode (72.8%) than fully remotely (52.8%). Younger people chose the WFH jobs more frequently. Workers who considered COVID-19 a threat chose WFH slightly more often than workers who did not perceive COVID-19 as a threat (64.0% vs 58.9%). Surprisingly, individuals working in occupations highly exposed to contagion chose to work from home as often as those with low occupational exposure to COVID-19 contagion (62.3% vs 62.4%). There was virtually no difference

in the frequency of choosing WFH between the treatment and control groups in the information experiment (62.9% vs 61.8%).

Table 4. Descriptive results – the percentage of workers who chose the job offer with the possibility to work from home

| Participants' characteristics             | WFH 5 days a week | WFH 2-3 days a week | WFH – total | N    |
|-------------------------------------------|-------------------|---------------------|-------------|------|
| <b>Total</b>                              | 52.8%             | 72.8%               | 62.3%       | 4281 |
| <b>Gender</b>                             |                   |                     |             |      |
| <b>Women</b>                              | 51.3%             | 74.8%               | 62.6%       | 2241 |
| <b>Men</b>                                | 54.8%             | 70.1%               | 62.0%       | 2040 |
| <b>Age</b>                                |                   |                     |             |      |
| <b>20-34</b>                              | 60.4%             | 76.1%               | 67.9%       | 1724 |
| <b>35-49</b>                              | 51.7%             | 72.7%               | 61.7%       | 1614 |
| <b>50-64</b>                              | 44.6%             | 68.3%               | 56.0%       | 943  |
| <b>Occupational exposure to contagion</b> |                   |                     |             |      |
| <b>High</b>                               | 53.1%             | 72.1%               | 62.3%       | 2144 |
| <b>Low</b>                                | 52.6%             | 73.4%               | 62.4%       | 2137 |
| <b>Considers COVID-19 a threat</b>        |                   |                     |             |      |
| <b>Yes</b>                                | 53.3%             | 75.0%               | 64.0%       | 2873 |
| <b>No</b>                                 | 52.0%             | 67.6%               | 58.9%       | 1408 |
| <b>Experimental group</b>                 |                   |                     |             |      |
| <b>Treatment (TG)</b>                     | 52.2%             | 74.2%               | 62.9%       | 2099 |
| <b>High occupational exposure</b>         | 54.9%             | 73.3%               | 63.9%       | 1038 |
| <b>Low occupational exposure</b>          | 49.8%             | 74.9%               | 62.0%       | 1061 |
| <b>Control (CG)</b>                       | 53.4%             | 71.4%               | 61.8%       | 2182 |
| <b>High occupational exposure</b>         | 51.6%             | 71.1%               | 60.9%       | 1106 |
| <b>Low occupational exposure</b>          | 55.1%             | 71.7%               | 62.7%       | 1076 |

Note: Participants had to choose between a job offer with WFH and an identical on-site job offer that differed only in their wage levels. 50% of vignettes offered 2-3 days a week of WFH, 50% of vignettes offered 5 days a week of WFH. The table presents results for WFH jobs that offered equal wages as on-site jobs. Sample size refers to the total number of vignettes with the wage difference between WFH and on-site jobs equal to 0%.

Source: Own calculations using data gathered for the experiment.

### 3. Econometric methodology

We estimate workers' willingness to pay for working from home. For workers, it reflects the valuation of the benefit from the WFH option in monetary terms. We model the participant's utility as follows:

$$U_{ijv} = \alpha_0 + \alpha_1 X_i + \alpha_2 O_j + \alpha_3 W_v + \alpha_4 Q_i + \kappa_i + \iota_i + \gamma_v + v_i + \epsilon_{ijv} \quad (1)$$

where  $i$  stands for the individual,  $v$  for the vignette number for participant  $i$ , and  $j$  for a job offer on a vignette  $v$ .  $X_i$  is a vector of personal and workplace characteristics (set of indicator variables for gender, age, education, caring for children or older adults, employment status, working part-time, type of contract, commute time, and commute means);  $O_j$  represents job offer amenities (the option of working from home, the number of WFH days per week);  $W_v$  is the (continuous) relative wage difference on the vignette  $v$  between the option of working from home and an office-based job;  $Q_i$  is a set of indicator variables for occupational exposure to contagion (calculated following Lewandowski (2020)) and perceiving COVID-19 as a serious threat;  $\kappa_i$  is an indicator variable of the information experiment treatment;  $\iota_i$  is a continuous variable reflecting the COVID-19 infection rate in an individual's county recorded during the time we conducted the survey;  $\gamma_v$  corresponds to the order of offers (WFH on the left or right side) on a vignette; and  $v_i$  represents a set of indicator variables for vignette numbers (1 to 5). Standard errors  $\epsilon_{ijv}$  are clustered at the participant level.

A worker chooses a job offer  $j$  if it provides a higher expected utility than the job offer  $k$  presented in the same vignette  $v$ ,  $U_{jiv} > U_{kiv}$ . The indicator variable  $Y_{ijv}$  equals one if participant  $i$  selected job  $j$  presented in a vignette  $v$ . Therefore,

$$\Pr(Y_{ijv} = 1) = \Pr(U_{ijv} > U_{kiv}) \quad (2)$$

We estimate the parameters using conditional logit models, where  $F(U) = \frac{e^U}{1+e^U}$ . We estimate the willingness to pay for a job amenity as the ratio of point estimates of parameters:

$$WTP(O_j) = -\left(\frac{\alpha_2}{\alpha_3}\right) \quad (3)$$

To quantify the heterogeneity in WTP between subgroups, we interact the indicator variable for working from home with a given subgroup's fixed effect. We distinguish subgroups defined by the key worker, workplace, and worker characteristics. We apply this approach to the pooled sample. We also re-estimate our models on subpopulations defined by the experimental group and the number of WFH days offered (2-3 vs 5 days), as this appears to be a key feature driving the appeal of remote work (Aksoy et al., 2022).

## 4. Results

### 4.1. What affects preferences toward working from home - subjective or objective COVID-19 risks?

Remote work proved to be popular with workers. On average, they were willing to sacrifice 3.2% [2.8%; 3.6%] of earnings for WFH. Notably, preferences toward WFH differed depending on subjective perceptions of the COVID-19 threat and, to a much lesser extent, on occupational exposure. Individuals who perceived COVID-19 as a serious threat were willing to forego an above-average share of earnings for remote work (4.1%) while individuals who did not feel threatened by COVID-19 were willing to give up only 1.3% of earnings [ $p < 0.00$ ] (Table 5, column 1). At the same time, we find that workers with high occupational exposure were willing to give up a slightly higher share of their earnings than workers with low occupational exposure (WTP of 3.8% and 2.7% [ $p = 0.01$ ], respectively). Yet, the difference was smaller than the one between individuals who perceived COVID-19 as a serious threat and those who did not.

Hybrid work – combining 2-3 days of WFH with working in the office – was more attractive than fully remote work, regardless of occupational exposure or COVID-19 threat perception. The average WTP for hybrid work amounted to 5.7% [5.3%; 6.2%], compared to 0.8% [0.3%; 1.3%] for working fully remotely (Table 5, columns 2-3). Workers who perceived COVID-19 as a serious threat were particularly interested in hybrid work – they were willing to sacrifice 6.7% of earnings for such an option, more than workers who did not feel threatened by COVID-19 (3.6% [ $p < 0.00$ ], column 2 of Table 5). Both groups were much less interested in fully remote work. Workers who perceived COVID-19 as a threat were willing to sacrifice 1.5% of earnings for such an option, while those who

did not share this perception even demanded to be paid extra to accept fully remote work (WTP of -0.8% [ $p < 0.00$ ]). While WFH is a valued job amenity, all workers preferred to work sometime in the office rather than fully remotely, probably to benefit from easier face-to-face communication (Gibbs et al., 2023), more frequent peer-feedback (Emanuel et al., 2023), to avoid psychological stress related to working from home (Gualano et al., 2023), or to reduce the feeling loneliness that increased during the COVID-19 pandemic, especially among women (Lepinteur et al., 2022). At the same time, the level of occupational exposure did not matter so much for WFH preferences. There were no significant differences between workers with low and high exposure in the WTP in the case of hybrid work (Table 5). However, in the case of fully remote work, individuals working in occupations with high exposure to contagion were slightly more willing to sacrifice their earnings than individuals working in occupations with low exposure (1.73% vs. -0.11% [ $p < 0.00$ ]).

Table 5. Estimated workers' willingness to pay for working from home, overall and by subpopulations (% of wage in an office-only job, with 95% confidence intervals)

| Group                                      | All vignettes<br>(1) | WFH 2-3 days/week<br>vignettes<br>(hybrid work)<br>(2) | WFH 5 days/week<br>vignettes<br>(fully remote work)<br>(3) |
|--------------------------------------------|----------------------|--------------------------------------------------------|------------------------------------------------------------|
| Average effect                             | 3.23*** (2.84; 3.62) | 5.74*** (5.26; 6.21)                                   | 0.76*** (0.26; 1.25)                                       |
| <b>Occupational exposure</b>               |                      |                                                        |                                                            |
| High                                       | 3.80*** (3.23; 4.37) | 5.87*** (5.17; 6.57)                                   | 1.73*** (1.03; 2.44)                                       |
| Low                                        | 2.72*** (2.18; 3.26) | 5.62*** (4.96; 6.27)                                   | -0.11 (-0.80; 0.58)                                        |
| $X^2(1)$ , Bonferroni corrected $p$ value  | 7.26, $p = 0.01$     | 0.27, $p = 1.00$                                       | 13.25, $p < 0.00$                                          |
| <b>COVID-19 perceived as a high threat</b> |                      |                                                        |                                                            |
| Yes                                        | 4.12*** (3.64; 4.60) | 6.73*** (6.15; 7.31)                                   | 1.52*** (0.92; 2.13)                                       |
| No                                         | 1.34*** (0.65; 2.02) | 3.60*** (2.77; 4.44)                                   | -0.83* (-1.70; 0.03)                                       |
| $X^2(1)$ , Bonferroni corrected $p$ value  | 42.51, $p < 0.00$    | 35.97, $p < 0.00$                                      | 19.14, $p < 0.00$                                          |

Note: Total  $N = 111,650$ ;  $N = 55,634$  for 2-3 days WfH;  $N = 56,016$  for 5 days WfH. Positive values in the table show that a worker was willing to sacrifice a certain percentage of earnings for the possibility to work from home. Negative values show that a worker demanded to be paid a certain percentage of earnings for the possibility to work from home. Due to the characteristics of the *wtp* Stata command,  $p$  values reflect the strictest confidence level at which the WTP estimates differ from zero. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Source: Own estimations using data gathered for the experiment.

Next, we compare the WTP of individuals with contrasting perceptions in particular subpopulations. This allows us to verify if differences related to perceptions of COVID-19 risks are driven by the perceptions of health risks *per se*, rather than the composition of groups with contrasting perceptions in terms of observable characteristics. People who perceived COVID-19 as a threat tended to be better educated, older, and lived in places with higher infection rates more often than those who did consider COVID-19 a serious threat. However, the model containing demographic and work-related variables explains only 4% of the variance, which points to large (uncaptured) individual differences (see Table B1 in Appendix B).

Notably, the WTP for remote work is higher among people who perceived COVID-19 as a threat in most subpopulations defined according to education, age, gender, and occupational exposure (Table 6). This confirms the critical role of perceptions of COVID-19 as a driver of preferences toward remote work. The differences related to the perceptions of COVID-19 risks were larger among individuals with tertiary education than among individuals with lower education levels, and among women than among men. Women and better-educated workers are usually the most interested in remote work (Aksoy et al., 2022; Arntz et al., 2022; Mas & Pallais, 2017). They were also larger among workers aged 50 or older than among prime-aged or young workers. Interestingly, workers aged 50-64 who did not perceive COVID-19 as a threat were reluctant to accept remote work – they demanded a pay premium to do so (WTP of -2.9%) – while their peers who perceived COVID-19 as a threat were willing to sacrifice 1.7% of earnings for the remote work option ([ $p < 0.00$ ], Table 6). At the same time, older workers were generally less willing to sacrifice earnings for the WFH option than prime-aged or young workers, even though the risk of severe disease from COVID-19 is strongly increasing with age (O'Driscoll et al., 2020). Hence, preferences toward remote work seem strongly related to factors other than health considerations.

Table 6. Workers' estimated willingness to pay for working from home depending on subjective perceptions of COVID-19 risk, by subpopulations defined by age group, education level, and gender (% of wage in an office-only job, with 95% confidence intervals)

| Subpopulation                             | Sample size | COVID-19 perceived as a low threat | COVID-19 perceived as a high threat | $\chi^2(1)$ , Bonferroni corrected $p$ value |
|-------------------------------------------|-------------|------------------------------------|-------------------------------------|----------------------------------------------|
| <b>Education</b>                          |             |                                    |                                     |                                              |
| Vocational, Primary or lower              | 10,930      | 0.28 (-1.72; 2.28)                 | 2.32*** (0.71; 3.93)                | 2.43, $p = 0.36$                             |
| Secondary                                 | 38,074      | 1.65*** (0.49; 2.81)               | 3.44*** (2.57; 4.31)                | 5.83, $p = 0.05$                             |
| Tertiary                                  | 62,646      | 1.36*** (0.43; 2.29)               | 4.76*** (4.15; 5.37)                | 35.67, $p < 0.00$                            |
| <b>Age</b>                                |             |                                    |                                     |                                              |
| 20-34                                     | 45,350      | 2.57*** (1.67; 3.47)               | 6.25*** (5.53; 6.97)                | 39.40, $p < 0.00$                            |
| 35-49                                     | 41,926      | 1.64*** (0.55; 2.73)               | 4.11*** (3.34; 4.87)                | 13.15, $p < 0.00$                            |
| 50-64                                     | 24,374      | -2.88*** (-4.82; -0.94)            | 1.74*** (0.76; 2.71)                | 17.38, $p < 0.00$                            |
| <b>Gender</b>                             |             |                                    |                                     |                                              |
| Men                                       | 53,042      | 0.34 (-0.63; 1.31)                 | 2.81*** (2.16; 3.47)                | 17.26, $p < 0.00$                            |
| Women                                     | 58,608      | 2.03*** (1.09; 2.97)               | 5.18*** (4.50; 5.87)                | 28.02, $p < 0.00$                            |
| <b>Occupational exposure to contagion</b> |             |                                    |                                     |                                              |
| High                                      | 55,974      | 1.72*** (0.76; 2.67)               | 4.90*** (4.19; 5.60)                | 27.44, $p < 0.00$                            |
| Low                                       | 55,676      | 0.94* (-0.04; 1.92)                | 3.47*** (2.82; 4.12)                | 17.69, $p < 0.00$                            |

Note: Vocational and primary educated workers were pooled together due to the small sample size.. Positive values show that a worker was willing to sacrifice a certain percentage of earnings for the possibility to work from home. Negative values show that a worker demanded to be paid a certain percentage of earnings for the possibility to work from home. Due to the characteristics of the *wtp* Stata command,  $p$  values reflect the strictest confidence level at which the WTP estimates differ from zero. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Source: Own calculations using data gathered for the experiment.

At the same time, in most subpopulations, there are no differences in preferences toward WFH between workers in occupations with high exposure and those with low exposure to contagion (Table 7). The only exceptions are workers with secondary education and those who perceive COVID-19 as a threat, among whom people in highly exposed jobs are willing to sacrifice a higher share of earnings for WFH than those in occupations with low exposure (4.3% vs. 0.4% [ $p < 0.00$ ] and 4.9% vs. 3.5% [ $p = 0.01$ ]). In all other subpopulations, defined by education, age or gender, such occupational subgroups exhibited no differences significant at the 0.05 level.

Table 7. Workers' estimated willingness to pay for working from home depending on objective COVID-19 risk, by subpopulations defined by age group, education level, and gender (% of wage in an office-only job, with 95% confidence intervals)

| Subpopulation                     | Sample size | Low occupational exposure | High occupational exposure | $\chi^2(1)$ , Bonferroni corrected $p$ value |
|-----------------------------------|-------------|---------------------------|----------------------------|----------------------------------------------|
| <b>Education</b>                  |             |                           |                            |                                              |
| Vocational, Primary or lower      | 10,930      | 2.20** (0.05; 4.35)       | 1.18 (-0.37; 2.73)         | 0.57, $p = 1.00$                             |
| Secondary                         | 38,074      | 0.42 (-0.72; 1.56)        | 4.29*** (3.42; 5.16)       | 27.74, $p < 0.00$                            |
| Tertiary                          | 62,646      | 3.56*** (2.93; 4.2)       | 4.14*** (3.28; 5.0)        | 1.12, $p = 0.87$                             |
| <b>Age</b>                        |             |                           |                            |                                              |
| 20-34                             | 45,350      | 4.62*** (3.84; 5.4)       | 5.03*** (4.22; 5.84)       | 0.51, $p = 1.00$                             |
| 35-49                             | 41,926      | 2.99*** (2.14; 3.83)      | 3.65*** (2.72; 4.59)       | 1.07, $p = 0.90$                             |
| 50-64                             | 24,374      | -0.06 (-1.25; 1.12)       | 1.92*** (0.63; 3.21)       | 4.93, $p = 0.08$                             |
| <b>Gender</b>                     |             |                           |                            |                                              |
| Men                               | 53,042      | 1.97*** (1.26; 2.68)      | 2.23*** (1.4; 3.06)        | 0.21, $p = 1.00$                             |
| Women                             | 58,608      | 3.48*** (2.66; 4.3)       | 4.67*** (3.91; 5.43)       | 4.33, $p = 0.07$                             |
| <b>COVID-19 threat perception</b> |             |                           |                            |                                              |
| High                              | 74,884      | 3.47*** (2.82; 4.12)      | 4.90*** (4.19; 5.60)       | 8.48, $p = 0.01$                             |
| Low                               | 36,766      | 0.95* (-0.03; 1.93)       | 1.72*** (0.77; 2.68)       | 1.23, $p = 0.53$                             |

Note: Vocational and primary educated workers were pooled together due to the small sample size. Positive values show that a worker was willing to sacrifice a certain percentage of earnings for the possibility to work from home. Negative values show that a worker demanded to be paid a certain percentage of earnings for the possibility to work from home. Due to the characteristics of the *wtp* Stata command,  $p$  values reflect the strictest confidence level at which the WTP estimates differ from zero. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Source: Own calculations using data gathered for the experiment.

#### 4.2. Does health messaging affect workers' preferences toward working from home?

In general, providing information about occupational exposure to contagion did not influence workers' preferences toward remote work. The WTP was similar in the treatment group (3.5% vs 2.9% [ $p=0.13$ ], Table 8). The results are similar in subpopulations with contrasting levels of occupational exposure: treatment did not strongly influence the WTP among highly exposed workers (4.2% in TG vs. 3.4% in CG [ $p=0.64$ ]) or those with a low level of occupational exposure (3.0% in TG vs. 2.5% in the CG [ $p=1.00$ ]). There were also no strong effects among workers who perceived COVID-19 as a serious threat (WTP equal to 4.6% in the TG and 3.7% in the CG [ $p=0.35$ ])



and among workers who did not perceive COVID-19 as a threat and (WTP equal to 1.5% in the CG and 1.2% in the TG [ $p=1.00$ ]). Hence, we conclude that the informational treatment generally did not change the WFH preferences.

Table 8. Estimated workers' willingness to pay for working from home, depending on the experimental group (% of wage in an office-only job, with 95% confidence intervals)

| Group                                        | Treatment (TG)       | Control (CG)         | $\chi^2(1)$ ,<br>Bonferroni<br>corrected $p$<br>value |
|----------------------------------------------|----------------------|----------------------|-------------------------------------------------------|
| Average effect                               | 3.54*** (2.98; 4.10) | 2.93*** (2.37; 3.48) | 2.34, $p = 0.13$                                      |
| <b>Occupational exposure</b>                 |                      |                      |                                                       |
| High                                         | 4.23*** (3.40; 5.06) | 3.41*** (2.62; 4.19) | 1.98, $p = 0.64$                                      |
| Low                                          | 2.96*** (2.20; 3.71) | 2.47*** (1.69; 3.25) | 0.77, $p = 1.00$                                      |
| $\chi^2(1)$ , Bonferroni corrected $p$ value | 4.91, $p = 0.11$     | 2.76, $p = 0.39$     |                                                       |
| <b>COVID-19 perceived as a high threat</b>   |                      |                      |                                                       |
| Yes                                          | 4.55*** (3.87; 5.23) | 3.71*** (3.04; 4.38) | 2.93, $p = 0.35$                                      |
| No                                           | 1.48*** (0.50; 2.45) | 1.20** (0.24; 2.17)  | 0.15, $p = 1.00$                                      |
| $\chi^2(1)$ , Bonferroni corrected $p$ value | 25.70, $p < 0.00$    | 17.49, $p < 0.00$    |                                                       |

Note:  $N = 55,114$  for TG;  $N = 56,536$  for the CG. Positive values show that a worker was willing to sacrifice a certain percentage of earnings for the possibility to work from home. Negative values show that a worker demanded to be paid a certain percentage of earnings for the possibility to work from home. Due to the characteristics of the *wtp* Stata command,  $p$  values reflect the strictest confidence level at which the WTP estimates differ from zero. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Source: Own estimations using data gathered for the experiment.

In the next step, we discuss the effect of information treatment depending on the number of WFH days offered. First, the information provision slightly affected preferences toward fully remote work [1.3% vs. 0.2 [ $p=0.05$ ]]. The provision of information about the level of occupational exposure influenced slightly preferences for fully remote work among workers who learned that their occupations are highly exposed (WTP of 2.4% in the TG, 1.2% in the CG), although both estimates are noisy ( $p=0.40$ ). It also did not impact those with low occupational exposure – as should be expected because workers learned their exposure is low. Regarding subjective perception, people who did not perceive COVID-19 as a threat from the treatment group were slightly less averse to working fully remotely. Yet, the difference between these groups was insignificant (WTP of -0.6%

in the TG and -1.0% in the CG [ $p=1.00$ ]). The WTP for fully remote work among individuals who perceived COVID-19 as a threat was slightly higher among the treated (2.3% vs 0.8% [ $p=0.05$ ], Table 9).

Second, the information provision did not significantly affect preferences toward hybrid work. There were no major differences between the treated and control groups on average and within subgroups (Table 9, bottom panel).<sup>2</sup>

To sum up, the information treatment had a minor but barely significant effect in the case of fully remote work. Importantly, hybrid work was substantially more popular in all groups than fully remote work. This may suggest that workers perceived the potential benefits from reduced exposure to contagion at work as less important than the potential downsides of fully remote work, such as stress (Gualano et al., 2023), more challenging communication with co-workers (Gibbs et al., 2023), or less peer feedback (Emanuel et al., 2023).

Table 9. Estimated workers' willingness to pay for working from home, depending on the experimental group and number of WFH days (% of wage in an office-only job, with 95% confidence intervals)

| Group                               | Treatment (TG)       | Control (CG)         | $\chi^2(1)$ , Bonferroni corrected $p$ value |
|-------------------------------------|----------------------|----------------------|----------------------------------------------|
| <b>WFH 5 days/week vignettes</b>    |                      |                      |                                              |
| Average effect                      | 1.34*** (0.63; 2.05) | 0.19 (-0.50; 0.88)   | 5.12, $p = 0.05$                             |
| High occupational exposure          | 2.35*** (1.31; 3.38) | 1.15** (0.18; 2.12)  | 2.72, $p = 0.40$                             |
| Low occupational exposure           | 0.48 (-0.50; 1.46)   | -0.69 (-1.67; 0.29)  | 2.75, $p = 0.39$                             |
| COVID-19 perceived as a high threat | 2.32*** (1.45; 3.18) | 0.76* (-0.08; 1.61)  | 6.31, $p = 0.05$                             |
| COVID-19 perceived as a low threat  | -0.64 (-1.89; 0.60)  | -1.03* (-2.23; 0.18) | 0.19, $p = 1.00$                             |
| <b>WFH 2-3 days/week vignettes</b>  |                      |                      |                                              |
| Average effect                      | 5.79*** (5.11; 6.47) | 5.69*** (5.01; 6.36) | 0.05, $p = 1.00$                             |

<sup>2</sup> We also checked whether living in a municipality with above median infection rate strengthened the treatment effect. We found no significant differences between willingness to pay in high- and low- infected municipalities, and no treatment effect even in municipalities with high infection rates (see Table B2 in Appendix B).

| Group                               | Treatment (TG)       | Control (CG)         | $\chi^2(1)$ , Bonferroni corrected $p$ value |
|-------------------------------------|----------------------|----------------------|----------------------------------------------|
| High occupational exposure          | 6.17*** (5.16; 7.18) | 5.61*** (4.64; 6.58) | 0.62, $p = 1.00$                             |
| Low occupational exposure           | 5.46*** (4.56; 6.37) | 5.77*** (4.82; 6.71) | 0.20, $p = 1.00$                             |
| COVID-19 perceived as a high threat | 6.82*** (5.99; 7.64) | 6.65*** (5.83; 7.46) | 0.08, $p = 1.00$                             |
| COVID-19 perceived as a low threat  | 3.68*** (2.50; 4.85) | 3.54*** (2.34; 4.73) | 0.03, $p = 1.00$                             |

Note: Hybrid work vignettes: N = 27,406 for TG; N = 28,228 for CG. Fully remote work vignettes: N = 27,708 for TG; N = 28,308 for CG. Positive values show that a worker was willing to sacrifice a certain percentage of earnings for the possibility to work from home. Negative values show that a worker demanded to be paid a certain percentage of earnings for the possibility to work from home. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Source: Own estimations using data gathered for the experiment.

### 4.3. Robustness checks

We performed several robustness checks. In the first one, we changed the estimation method by not including weights. In the second check, we removed 10% of observations that were the least confident choices. In the last check, participants who chose options on the same screen side on all vignettes they saw were dropped, as this may have suggested inattention<sup>3</sup> (N=1,008 or 9.0% of the sample; Table A5 in Appendix A). The results of robustness checks are presented in Figure 1 and detailed in Appendix C. These additional analyses confirm our findings.

The WTP estimates in unweighted regressions were similar in absolute terms compared to the baseline regressions (Figure 1). The average WTP amounted to 3.5% [3.1%; 3.8%], Appendix F), compared to 3.2% [2.8%; 3.6%], in the baseline regression Table 5). The heterogeneities were the same as in the baseline specification: the WTP was higher for 2-3 days of WFH per week than for five days of WFH per week, and among workers who felt threatened by COVID-19.

Then, we removed participants who chose options on the same screen side on all vignettes they saw. The resulting WTP estimates (Appendix D) were highly similar to the baseline estimates. The

<sup>3</sup> The number of people who failed the inattention checks was very small, at only 65 out of 11,166 participants.

average WTP amounted to 3.3% [2.9%; 3.7%], compared to 3.2% [2.8%; 3.6%] in the pooled sample (Table 5). The heterogeneities in WTP were the same as in our baseline results.

As a final check, we removed observations in the first decile of the distribution of participants' confidence in their choices (10,650 observations, Appendix E). This re-estimation yielded similar results: the average WTP was equal to 3.3% [2.9%; 3.7%] of earnings, and the heterogeneities were identical to those in the baseline results. Hence, our baseline findings showed no evidence of inattention or hypothetical bias.

Figure 1. Results are robust to limiting sample size and to changing the estimation method, all trials (% of wage in an office-only job, with 95% confidence intervals)



Note: Point estimates with 95% confidence intervals.  
 Source: Own estimations using data gathered for the experiment.

## 5. Conclusions and discussion

In this paper, we investigated the impact of subjective assessments of COVID-19-related risks and objective levels of occupational exposure to the COVID-19 contagion on workers' preferences toward working from home, a key job amenity that allows reducing exposure to potential work-related infection. We also investigated if informing workers about the exposure to COVID-19 contagion in their occupations may change these preferences. For this aim, we conducted a discrete choice experiment combined with an information provision experiment with workers who work in occupations that can be done from home, involving more than 11 000 workers in Poland.

We found that workers' subjective perceptions of COVID-19-related risks mattered more than objective occupational exposure to COVID-10 contagion. Workers who perceived COVID-19 as a threat were more willing to pay for the WFH option than workers who did not perceive COVID-19 as a threat. These results hold for various subgroups (by gender, age, and education). In contrast, the objective occupational exposure mattered for workers' preferences for WFH to a lesser extent as workers from occupations with high exposure to COVID-19 were only slightly more willing to pay for the possibility of WFH, on average and for fully remote WFH. Yet, the differences were smaller than in case of subjective perceptions of COVID-19 risks. There were no differences in preferences for WFH based on occupational exposure regardless of the gender and age of workers. We also found that learning about the level of occupational contagion risk generally did not affect the preferences for WFH.

Our study indicates challenges in promoting working from home to reduce social contacts and the transmission of infectious diseases, as neither the occupational exposure nor messaging directed at communicating affects preferences towards working from home. Therefore, workers may sort into working from home largely according to their subjective perceptions of COVID-19 as a threat. Low-cost information interventions that could potentially be targeted at broad segments of the population in a short time (e.g. phone text messaging) may not be sufficient to increase health-related awareness. Complex interventions that involve peers or community members are usually more costly and time-consuming. Thus, the extent to which WFH can reduce occupational exposure to contagion may be limited, especially in countries where WFH was relatively rare before the COVID-19 pandemic and among workers who do not perceive COVID-19 as a threat. We believe

our results will hold over time as COVID-19 will remain endemic, and outbreaks of other infectious diseases, especially flu, are highly likely. Working from home, especially in the hybrid mode may stick after the pandemic (Barrero et al., 2021). Therefore, firms may use flexible working arrangements in the future to reduce infection risks and continue economic activity.

Future research may investigate if the information about the COVID-19 risks provided by a health professional would yield different results, as it may matter who provides health-oriented messaging.

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## Appendix A. Methodological details

Table A1. Occupations (two-digit ISCO-08) included in the study, with the share of teleworkable tasks, and the level of exposure to COVID-19 contagion

| Occupation group                                             | Teleworkability<br>(% of jobs that<br>can be done from<br>home) | Exposure to<br>contagion |
|--------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|
| <b>Managers</b>                                              |                                                                 |                          |
| Chief executives, senior officials, and legislators          | 89%                                                             | Low                      |
| Administrative and commercial managers                       | 90%                                                             | Low                      |
| Production and specialised services managers                 | 56%                                                             | Low                      |
| Hospitality, retail, and other services managers             | 50%                                                             | High                     |
| <b>Professionals</b>                                         |                                                                 |                          |
| Science and engineering professionals                        | 63%                                                             | Low                      |
| Teaching professionals                                       | 97%                                                             | Low                      |
| Business and administration professionals                    | 93%                                                             | Low                      |
| Information and communications technology professionals      | 100%                                                            | Low                      |
| Legal, social, and cultural professionals                    | 67%                                                             | High                     |
| <b>Technicians and Associate Professionals</b>               |                                                                 |                          |
| Science and engineering associate professionals              | 20%                                                             | Low                      |
| Business and administration associate professionals          | 71%                                                             | High                     |
| Legal, social, cultural, and related associate professionals | 60%                                                             | High                     |
| Information and communications technicians                   | 82%                                                             | High                     |
| <b>Clerical Support Workers</b>                              |                                                                 |                          |
| General and keyboard clerks                                  | 100%                                                            | Low                      |
| Customer services clerks                                     | 29%                                                             | High                     |
| Numerical and material recording clerks                      | 56%                                                             | Low                      |
| Other clerical support workers                               | 60%                                                             | High                     |
| <b>Services and Sales Workers</b>                            |                                                                 |                          |
| Personal service workers                                     | 17%                                                             | High                     |
| Sales workers                                                | 20%                                                             | High                     |
| Personal care workers                                        | 18%                                                             | High                     |
| Protective services workers                                  | 11%                                                             | High                     |

Source: Own elaboration based on O\*NET occupational task categories adapted for European data by Lewandowski et al. (2020) and the classification of teleworkability developed by Dingel and Neiman (2020).

Table A2. Definition of the term 'work from home' displayed to the study participants

| Please see the table below. It shows how we understand the term 'work from home'. In the next part of the survey, we will ask about your opinion on this type of work. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Work from home                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| No                                                                                                                                                                     | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| The employee works in the office and cannot work from home.                                                                                                            | <p>The employee can do all or part of the work from home.</p> <p>He/she can work from home all days of the week or several days a week. For example, he/she can work in the office on Mondays and Tuesdays and work from home on Wednesdays, Thursdays, and Fridays.</p> <p>He/she can also work in the office for a few hours each day and work from home for the remaining few hours. For example, he/she can work in the office every morning between 9:00 a.m. and 1:00 p.m., and can then work from home between 3:00 p.m. and 7:00 p.m.</p> |

Source: Own elaboration.

Table A3. Examples displayed to the study participants

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Work in the office</b></p> <p>Anna works in the city hall from Monday to Friday between 7:30 a.m. and 3:30 p.m. Her duties include mainly office work – she draws up letters and prepares documents for the public procurement procedure. She works in the office every day between 7.30 a.m. to 3.30 p.m. and does not work from home.</p>                                                                                                                                                                                    |
| <p><b>Work from home</b></p> <p>Anna works in the city hall from Monday to Friday between 7:30 a.m. and 3:30 p.m. Her duties include mainly office work – she draws up letters and prepares documents for the public procurement procedure. She agreed with her employer that she would work in the office from Monday to Wednesday and would work from home from Thursday to Friday. The employer gave her a computer that provides her with access to the office mailbox and other programs that enable her to work from home.</p> |

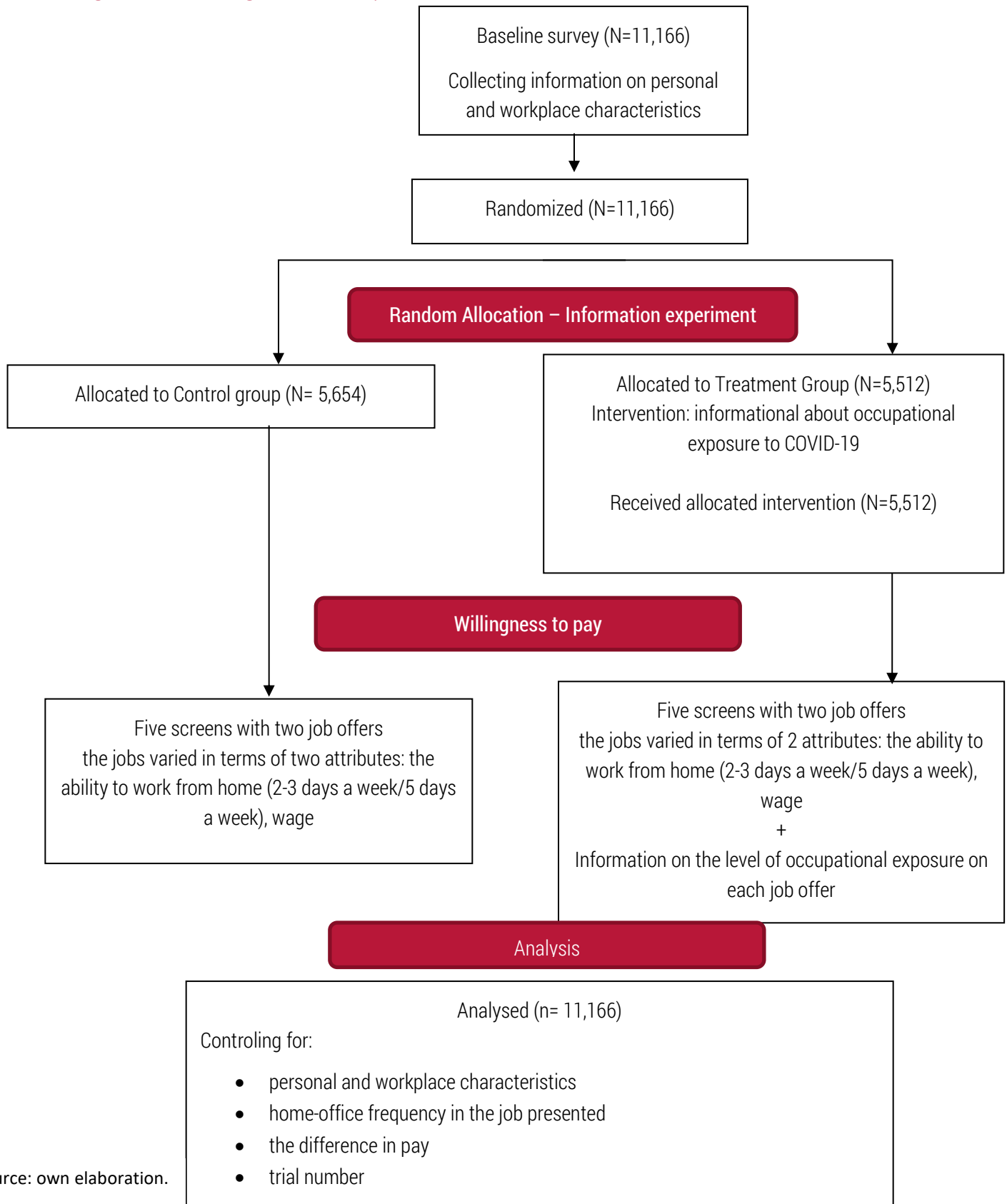
Source: Own elaboration.

Table A4. Examples of vignettes with job offers displayed to the study participants

|                       | Job offer A                                                                             | Job offer B                                                                             |
|-----------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>Occupation</b>     | Application developer                                                                   | Application developer                                                                   |
| <b>Work hours</b>     | This is a full-time position. You will work from Monday to Friday from 9 a.m. to 5 p.m. | This is a full-time position. You will work from Monday to Friday from 9 a.m. to 5 p.m. |
| <b>Work from home</b> | You will be doing the job in the office. You will not have an option to work from home. | You will have an option to work from home 2 or 3 days per week.                         |
| <b>Wage</b>           | You will be earning a monthly wage of 4,900 PLN net.                                    | You will be earning a monthly wage of 5,684 PLN net.                                    |

Source: Own elaboration.

Diagram 1. The design of the study



Source: own elaboration.

Table A5. Inattention and hypothetical bias

| <b>a) Confidence among study participants regarding their choices</b>                          |                                                     |
|------------------------------------------------------------------------------------------------|-----------------------------------------------------|
|                                                                                                | <b>Confidence level (points on the 0-100 scale)</b> |
| Mean                                                                                           | 85.0                                                |
| Standard deviation                                                                             | 17.0                                                |
| Minimal value                                                                                  | 0                                                   |
| Maximal value                                                                                  | 100                                                 |
| <b>Percentiles</b>                                                                             |                                                     |
| 1st                                                                                            | 33                                                  |
| 5th                                                                                            | 52                                                  |
| 10th                                                                                           | 60                                                  |
| 25th                                                                                           | 75                                                  |
| 50th                                                                                           | 90                                                  |
| 75th                                                                                           | 100                                                 |
| 90th                                                                                           | 100                                                 |
| 95th                                                                                           | 100                                                 |
| 99th                                                                                           | 100                                                 |
| N (number of choices)                                                                          | 55,830                                              |
| <b>b) Individuals who chose job offers/candidates displayed only on one side of the screen</b> |                                                     |
| Left side only                                                                                 | 538 (4.8%)                                          |
| Right side only                                                                                | 470 (4.2%)                                          |
| N (number of participants)                                                                     | 11,166                                              |
| <b>c) Individuals who provided the wrong answer to the trap questions</b>                      |                                                     |
| What is 2+2                                                                                    | 32 (0.3%)                                           |
| What is 20-7                                                                                   | 33 (0.3%)                                           |
| N (number of participants)                                                                     | 11,166                                              |

Source: Own calculations using data gathered for the experiment.

Table A6. Balance table for the information provision experiment

|                                              | Control group (CG) (%) | Treatment group (TG) (%) | Control (CG) - Treatment (TG)(pp.) | P-value |
|----------------------------------------------|------------------------|--------------------------|------------------------------------|---------|
| <b>Gender</b>                                |                        |                          |                                    |         |
| Women                                        | 53.1                   | 51.8                     | 1.3                                | 0.170   |
| <b>Age group</b>                             |                        |                          |                                    |         |
| 20-34                                        | 41.1                   | 40.1                     | 1.0                                | 0.269   |
| 35-49                                        | 37.5                   | 37.6                     | -0.1                               | 0.902   |
| 50-64                                        | 21.4                   | 22.3                     | -0.9                               | 0.243   |
| <b>Education</b>                             |                        |                          |                                    |         |
| Primary                                      | 1.1                    | 0.9                      | 0.3                                | 0.115   |
| Vocational                                   | 8.7                    | 8.9                      | -0.2                               | 0.652   |
| Secondary                                    | 34.4                   | 33.8                     | 0.6                                | 0.503   |
| Tertiary                                     | 55.8                   | 56.4                     | -0.7                               | 0.484   |
| <b>Region</b>                                |                        |                          |                                    |         |
| South-West                                   | 30.1                   | 31.5                     | -1.3                               | 0.131   |
| North-West                                   | 27.9                   | 27.7                     | 0.1                                | 0.873   |
| East                                         | 14.6                   | 14.5                     | 0.1                                | 0.864   |
| Central                                      | 27.4                   | 26.3                     | 1.1                                | 0.202   |
| <b>Employment status</b>                     |                        |                          |                                    |         |
| Employed                                     | 74.6                   | 74.7                     | -0.1                               | 0.895   |
| <b>Occupation group</b>                      |                        |                          |                                    |         |
| Managers                                     | 9.5                    | 9.7                      | -0.2                               | 0.781   |
| Professionals                                | 28.3                   | 29.2                     | -0.9                               | 0.307   |
| Technicians and associate professionals      | 13.0                   | 12.4                     | 0.6                                | 0.321   |
| Clerical support workers                     | 27.4                   | 27.4                     | 0.0                                | 0.984   |
| Service and sales workers                    | 21.7                   | 21.3                     | 0.4                                | 0.589   |
| <b>Number of hours worked weekly</b>         |                        |                          |                                    |         |
| At least 40                                  | 87.4                   | 87.3                     | 0.1                                | 0.820   |
| About 30                                     | 7.4                    | 7.0                      | 0.5                                | 0.327   |
| About 20                                     | 5.1                    | 5.8                      | -0.6                               | 0.148   |
| <b>Contract type</b>                         |                        |                          |                                    |         |
| Employment contract                          | 79.6                   | 79.5                     | 0.1                                | 0.850   |
| Individual contractor                        | 9.4                    | 9.3                      | 0.1                                | 0.825   |
| Self-employed                                | 7.1                    | 7.4                      | -0.3                               | 0.577   |
| Other                                        | 3.9                    | 3.9                      | 0.0                                | 0.982   |
| <b>Household members</b>                     |                        |                          |                                    |         |
| Children in the household                    | 45.9                   | 44.8                     | 1.0                                | 0.266   |
| <b>Exposure to COVID-19 in the workplace</b> |                        |                          |                                    |         |
| High                                         | 51.0                   | 49.3                     | 1.7                                | 0.079   |

Source: Own calculations using data gathered for the experiment.



## Appendix B. Additional results

Table B1. Marginal effects from logistic regressions on subjective threat perception and objective occupational exposure

|                                                  | <b>COVID-19<br/>perceived as<br/>highly<br/>threatening</b> | <b>% variance<br/>explained</b> | <b>High<br/>occupational<br/>exposure</b> | <b>% variance<br/>explained</b> |
|--------------------------------------------------|-------------------------------------------------------------|---------------------------------|-------------------------------------------|---------------------------------|
|                                                  | (1)                                                         | (2)                             | (3)                                       | (4)                             |
| <b>High occupational exposure</b>                | -0.012<br>(0.261)                                           | 0.06                            | -<br>-                                    | -<br>-                          |
| <b>Perceiving COVID-19 as highly threatening</b> | -<br>-                                                      | -<br>-                          | -0.012<br>(0.263)                         | 0.05                            |
| <b>Contagion rate per capita</b>                 | 109.398***<br>(0.001)                                       | 0.14                            | -16.104<br>(0.640)                        | 0.01                            |
| <b>Women</b>                                     | -0.012<br>(0.263)                                           | 0.05                            | 0.154***<br>(0.000)                       | 2.34                            |
| <b>Caring for children</b>                       | -0.010<br>(0.355)                                           | 0.03                            | -0.003<br>(0.804)                         | 0.00                            |
| <b>Caring for older family members</b>           | 0.073***<br>(0.000)                                         | 0.43                            | -0.018<br>(0.141)                         | 0.02                            |
| <b>Primary education or lower</b>                | -0.099**<br>(0.044)                                         | 0.60                            | 0.086*<br>(0.080)                         | 7.91                            |
| <b>Tertiary education</b>                        | 0.053***<br>(0.000)                                         |                                 | -0.268***<br>(0.000)                      |                                 |
| <b>Vocational education</b>                      | -0.041**<br>(0.028)                                         |                                 | 0.053***<br>(0.000)                       |                                 |
| <b>20-34 years of age</b>                        | -0.044***<br>(0.000)                                        | 1.80                            | 0.009<br>(0.447)                          | 0.29                            |
| <b>50-54 years of age</b>                        | 0.126***<br>(0.000)                                         |                                 | -0.053***<br>(0.000)                      |                                 |
| <b>Travel time to work up to 30 min</b>          | 0.040**<br>(0.019)                                          | 0.10                            | 0.002<br>(0.919)                          | 0.20                            |
| <b>Travel time to work up to 60 min</b>          | 0.042**<br>(0.025)                                          |                                 | -0.051**<br>(0.012)                       |                                 |
| <b>Commuting to work using public transport</b>  | 0.020<br>(0.102)                                            | 0.09                            | 0.063***<br>(0.000)                       | 0.58                            |
| <b>Commuting to work by bike or walking</b>      | -0.024*<br>(0.086)                                          |                                 | 0.058***<br>(0.000)                       |                                 |
| <b>Worked only from home</b>                     | 0.048<br>(0.377)                                            | 0.01                            | 0.051<br>(0.445)                          | 0.01                            |
| <b>Jobseeker</b>                                 | -0.028**<br>(0.016)                                         | 0.08                            | -0.032***<br>(0.006)                      | -0.06                           |
| <b>Working full-time</b>                         | 0.018<br>(0.251)                                            | 0.06                            | 0.009<br>(0.573)                          | -0.04                           |

|                                             |                      |      |                     |      |
|---------------------------------------------|----------------------|------|---------------------|------|
| <b>Civil contract with employer</b>         | -0.010<br>(0.572)    | 0.28 | 0.155***<br>(0.000) | 1.10 |
| <b>Self employed</b>                        | -0.057***<br>(0.004) |      | 0.042**<br>(0.034)  |      |
| <b>Other type of contract with employer</b> | -0.095***<br>(0.000) |      | -0.002<br>(0.936)   |      |
| <b>Observations</b>                         | 111,650              |      | 111,650             |      |

Note: Exact p values are given in the brackets below estimates. Reference groups are: low level of occupational exposure, not considering COVID19 as highly threatening, men, no care obligations, secondary education, 35-49 years of age, employed, travel time to work over 60 minutes, commuting to work by car, part-time work, employment contract. Total R<sup>2</sup> for perceiving COVID-19 as a threat regression = 3.7%, and total R<sup>2</sup> for high occupational exposure regression = 12.4%. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

Source: Own calculations using data gathered for the experiment.

Table B2. Estimated workers' willingness to pay for working from home, depending on the experimental group, infection rate, and number of WFH days (% of wage in an office-only job, with 95% confidence intervals)

| Group                               |                                              | Treatment (TG)       | Control (CG)           | $\chi^2(1)$ . Bonferroni corrected $p$ value |
|-------------------------------------|----------------------------------------------|----------------------|------------------------|----------------------------------------------|
| <b>WFH 5 days/week vignettes</b>    |                                              |                      |                        |                                              |
| Average effect                      | High infection rates                         | 1.99*** (0.95; 3.04) | 0.66 (-0.31; 1.63)     | 3.34, $p = 0.27$                             |
|                                     | Low infection rates                          | 0.79 (-0.25; 1.84)   | -0.30 (-1.36; 0.76)    | 2.07, $p = 0.60$                             |
|                                     | $\chi^2(1)$ . Bonferroni corrected $p$ value | 2.53, $p = 0.45$     | 1.74, $p = 0.75$       |                                              |
| High occupational exposure          | High infection rates                         | 2.59*** (1.06; 4.12) | 1.01 (-0.36; 2.38)     | 2.27, $p = 1.00$                             |
|                                     | Low infection rates                          | 2.28*** (0.76; 3.80) | 1.34* (-0.13; 2.82)    | 0.75, $p = 1.00$                             |
|                                     | $\chi^2(1)$ . Bonferroni corrected $p$ value | 0.08, $p = 1.00$     | 0.11, $p = 1.00$       |                                              |
| Low occupational exposure           | High infection rates                         | 1.52** (0.09; 2.95)  | 0.35 (-1.01; 1.72)     | 1.34, $p = 1.00$                             |
|                                     | Low infection rates                          | -0.55 (-1.99; 0.90)  | -1.88** (-3.39; -0.37) | 1.56, $p = 1.00$                             |
|                                     | $\chi^2(1)$ . Bonferroni corrected $p$ value | 3.96, $p = 0.37$     | 4.60, $p = 0.26$       |                                              |
| COVID-19 perceived as a high threat | High infection rates                         | 3.54*** (2.31; 4.78) | 1.83*** (0.65; 3.02)   | 3.82, $p = 0.40$                             |
|                                     | Low infection rates                          | 1.26* (-0.05; 2.57)  | -0.36 (-1.65; 0.92)    | 2.98, $p = 0.67$                             |
|                                     | $\chi^2(1)$ . Bonferroni corrected $p$ value | 6.19, $p = 0.10$     | 6.03, $p = 0.11$       |                                              |
| COVID-19 perceived as a low threat  | High infection rates                         | -1.34 (-3.28; 0.60)  | -1.89** (-3.55; -0.23) | 0.18, $p = 1.00$                             |
|                                     | Low infection rates                          | -0.09 (-1.82; 1.65)  | -0.20 (-2.06; 1.66)    | 0.01, $p = 1.00$                             |
|                                     | $\chi^2(1)$ . Bonferroni corrected $p$ value | 0.89, $p = 1.00$     | 1.76, $p = 1.00$       |                                              |
| <b>WFH 2-3 days/week vignettes</b>  |                                              |                      |                        |                                              |
| Average effect                      | High infection rates                         | 6.18*** (5.27; 7.10) | 5.43*** (4.57; 6.30)   | 1.36, $p = 0.97$                             |
|                                     | Low infection rates                          | 4.99*** (4.07; 5.91) | 5.54*** (4.57; 6.52)   | 0.65, $p = 1.00$                             |
|                                     | $\chi^2(1)$ . Bonferroni corrected $p$ value | 3.24, $p = 0.29$     | 0.03, $p = 1.00$       |                                              |

|                                     |                                                   |                      |                      |                |
|-------------------------------------|---------------------------------------------------|----------------------|----------------------|----------------|
| High occupational exposure          | High infection rates                              | 6.37*** (4.99; 7.75) | 4.80*** (3.54; 6.07) | 2.68, p = 0.81 |
|                                     | Low infection rates                               | 5.57*** (4.20; 6.94) | 6.00*** (4.64; 7.36) | 0.19, p = 1.00 |
|                                     | $\chi^2(1)$ . Bonferroni corrected <i>p</i> value | 0.64, p = 1.00       | 1.59, p = 1.00       |                |
| Low occupational exposure           | High infection rates                              | 6.04*** (4.81; 7.26) | 6.04*** (4.85; 7.22) | 0.00, p = 1.00 |
|                                     | Low infection rates                               | 4.48*** (3.24; 5.72) | 5.10*** (3.71; 6.49) | 0.42, p = 1.00 |
|                                     | $\chi^2(1)$ . Bonferroni corrected <i>p</i> value | 3.05, p = 0.65       | 1.02, p = 1.00       |                |
| COVID-19 perceived as a high threat | High infection rates                              | 7.51*** (6.41; 8.61) | 6.82*** (5.77; 7.87) | 0.80, p = 1.00 |
|                                     | Low infection rates                               | 5.59*** (4.46; 6.73) | 5.99*** (4.81; 7.16) | 0.22, p = 1.00 |
|                                     | $\chi^2(1)$ . Bonferroni corrected <i>p</i> value | 5.63, p = 0.14       | 1.08, p = 1.00       |                |
| COVID-19 perceived as a low threat  | High infection rates                              | 3.33*** (1.69; 4.96) | 2.23*** (0.72; 3.74) | 0.92, p = 1.00 |
|                                     | Low infection rates                               | 3.76*** (2.18; 5.33) | 4.58*** (2.85; 6.32) | 0.48, p = 1.00 |
|                                     | $\chi^2(1)$ . Bonferroni corrected <i>p</i> value | 0.14, p = 1.00       | 4.00, p = 0.36       |                |

Note: \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

Source: Own calculations using data gathered for the experiment.