**Supplementary Information**

# Large variation in anti-SARS-CoV-2 antibody prevalence among essential workers in Geneva, Switzerland

**Supplementary note 1**: Selection and recruitment of facilities and participants

## Selection of facilities and participants

As there was no list of mobilized workers during the pandemic in the canton of Geneva from which we could select participants, we selected facilities that were potentially mobilized. Public and private companies and institutions based in the canton of Geneva and that remained mostly operational with on-site activity during the lockdown were invited to apply for participation in the SEROCoV-WORK+ study, either directly or via intermediates, notably the Geneva Chamber of Commerce, Industry and Services.

This selection process was conducted as follows:

1. The SEROCoV-WORK+ Scientific Board evaluated and prepared a list of companies and institutions, and submitted it to the SEROCoV-WORK+ Integrity Board.

2. The SEROCoV-WORK+ Integrity Board, comprised of representatives from the Geneva cantonal authorities, the Geneva University Hospitals medical directorate, and the University of Geneva, made a final decision on eligible facilities.

## Recruitment of participants

The human resources, medical or direction departments at each participating facility were responsible for communicating about the study and inviting their employees, using a template provided by the SEROCoV-WORK+ team. All invited employees were informed that participation in the study was fully on a voluntary basis and that their consent or refusal to participate had no effect on their relationship with their employer.

Employees who were in quarantine or isolation, or experiencing COVID-19-related symptoms during the study recruitment period were ineligible for participation.

## Study participation

Three testing centers were selected for the SEROCoV-WORK+ study, distantly located across the main urban area of the Geneva canton to allow most employees to find one study testing center at a reasonable distance from their home or work address. Participants came to one of these three testing centers of the SEROCoV-WORK+ study for an interview and blood collection appointment that lasted 20 minutes. Participants signed a free and informed consent form, and completed a questionnaire with questions related to their employment, work-related activities and preventive measures during the spring 2020 lockdown, smoking behavior, and history of comorbidities and COVID-19-related symptoms. Participants also provided a 5-mL sample of venous blood to be tested for anti-SARS-CoV-2 IgG antibodies. In the case of some facilities, after identification of critical constraints associated to their participation at the testing centers, the study testing team (constituted of research assistants and nurses) went itself to the premises of the facility to allow the employees to participate in the study directly at their working place. The procedures followed in these cases were the same as those at the testing centers. We found no indication of testing site-induced bias after data collection (see Supplementary table 7).

**Supplementary table 1**. Description of activity sectors

| Sector | Number of participating facilities | Description |
|---|---|---|
| Healthcare | 10 | Employees working in hospitals, clinics or ambulance companies, midwives. |
| Public administration | 13 | Cantonal and communal government administration employees |
| Transportation | 7 | Employees of public/private persons/goods transportation companies |
| Nursing homes | 24 | Nursing home employees |
| Public security | 13 | Police officers, civil protection, firefighters |
| Food industry | 6 | Employees of supermarkets, food markets |
| Homecare | 3 | Homecare nurses/assistant nurses, caregivers, personal care, companions, housekeepers |
| Social work | 9 | Employees of social aid, social assistance, social work |
| Financial services | 5 | Employees of banks |
| International organizations | 3 | Employees of various international organizations |
| Early childhood education | 9 | Employees of early childhood education centers/crèche |
| Pharmacy | 18 | Employees in pharmacies |
| Construction | 4 | Employees of construction companies |
| Media | 2 | Employees of media companies |
| Agriculture | 6 | Employees of agricultural businesses |
| Other businesses | 18 | Employees of other public or private businesses |

**Supplementary table 2**. Description of occupations

| Occupation | N | Description of jobs |
|---|---|---|
| Doctor/surgeon | 371 | Medical doctor and surgeon |
| Nurse/assistant nurse | 1528 | Nurse and assistant nurse |
| Other healthcare personnel | 850 | Other healthcare professional, biomedical/laboratory technician |
| Firefighter/EMT | 275 | Firefighter, first aid responder, EMT |
| Pharmacist/assistant pharmacist | 206 | Pharmacist, assistant pharmacist, pharmacy apprentice/intern |
| Domestic care worker | 130 | In-home caregiver, personal care assistant, companion, housekeeper |
| Cashier | 139 | Cashier /sales worker |
| Home delivery driver | 42 | Delivery driver, courier, dispatch rider |
| Public transport driver | 349 | Bus/tram driver, reduced mobility person driver, ticket controller |
| Taxi driver/chauffeur | 36 | Taxi driver, chauffeur |
| Gas station worker | 14 | Gas station worker/personnel |
| Police officer | 696 | Police officer or gendarme, civil service, army/soldier, civil protection |
| Bank/post office teller | 100 | Teller/counter agent in banks and post offices |
| Banking reception | 99 | Receptionist at banks |
| Cleaner | 329 | Cleaning, washing, and maintenance service worker |
| Security guard | 207 | Security or surveillance agent, night watch, etc. |
| Construction and food craft/trades | 501 | Construction worker, mechanic, metal worker, artisan, watch maker, electrician, electro-mechanic, warehouse worker, handler, repair person; food-processing worker, butcher, slaughterhouse worker, dairy worker, cheesemaker; hairdresser |
| Lorry driver | 32 | Truck/lorry long-haul driver |
| Teacher | 35 | Teacher, teaching assistant, tutor |
| Childcare worker | 185 | Childcare worker, childcare educator, assistant childcare educator |
| Farmer/gardener | 104 | Farmer, nursery owner, gardener, horticulturalist, winegrower, winemaker |
| Kitchen staff | 159 | Cook, assistant cook, kitchen helper, food server, etc. |
| Health researcher/research personnel | 28 | Healthcare researcher, research associate, research assistant |
| Social worker | 578 | Social worker, assistant social worker, family worker, youth worker, etc. |
| Journalist | 179 | Journalist, photographer, camera person, stage manager, etc. |
| Administration/HR | 1610 | Administrative, human resources, secretary, accounting employee |
| Communication/marketing manager | 104 | Communication or marketing manager, assistant manager |
| Finance, management, law, engineering | 735 | Engineer, data analysts, statistician, computer engineer/specialist, IT support; financial analyst, business analyst, cash management technical officer, compliance officer, accountant, consultant, fiscal controller, architect, civil engineer, investor; lawyer, court clerk, legal expert, judge, magistrate, prosecutor, air traffic controller, flight coordinator, chemist |
| Supermarket/food market personnel | 257 | Personnel working in supermarkets or small food markets/stores |
| Manager/assistant manager | 420 | Manager and assistant manager in customer service roles, apprentice/intern in customer service |
| Undertaker | 39 | Undertaker, funeral home agent, gravedigger |

**Supplementary methods**. Statistical model for relative risk estimation

The aim of this analysis is to estimate the relative risks for SARS-CoV-2 infection in Geneva's working population using serological testing.

Following Stringhini *et al*. 2020, we start by estimating the probability that each person in the serosurvey is seropositive using a Bayesian regression model that accounts for individual characteristics and the sensitivity and specificity of the ELISA assay:

$$
\begin{aligned}
x_i &\sim Bernoulli\left(p_i\theta^+ + (1 - p_i) * (1 - \theta^-)\right) \\
logit\ (p_i) &= \mathrm{X}_i\beta \\
x^+ &\sim Binomial(n^+, \theta^+) \\
x^- &\sim Binomial(n^-, 1 - \theta^-) \\
\theta^+ &\sim Uniform(0,1) \\
\theta^- &\sim Uniform(0,1) \\
\beta &\sim Normal(0,1)
\end{aligned}
$$

where $x_i$ is the result of the IgG ELISA for the $i$th person ($i$ = 1,…, $N$ = 10513) in the WORK+ serosurvey. The sensitivity, $\theta^+$, is determined using $n^+$ RT-PCR positive controls from the lab validation study (Meyer *et al*. 2020), of which $x^+$tested positive. The specificity, $\theta^-$, is determined using $n^-$ pre-pandemic negative controls, of which $x^-$ tested positive.

The probability of observing a diagnostic positive is a function of the true positive rate and the false negative rate with regards to the true underlying probability of seropositivity $p_i$ for that person. This probability itself is a function of covariates X and their coefficients $\beta$. Covariates always included sex and age categories. To estimate the relative risks of being seropositive for different groups of participants (e.g., by educational level, BMI, smoking status, etc.), we sampled from the posterior distribution of parameters and for each draw we calculated the predicted probability of being seropositive for a single group (e.g., $p_a = logit^{-1}(\beta_0 + \beta_1\mathrm{X}_1 + \beta_2\mathrm{X}_2)$ vs $p_b = logit^{-1}(\beta_0 + \beta_2\mathrm{X}_2)$) compared to its reference. We define the relative risk as the ratio of these in each draw and summarize through taking the mean and 2.5$^{th}$ and 97.5$^{th}$ quantiles of the distribution to give 95% central credible intervals.

The above model was used to estimate all of the relative risks presented except for those pertaining to the activity sectors. To estimate sector risks we use the above model but also account for facility-level clustering through random effects:

$$
\begin{aligned}
x_i &\sim Bernoulli\left(p_i\theta^+ + (1 - p_i) * (1 - \theta^-)\right) \\
logit\ (p_i) &= \alpha_c\mathrm{X}_i\beta \\
\alpha_c &\sim Normal(\mu_s, \sigma_s^2) \\
x^+ &\sim Binomial(n^+, \theta^+) \\
x^- &\sim Binomial(n^-, 1 - \theta^-) \\
\theta^+ &\sim Uniform(0,1) \\
\theta^- &\sim Uniform(0,1) \\
\beta &\sim Normal(0,1) \\
\mu_s &\sim Normal(0,1) \\
\sigma_s &\sim Normal^+(0,1)
\end{aligned}
$$

We account for facility-level infection clustering with a random effect for facility, $\alpha_c$ ($c = 1, \ldots, C = 150$). We implement partial pooling for facility-level random effects by specifying sector-specific means, $\mu_s$, and variances $\sigma_s^2$ ($s = 1, \ldots, S = 16$).

The priors on the sensitivity and specificity were flat from 0 to 1, equivalent to $Uniform(0,1)$. We used standard normal $Normal(0,1)$ priors for the logistic regression coefficients $\beta$ and for the facility

random effects $\mu_s$. The standard deviation for the facility effects was a positive half-normal, $\sigma_s \sim \mathcal{N}(0,1)$.

To estimate the relative risk for a reference individual (female, 18-34 years) in a sector $s$ relative to one in the reference sector (healthcare), we used the following equations for each posterior draw of parameters $\beta$ and $\sigma$:

$$p_s = \int_0^1 logit^{-1}(\mathrm{X}\beta + \mu_s + \sigma_s * \Phi^{-1}(t))dt$$

$$p_{ref} = \int_0^1 logit^{-1}(\mathrm{X}\beta + \mu_{ref} + \sigma_{ref} * \Phi^{-1}(t))dt$$

$$RR_s = p_s / p_{ref}$$

where $\Phi^{-1}(t)$ is the quantile function of a standard normal distribution. We estimated the seroprevalence for the population in category $s$ ($p_s$) by integrating across all values of a logit-normal distribution with the standard deviation defined by the facility random effect $\sigma_s$. We then divided that quantity by the estimated seroprevalence for the reference category ($p_{ref}$) to calculate the relative risk ($RR_s$).

Models were implemented in the Stan probabilistic programming language. Every sampling run was for 1500 iterations for each of 4 chains, with 250 warmup samples discarded per chain, giving a total of 5000 posterior samples.

Alternatively, where appropriate, binomial confidence intervals for seropositivity were calculated using the Wilson method as implemented in the R function Hmisc::binconf.

**Supplementary table 3**. Sample description and prevalence of anti-SARS-CoV-2 IgG antibodies excluding participants fully confined during the lockdown, SEROCoV-WORK+ study, May-September 2020, Geneva, Switzerland

| | N (%) | Seropositive | Relative Risk (95% CrI) |
|---|---|---|---|
| Total | 9430 | 899 (9.5) | -- |
| Women | 5278 (56.0) | 533 (10.1) | 1.00 (ref.) |
| Men | 4152 (44.0) | 366 (8.8) | 0.86 (0.73-0.99) |
| Age group, years | | | |
| 18-34 | 2447 (25.9) | 265 (10.8) | 1.00 (ref.) |
| 35-49 | 4038 (42.8) | 408 (10.1) | 0.92 (0.78-1.08) |
| 50-65 | 2945 (31.2) | 226 (7.6) | 0.66 (0.51-0.81) |
| Educational level[a] | | | |
| Mandatory education | 801 (8.8) | 79 (9.8) | 0.76 (0.49-1.10) |
| Apprenticeship | 2024 (22.1) | 158 (7.8) | 0.55 (0.34-0.78) |
| Secondary education | 1928 (21.1) | 175 (9.0) | 0.65 (0.44-0.92) |
| University | 4031 (44.0) | 417 (10.3) | 0.76 (0.54-1.04) |
| Doctorate | 367 (4.0) | 45 (2.2) | 1.00 (ref.) |
| Activity sector[b] | | | |
| Healthcare | 1640 (17.4) | 181 (11.0) | 1.00 (ref.) |
| Transportation | 993 (10.5) | 81 (8.1) | 0.68 (0.33-1.24) |
| Nursing homes | 1054 (11.2) | 147 (13.9) | 1.21 (0.67-1.98) |
| Public administration | 849 (9.0) | 67 (7.8) | 0.76 (0.30-1.52) |
| Public security | 1024 (10.9) | 78 (7.6) | 0.54 (0.24-0.95) |
| Food industry | 692 (7.3) | 71 (10.2) | 0.98 (0.48-1.78) |
| Homecare | 703 (7.5) | 81 (11.5) | 0.95 (0.36-1.91) |
| Social work | 666 (7.1) | 54 (8.1) | 0.67 (0.27-1.32) |
| Financial services | 393 (4.2) | 48 (12.2) | 1.10 (0.50-2.03) |
| International Organizations | 353 (3.7) | 16 (4.5) | 0.40 (0.09-1.25) |
| Early childhood education | 230 (2.4) | 12 (5.2) | 0.35 (0.09-0.84) |
| Pharmacy | 248 (2.6) | 28 (11.2) | 0.89 (0.38-1.63) |
| Construction | 142 (1.5) | 9 (6.3) | 0.54 (0.10-1.48) |
| Media | 129 (1.4) | 5 (3.8) | 0.55 (0.07-1.93) |
| Agriculture | 89 (0.9) | 8 (8.9) | 0.74 (0.15-1.77) |
| Other | 225 (2.4) | 13 (5.7) | 0.45 (0.13-0.98) |
| Out-of-work exposure[c] | | | |
| 0 | 8195 (87.0) | 684 (8.4) | 1.00 (ref.) |
| ≥1 | 1223 (13.0) | 214 (17.5) | 2.21 (1.86-2.65) |
| Smoking | | | |
| Non-smoker | 5494 (58.3) | 631 (11.4) | 1.00 (ref.) |
| Ex-smoker | 1470 (15.6) | 121 (8.2) | 0.69 (0.53-0.86) |
| Smoker | 2464 (26.1) | 147 (5.9) | 0.43 (0.29-0.55) |
| BMI group | | | |
| 18-24.9 | 5124 (55.7) | 508 (9.9) | 1.00 (ref.) |
| 25-29.9 | 2970 (32.3) | 271 (9.1) | 0.97 (0.81-1.16) |
| ≥30 | 1109 (12.1) | 102 (9.2) | 0.97 (0.74-1.23) |
| Chronic conditions[d] | | | |
| None | 8378 (88.9) | 792 (9.4) | 1.00 (ref.) |
| 1 | 913 (9.7) | 93 (10.1) | 1.18 (0.91-1.48) |
| ≥2 | 138 (1.5) | 14 (10.1) | 1.23 (0.59-2.00) |

Results are N (%), or as stated. Relative risks (95% credible interval) are from Bayesian logistic regression models, and are adjusted for test performance, age and sex. These pertain to the reference individual (Female, 18-34). 69 participants were excluded due to missing serology or sociodemographic data, or due to being outside target age range of 18-65 years. All data are self-reported except serology.

[a] Each category indicates the highest level of education attained by participant; mandatory education indicates 15 years of primary education as the highest obtained degree.

[b] See Supplementary Table 1 for details.

[c] Out-of-work exposure to confirmed COVID-19 cases.

[d] Chronic conditions: hypertension, diabetes, cardiovascular disease, respiratory disease, cancer.

**Supplementary table 4**. Seropositivity rate by activity sector and out-of-work exposure to confirmed COVID-19 cases, SEROCoV-WORK+ study, May-September 2020, Geneva, Switzerland

| | | | Exposure to out-of-work confirmed COVID-19 case | |
|---|---|---|---|---|
| | Total sample | | None | ≥1 |
| Activity sector | N | Seropositive, n (%) | Seropositive, n (%) | Seropositive, n (%) |
| Healthcare | 1668 | 185 (11.1) | 151 (10.1) | 34 (19.4) |
| Transportation | 1184 | 99 (8.4) | 74 (7.0) | 25 (19.7) |
| Nursing/care homes | 1098 | 155 (14.1) | 116 (12.6) | 39 (21.9) |
| Public administration | 1055 | 94 (8.9) | 70 (7.7) | 24 (17.1) |
| Public security | 1053 | 82 (7.8) | 62 (6.8) | 20 (14.6) |
| Food industry | 754 | 76 (10.1) | 58 (8.8) | 18 (18.9) |
| Home care services | 753 | 91 (12.1) | 61 (9.8) | 30 (22.6) |
| Social work | 734 | 62 (8.4) | 47 (7.4) | 15 (15.5) |
| Financial services | 528 | 65 (12.3) | 52 (11.0) | 13 (23.6) |
| International organization | 419 | 24 (5.7) | 21 (5.8) | 3 (5.6) |
| Other businesses | 291 | 21 (7.2) | 18 (6.9) | 3 (10.3) |
| Early childhood education | 259 | 15 (5.8) | 8 (4.0) | 7 (11.9) |
| Pharmacy | 254 | 28 (11) | 16 (7.9) | 12 (23.1) |
| Construction | 181 | 11 (6.1) | 10 (6.0) | 1 (7.1) |
| Media | 166 | 7 (4.2) | 6 (3.9) | 1 (7.7) |
| Agriculture | 97 | 8 (8.2) | 5 (5.6) | 3 (42.9) |

**Supplementary table 5**. Seropositivity rate by occupation and out-of-work exposure to confirmed COVID-19 cases, SEROCoV-WORK+ study, May-September 2020, Geneva, Switzerland

| | | | Exposure to out-of-work confirmed COVID-19 case | |
|---|---|---|---|---|
| | Total | | None | ≥1 |
| Occupation | N | Seropositive, n (%) | Seropositive, n (%) | Seropositive, n (%) |
| Administration/HR | 1608 | 131 (8.1) | 105 (7.5) | 26 (12.6) |
| Nurse/assistant nurse | 1525 | 220 (14.4) | 170 (13.0) | 50 (22.7) |
| Other healthcare personnel | 849 | 89 (10.5) | 63 (8.6) | 26 (22.2) |
| Finance, management, law, engineering | 735 | 70 (9.5) | 55 (8.4) | 15 (19.5) |
| Police officer | 696 | 57 (8.2) | 40 (6.8) | 17 (15.6) |
| Social worker | 578 | 48 (8.3) | 37 (7.5) | 11 (12.6) |
| Construction and food craft/trades | 501 | 35 (7.0) | 32 (6.9) | 3 (8.6) |
| Manager/assistant manager | 420 | 44 (10.5) | 28 (7.7) | 16 (28.1) |
| Doctor/surgeon | 371 | 40 (10.8) | 28 (8.5) | 12 (28.6) |
| Public transport driver | 349 | 28 (8.0) | 24 (7.3) | 4 (21.1) |
| Cleaner | 329 | 26 (7.9) | 19 (6.6) | 7 (17.5) |
| Firefighter/EMT | 275 | 25 (9.1) | 24 (9.7) | 1 (3.6) |
| Supermarket/food market personnel | 256 | 27 (10.5) | 18 (8.3) | 9 (23.1) |
| Security guard | 206 | 22 (10.7) | 15 (8.9) | 7 (18.9) |
| Pharmacist/assistant pharmacist | 206 | 19 (9.2) | 13 (7.8) | 6 (15.0) |
| Childcare worker | 185 | 12 (6.5) | 7 (5.0) | 5 (11.4) |
| Journalist | 179 | 5 (2.8) | 4 (2.5) | 1 (5.9) |
| Kitchen staff | 159 | 24 (15.1) | 23 (16.1) | 1 (6.3) |
| Other function | 159 | 11 (6.9) | 8 (5.4) | 3 (30.0) |
| Cashier | 139 | 11 (7.9) | 5 (4.4) | 6 (23.1) |
| Domestic care worker | 130 | 7 (5.4) | 3 (2.7) | 4 (21.1) |
| Farmer/gardener | 104 | 15 (14.4) | 9 (9.9) | 6 (46.2) |
| Communication/marketing manager | 103 | 13 (12.6) | 11 (12.5) | 2 (13.3) |
| Bank/post office teller | 100 | 10 (10.0) | 7 (8.0) | 3 (25.0) |
| Communication marketing manager | 99 | 10 (10.1) | 8 (9.2) | 2 (16.7) |
| Home delivery driver | 42 | 4 (9.5) | 3 (8.8) | 1 (12.5) |
| Taxi driver/chauffeur | 36 | 4 (11.1) | 3 (8.8) | 1 (50.0) |
| Teacher | 35 | 3 (8.6) | 2 (6.9) | 1 (16.7) |
| Undertaker | 33 | 5 (15.2) | 5 (15.2) | - |

**Supplementary table 6.** Sample description and prevalence of anti-SARS-CoV-2 IgG antibodies, including relative risks further adjusted for out-of-work exposure to confirmed COVID-19 cases, SEROCoV-WORK+ study, May-September 2020, Geneva, Switzerland

| | N (%) | Seropositive | Relative Risk (95% CrI) |
|---|---|---|---|
| Total | 10494 | 1023 (9.8) | --- |
| Women | 5840 (55.7) | 596 (10.2) | 1.00 (ref.) |
| Men | 4654 (44.3) | 427 (9.2) | 0.93 (0.80-1.07) |
| Age group, years | | | |
| 18-34 | 2675 (25.5) | 291 (10.9) | 1.00 (ref.) |
| 35-49 | 4520 (43.1) | 466 (10.3) | 0.98 (0.83-1.16) |
| 50-65 | 3299 (31.4) | 266 (8.1) | 0.73 (0.60-0.88) |
| Educational level[a] | | | |
| Mandatory education | 865 (8.2) | 87 (10.1) | 0.75 (0.51-1.06) |
| Apprenticeship | 2215 (21.1) | 175 (7.9) | 0.52 (0.35-0.73) |
| Secondary education | 2096 (20.0) | 194 (9.3) | 0.65 (0.46-0.89) |
| University | 4619 (44.0) | 490 (10.6) | 0.75 (0.55-1.00) |
| Doctorate | 413 (3.9) | 52 (12.6) | 1.00 (ref.) |
| Other | 282 (2.7) | 25 (8.9) | --- |
| Activity sector[b] | | | |
| Healthcare | 1668 (15.9) | 185 (11.1) | 1.00 (ref.) |
| Transportation | 1184 (11.3) | 99 (8.4) | 0.72 (0.40-1.23) |
| Nursing homes | 1098 (10.5) | 155 (14.1) | 1.21 (0.69-1.92) |
| Public administration | 1055 (10.1) | 94 (8.9) | 0.87 (0.44-1.56) |
| Public security | 1053 (10.0) | 82 (7.8) | 0.57 (0.31-0.94) |
| Food industry | 754 (7.2) | 76 (10.1) | 0.95 (0.49-1.66) |
| Homecare | 753 (7.2) | 91 (12.1) | 0.97 (0.36-2.00) |
| Social work | 734 (7.0) | 62 (8.4) | 0.72 (0.34-1.36) |
| Financial services | 528 (5.0) | 65 (12.3) | 1.05 (0.48-1.91) |
| International organizations | 419 (4.0) | 24 (5.7) | 0.49 (0.14-1.42) |
| Early childhood education | 259 (2.5) | 15 (5.8) | 0.39 (0.13-0.85) |
| Pharmacy | 254 (2.4) | 28 (11.0) | 0.85 (0.40-1.52) |
| Construction | 181 (1.7) | 11 (6.1) | 0.59 (0.13-1.60) |
| Media | 166 (1.6) | 7 (4.2) | 0.60 (0.09-2.09) |
| Agriculture | 97 (0.9) | 8 (8.2) | 0.77 (0.22-1.84) |
| Other | 291 (2.8) | 21 (7.2) | 0.57 (0.22-1.10) |
| Confinement status[c] | | | |
| Mobilized/partially confined | 9418 (89.8) | 898 (9.5) | 1.00 (ref.) |
| Fully confined | 1065 (10.2) | 125 (11.7) | 1.28 (1.04-1.56) |
| Out-of-work exposure[d] | | | |
| 0 | 9129 (87.0) | 775 (8.5) | 1.00 (ref.) |
| ≥1 | 1365 (13.0) | 248 (18.2) | 2.29 (1.93-2.74) |
| Smoking | | | |
| Non-smoker | 6116 (58.3) | 708 (11.6) | 1.00 (ref.) |
| Ex-smoker | 1662 (16.4) | 143 (8.6) | 0.71 (0.55-0.86) |
| Smoker | 2714 (23.1) | 172 (6.3) | 0.45 (0.33-0.56) |
| BMI group | | | |
| 18-24.9 | 5742 (56.1) | 584 (10.2) | 1.00 (ref.) |
| 25-29.9 | 3271 (23.8) | 305 (9.3) | 0.96 (0.82-1.13) |
| ≥30 | 1220 (10.6) | 114 (9.3) | 0.94 (0.73-1.15) |
| Chronic conditions[e] | | | |
| None | 9267 (88.3) | 900 (9.7) | 1.00 (ref.) |
| 1 | 1060 (10.0) | 106 (10.0) | 1.10 (0.85-1.38) |
| ≥2 | 166 (1.6) | 17 (10.2) | 1.23 (0.67-1.94) |

Results are N (%), or as stated. Relative risks (95% credible interval) are from Bayesian logistic regression models, and are adjusted for test performance, age, sex and out-of-work exposure to confirmed COVID-19 cases. These pertain to the reference individual (Female, 18-34 years, no out-of-work exposure). 69 participants were excluded due to missing serology or sociodemographic data, or due to being outside target age range of 18-65 years. All data are self-reported except serology.

[a] Each category indicates the highest level of education attained by participant; mandatory education indicates 15 years of primary education as the highest obtained degree.

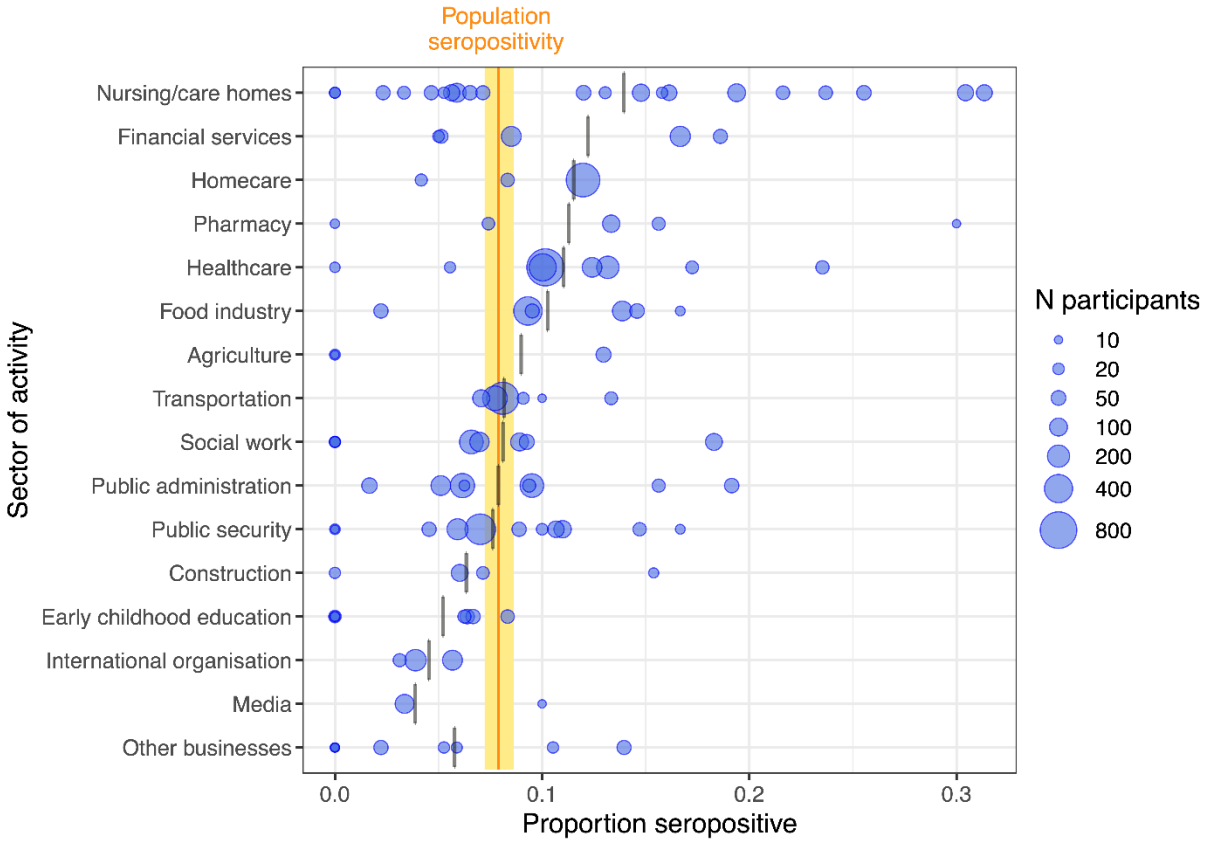
[b] See Supplementary Table 1 for details.

[c] Out-of-work exposure to confirmed COVID-19 cases.
[d] Chronic conditions: hypertension, diabetes, cardiovascular disease, respiratory disease, cancer.

**Supplementary table 7**. Seropositivity rate according to testing site, SEROCoV-WORK+ study, May-September 2020, Geneva, Switzerland

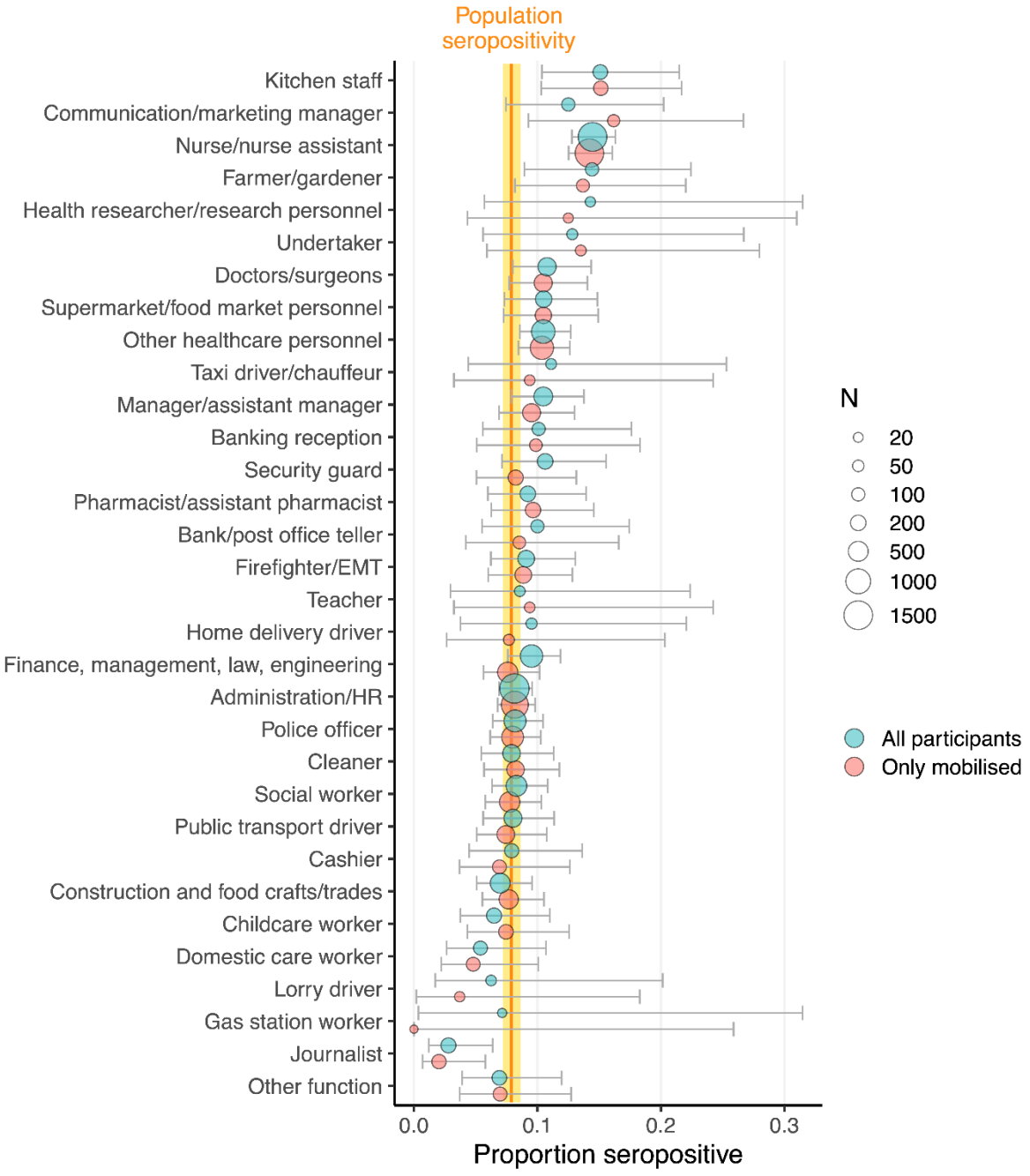
| Testing site | N | Seropositive n (%) |
|---|---|---|
| Testing site 1 | 3065 | 280 (9.1) |
| Testing site 2 | 2186 | 235 (10.8) |
| Testing site 3 | 3004 | 276 (9.2) |
| On-site testing | 2258 | 235 (10.4) |

**Supplementary figure 1**. Prevalence of anti-SARS-CoV-2 IgG antibodies by sector excluding participants who were fully confined during the lockdown, SEROCoV-WORK+ study, May-September 2020, Geneva, Switzerland (N = 9430)



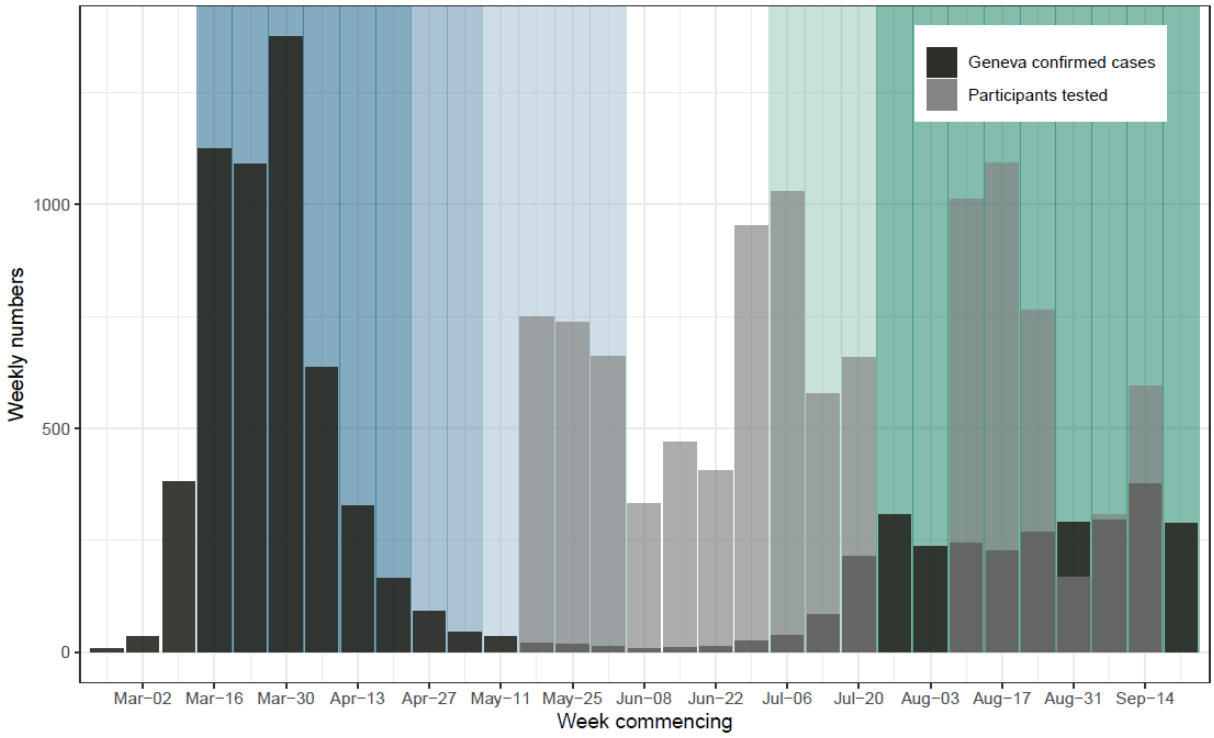

Sample size: 9430 participants, 899 of which were seropositive.
Blue dots represent proportion of seropositive participants per company/workplace setting.
Dot size indicates number of employees participating.
Darker dots indicate more than one facility with same or very similar seropositivity rate.
Vertical orange bar and yellow area indicate general working-age population seropositivity rate and 95% binomial confidence interval, respectively, from SEROCoV-POP study (20,21).
Small grey vertical bars show the proportion positive of all participants per sector.
Facilities with < 10 participants are not shown as dots, but these participants are included in the sector average.

**Supplementary figure 2**. Prevalence of anti-SARS-CoV-2 IgG antibodies by occupation, separately for all participants (N = 10,513) versus only mobilized participants (N = 9430), SEROCoV-WORK+ study, May-September 2020, Geneva, Switzerland




Sample size: 10513 participants, 1026 of which were seropositive.
Dots indicate mean seropositivity rate for each occupation group, while horizontal grey lines represent 95% binomial confidence intervals. Green dot indicates all participants; orange dot indicates only mobilized participants (excluding participants who were fully confined during the lockdown).
Dot size indicates number of employees with that occupation.
Vertical orange bar and yellow area indicate general working-age population seropositivity rate and 95% binomial confidence interval, respectively, from SEROCoV-POP study (20,21).

**Supplementary figure 3.** Weekly number of virologically-confirmed SARS-CoV-2 infections in the canton of Geneva between March and September, 2020, and weekly number of participants tested in the SEROCoV-WORK+ study between May 18 and September 18, 2020

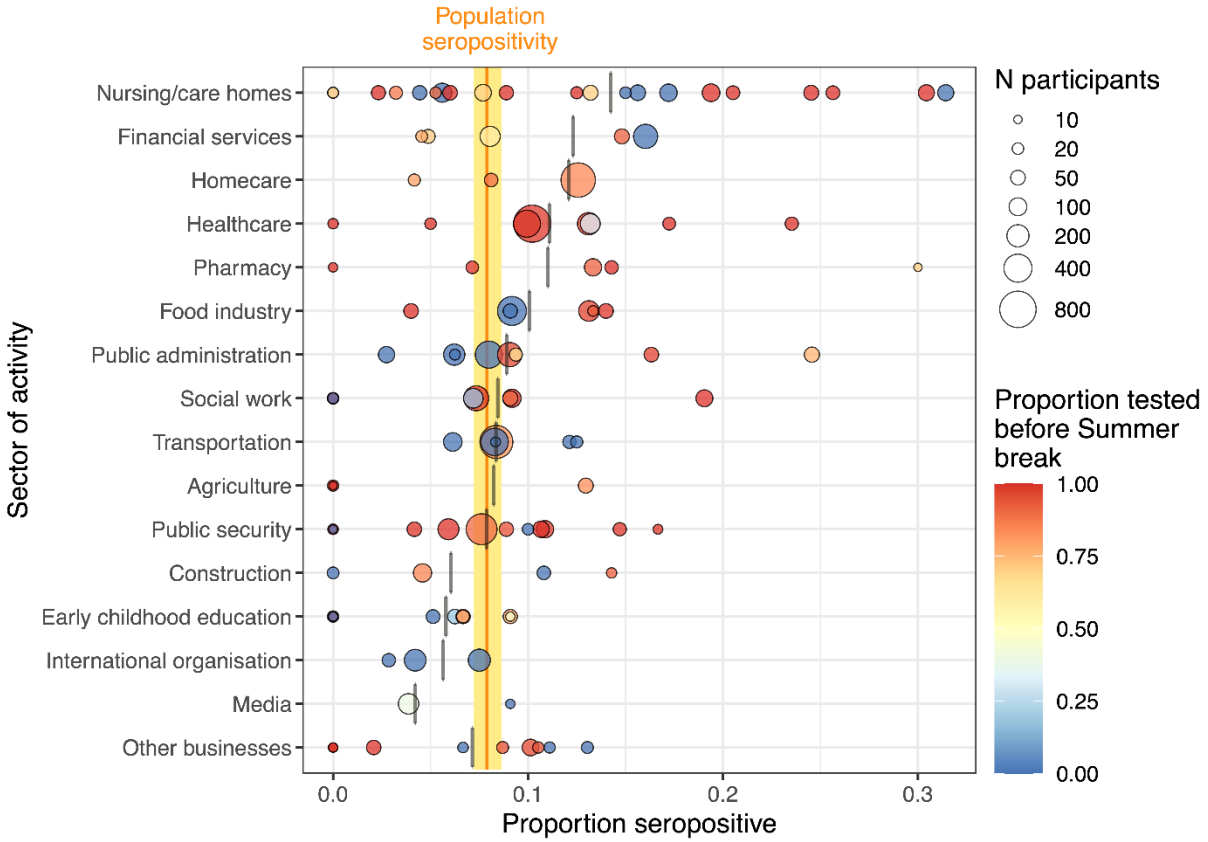



Background shading indicates government-mandated prevention measures in place:

| | |
|---|---|
| Darker blue | Lockdown imposed in canton Geneva on March 16, 2020. |
| Middle blue | First phase of easing lockdown measures began on April 27, 2020. |
| Lighter blue | Second phase of easing lockdown measures on began on May 11, 2020. |
| No shade | All lockdown measures lifted in canton Geneva on June 6, 2020. |
| Lighter green | Federally-mandated mask wearing in public transport began on July 6, 2020 (ongoing as of March 10, 2021). |
| Darker green | Mask wearing inside stores became mandatory in canton Geneva on July 28, 2020 (ongoing as of March 10, 2021). |

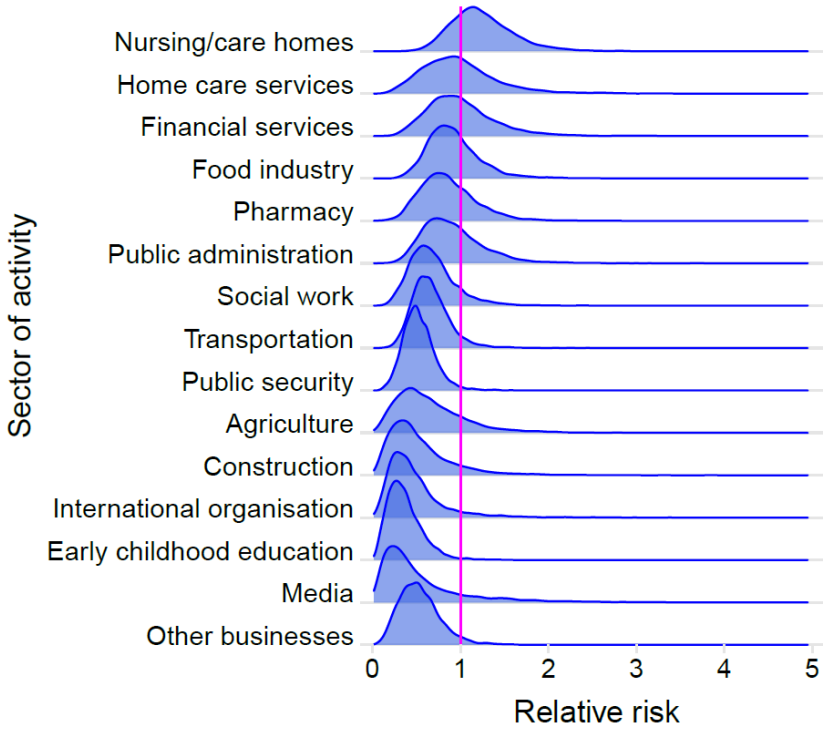
Virologically-confirmed SARS-CoV-2 infection data from the Canton of Geneva:
https://infocovid.smc.unige.ch/

**Supplementary figure 4**. Prevalence of anti-SARS-CoV-2 IgG antibodies by activity sector, SEROCoV-WORK+ study, May-September 2020, Geneva, Switzerland



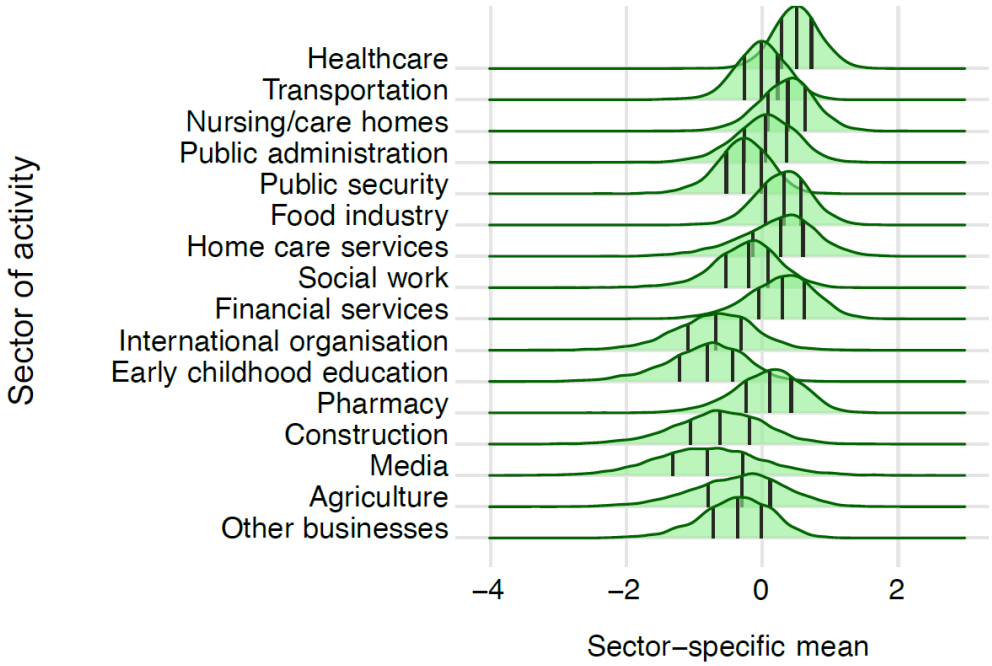

Sample size: 10513 participants, 1026 of which were seropositive.
Dots represent proportion of seropositive participants per company/workplace facility.
Dot size indicates number of employees participating.
Dot color indicates the proportion of participants at each facility who were tested before summer break.
Vertical orange bar and yellow area indicate general working-age population seropositivity rate and 95% binomial confidence interval, respectively, from SEROCoV-POP study (20,21).
Small grey vertical bars show the proportion positive of all participants per sector.
Facilities with < 10 participants are not shown as dots, but these participants are included in the sector average.

**Supplementary figure 5**. Posterior distributions of sector-specific mean estimates



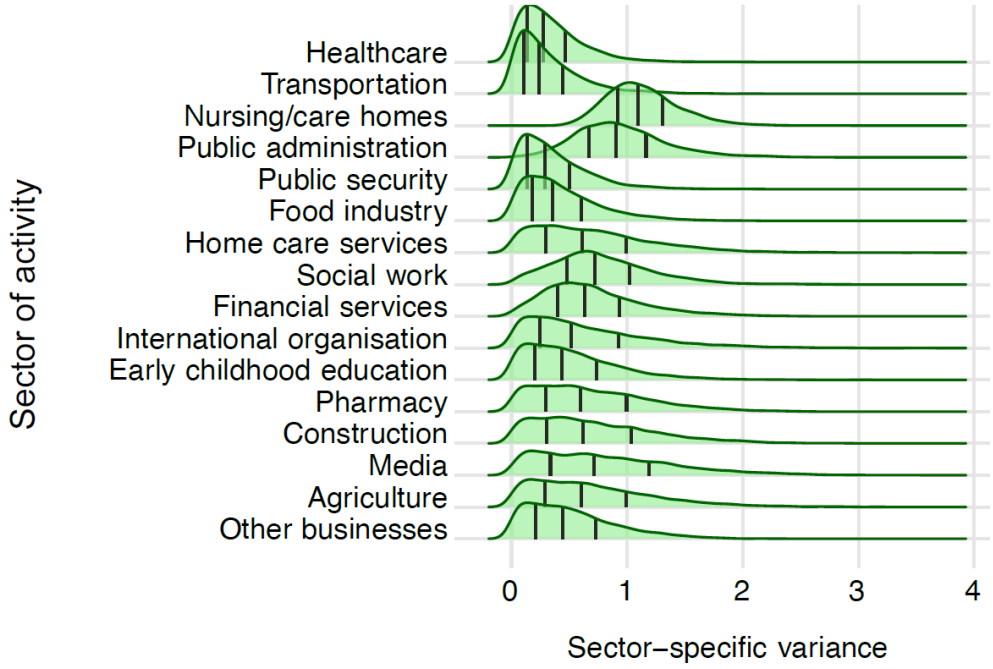

Magenta line is the reference healthcare sector.

**Supplementary figure 6**. Posterior distributions of sector-specific variance estimates




Black vertical lines in each sector indicate the quartiles of the estimated densities.

**Supplementary figure 7**. Posterior parameter estimates of sector-specific variance




Black vertical lines in each sector indicate the quartiles of the estimated densities.

## Supplementary References


1 Stringhini S, Wisniak A, Piumati G *et al*. Seroprevalence of anti-SARS-CoV-2 IgG antibodies in Geneva, Switzerland (SEROCoV-POP): a population-based study. *The Lancet* 2020; **396**: 313-9.

2 Meyer B, Torriani G, Yerly S *et al*. Validation of a commercially available SARS-CoV-2 serological immunoassay. *Clin Microbiol Infect*. 2020; **26**(**10**):1386-1394.