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Long Social Distancing

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Economics Working Paper 22121

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October 10, 2022

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Keywords: Social distancing, infection worries, pandemic, labor force participation, potential output, college wage premium, self-assessed causal effects
JEL Codes: E24, J21, J22, J14, D12

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Abstract:

More than ten percent of Americans with recent work experience say they will continue social distancing after the COVID-19 pandemic ends, and another 45 percent will do so in limited ways. We uncover this Long Social Distancing phenomenon in our monthly Survey of Working Arrangements and Attitudes. It is more common among older persons, women, the less educated, those who earn less, and in occupations and industries that require many face-to-face encounters. People who intend to continue social distancing have lower labor force participation—unconditionally, and conditional on demographics and other controls. Regression models that relate outcomes to intentions imply that Long Social Distancing reduced participation by 2.5 percentage points in the first half of 2022. Separate self-assessed causal effects imply a reduction of 2.0 percentage points. The impact on the earnings-weighted participation rate is smaller at about 1.4 percentage points. This drag on participation reduces potential output by nearly one percent and shrinks the college wage premium. Economic reasoning and evidence suggest that Long Social Distancing and its effects will persist for many months or years.

Acknowledgments:

We thank the Templeton World Charity Foundation, Smith Richardson Foundation, Stanford University, Chicago Booth School of Business, Asociación Mexicana de Cultura A.C., Stanford Institute for Human-Centered Artificial Intelligence, W.E. Upjohn Institute for Employment Research, Toulouse Network for Information Technology and the MIT Mobility Initiative for funding to conduct the Survey of Working Arrangements and Attitudes. Katharine Abraham, Marianne Bertrand, Mark Bils, Robert Hall, Lisa Kahn, and seminar and conference participants at ITAM, the U.S. Congressional Budget Office Panel of Economic Advisers, and the NBER Conference on Wage Dynamics in the 21st Century provided many helpful comments on earlier drafts. A special thanks to Abraham and Bertrand, discussants at the CBO and NBER events, respectively.

1. Introduction

The COVID-19 pandemic brought more awareness and a greater salience of the infection risks that come with face-to-face encounters in public places, including the workplace. This shift in perceptions and its influence on labor supply emerge clearly in data from our Survey of Working Arrangements and Attitudes (SWAA). Since May 2020, we have fielded the SWAA each month to thousands of working-age Americans with prior-year earnings of $10,000 or more. The survey yields individual-level data on demographics, labor force status, working arrangements, concerns about infection risks, social distancing intentions, and more. We use SWAA data from February to July 2022, first, to characterize social distancing intentions and, second, to estimate their effects on labor force participation, potential output, and the college wage premium.

More than ten percent of SWAA respondents say they will not return to pre-COVID activities after the pandemic ends. Instead, they plan to avoid subways, crowded elevators, taxis, ride-hailing services, and dining at indoor restaurants. Another 45% say they will continue limited forms of social distancing. We refer to this phenomenon as “Long Social Distancing.” It is more common among older persons, women, the less educated, and those who earn less. The strong form of Long Social Distancing is especially prevalent among those who did not attend college, exceeding 17 percent for this group. Strong-form Long Social Distancing rises with age, roughly doubling from the early 20s to the early 60s. It is higher for women than men at all ages. It is about three percentage points higher for Democrats than for Republicans and higher yet for those who identify as Independents or with smaller political parties. Along several dimensions – education, earnings, industry, and occupation – strong-form Long Social Distancing is more common when remote work opportunities are fewer.

Despite meeting our prior earnings requirement, many SWAA participants are not in the labor force during the survey reference week. When asked why, nine percent say that “worries about catching COVID or other infectious disease” are the main reason. Another thirteen percent cite infection concerns as a secondary reason. These concerns correlate with social distancing intentions. For example, among persons who say infection worries are the main reason they are out of the labor force, only 16 percent plan a full return to pre-COVID activities after the pandemic ends. Among non-participants who do not cite infection worries, 38 percent plan a full return. Among employed persons, 44 percent plan a full return.

We estimate the effects of Long Social Distancing on labor force participation using two distinct approaches. One approach uses self-assessed causal effects to calculate how much infection worries depress participation. Our baseline calculation attributes non-participation fully to infection worries for persons who cite them as the main reason for not working or seeking work. It attributes 50 percent of non-participation to infection worries for persons who cite them as a secondary reason. Aggregating over persons, this calculation implies an estimated drag on the labor force participation rate of 2.0 percentage points, 1.4 points on an earnings-weighted basis.[1] This approach to causal effects relies neither on assumption-heavy structural models nor assertions about exogenous variation in the data. Instead, the identifying assumption is that respondents accurately report the reasons for their own behaviors.

Economists seldom rely on self-reported explanations for own behaviors and outcomes to assess causal effects.[2] We think the self-assessment approach belongs in the tool kit of economists, because standard approaches to ascertaining causal effects involve their own challenges, limitations, and costs. Under the self-assessment approach, the identification challenge centers on how to use surveys to elicit accurate explanations for own behaviors. Obviously, but importantly, that is quite unlike the challenge of finding and using exogenous variation in quasi-experimental settings or the challenge of creating suitable random variation in field experiments. As in experimental and quasi-experimental studies, it is often useful to combine estimated causal effects at the individual level with an equilibrium model to obtain aggregate effects. To that end, we combine our participation findings with simple equilibrium models to estimate the impact of Long Social Distancing on (potential) output and the college wage premium.

Our second approach is more conventional. We estimate regression models that explain current labor force outcomes as a function of social distancing intentions and use the models to draw inferences about causal effects on participation. We start with a simple specification that treats all demographic groups as equally responsive to social distancing intentions. The model yields large negative effects of social distancing intentions on current labor force participation.

[1] We also consider a range of other attribution values. Our most conservative attribution values (90% if infection worries are the "main concern" and 10% if a "secondary concern") implies an estimated drag on the labor force participation rate of 1.3 percentage points.

[2] For another example of the self-assessment approach to the estimation of causal effects, see the analysis in Barrero et al. (2021a) of how better internet access would affect U.S. labor productivity and output. For a broader discussion of the approach, see Stancheva (2022).

The estimated effects are highly statistically significant, and their magnitude increases monotonically with the strength of individual-level social distancing intentions. Controls for age, sex, education and survey wave improve goodness-of-fit but matter very little for the model-implied impact of social distancing intentions on labor force participation.

While the simple specification offers a transparent starting point, the equal-responsiveness assumption is overly restrictive. It is now well established that better educated persons are much more likely to hold jobs that are amenable to remote work, and much less likely to hold jobs that require many face-to-face interactions with customers and coworkers.[3] Thus, it is much easier for the highly educated to practice full or limited social distancing while remaining employed. In addition, because of their higher earnings, well-educated persons can more readily avoid commuting modes that involve a high volume of close encounters with others. When we let the effects of social distancing intentions vary by education in our regression models, we find the largest effects by far for persons who did not attend college, moderate effects for persons with some college, and small, often insignificant effects for those who completed college.

If social distancing intentions are exogenous with respect to individual-level labor force status, conditional on controls, our fitted regressions yield causal effects of those intentions. Accordingly, we use our regression models to quantify outcomes in a counterfactual scenario where each person fully returns to pre-COVID activities. That is, we turn off any reported intentions to continue social distancing and calculate model-implied outcomes. Relative to this counterfactual, social distancing intentions reduce the participation rate by 2.5 percentage points (1.4 points on an earnings-weighted basis). Our two approaches also yield similar labor force drag effects at the level of groups defined by education, age, sex, earnings, and major industry sector. We see this similarity of group-level effects as evidence for the internal validity of our estimates, given that our two approaches use different data, rest on different identifying assumptions, and rely on different methods.

To obtain the implied impact of Long Social Distancing on potential output, we adopt an efficiency-units formulation of labor supply and posit a standard aggregate production function with a labor input elasticity of two-thirds. Plugging the estimated earnings-weighted drag on participation into the production function, we find that Long Social Distancing reduces potential

[3] See, for example, Adams-Prassl et al. (2020), Bartik et al. (2020), Barrero et al. (2021b), Dingel and Neiman (2020), and Mongey, Pilossoph and Weinberg (2021).

output by nearly one percent in the first half of 2022. This effect translates to an annual GDP loss of about $250 billion at current prices.

Our findings on Long Social Distancing and its effects are broadly consistent with other evidence of a lower willingness to work after COVID-19, especially among persons with less education and lower market wages. Using data from the Survey of Consumer Expectations and the Current Population Survey (CPS), Faberman, Mueller and Şahin (2022) find that fears of catching COVID contribute to a reduced willingness to work in 2020 and 2021, and that such fears play a larger role for women, older persons, and those with less education. Using employment and job vacancy data, Forsythe et al. (2022) infer that the pandemic reduced the appeal of service jobs with little scope for social distancing. Using CPS data, Autor and Dube (2022) document a remarkable compression in the wage distribution from January-March 2020 to January-March 2022. Our results say that Long Social Distancing reduced the relative supply of non-college workers by 1.4 to 3.6 percentage points in the first half of 2022. Combining this relative supply shift with a standard labor demand framework, Long Social Distancing shrank the college wage premium by an estimated 1.0 to 2.6 percentage points.

Our study also relates to a literature on how personal experience and exposure to major shocks shape individual beliefs and economic decisions. Malmiender and Nagel (2011), for example, develop evidence that past exposure to bad stock market outcomes depresses stock market participation and shrinks the equity portfolio shares of those who do participate. Malmendier and Wachter (2022) review the broader literature. In this regard, we note that confirmed COVID-19 cases number nearly 100 million in the United States as of September 2022, and deaths attributed to COVID exceed one million. Millions more lost immediate family members or close friends to the disease. In addition, public health authorities mounted an extensive, sustained campaign to persuade Americans to get vaccinated against the SARS-COV-2 virus, wear masks, and engage in social distancing behaviors. In this light, it seems likely that the pandemic experience led to heightened concerns about infection risks that, in turn, reduced labor force participation. Our evidence strongly supports this view.

Other research considers the labor supply effects of "Long COVID," which is shorthand for the fatigue, cognitive dysfunction and other debilitating health conditions that some people experience long after the end of an active COVID infection. According to the Household Pulse Survey (HPS), 14.8 percent of American adults have experienced Long COVID symptoms as of

July 2022.[4] Bach (2022) draws on data from the June 2022 HPS and other sources to estimate that Long COVID currently depresses the U.S. labor force by two to four million persons, or about 0.8 to 1.5 percentage points. Using different methods and sources, Cutler (2022) estimates that Long COVID reduces the U.S. labor force by 3.5 million persons. Using yet different methods, Goda and Soltas (2022) estimate that COVID-19 reduced participation by 0.2 percentage points.[5] It seems likely that Long COVID and Long Social Distancing are overlapping phenomena, but existing data do not let us confidently disentangle their separate and overlapping effects. We are currently fielding SWAA questions designed to do so.

The next section provides additional background and motivation for our study. Section 3 describes the Survey of Working Arrangements and Attitudes, and Section 4 uses SWAA data to characterize the Long Social Distancing phenomenon. Section 5 estimates the effects of infection worries and social distancing intentions on labor force participation. Section 6 quantifies the implications for aggregate output and the college wage premium. It also argues that Long Social Distancing and its effects are likely to persist for many months or years. Section 7 concludes.

2. The COVID-19 Experience, Risk Perceptions, and Behaviors

The SARS-COV-2 pandemic has killed more than a million Americans as of September 2022. Hospital admissions to treat COVID-19 number about six million in the United States, and confirmed COVID cases number nearly one hundred million.[6] Americans with a family member

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[4] https://www.cdc.gov/nchs/covid19/pulse/long-covid.htm#technical_notes, accessed 28 August 2022.

[5] Goda and Soltas (2022) focus on employed persons who are absent from work throughout the survey reference week mainly for health-related reasons. They then consider their labor force status one year later. Several aspects of this empirical design help explain why they find much smaller effects than Bach (2022) and Cutler (2022). First, Goda and Soltas exclude any effects on persons who, when ill, were not employed. Second, they do not capture full-week work absences that occur outside the survey reference week. When they adjust for these omissions, the estimated participation effects rise by half. Third, they miss work absences that span only part of the survey reference week – for example, one that ends on the fourth workday of the reference week and begins on Wednesday in the prior week. Fourth, persons who work from home even a few hours in the reference while sick with COVID do not meet their week-long work absence condition. Even if these persons experience persistent symptoms that reduce later participation, they are not captured in the estimated effects. Finally, they "exclude workers who ever report having a physical disability as well as those who, before their absence, ever report that they did not participate in the labor force or worked fewer hours due to illness or disability." Thus, they effectively exclude many persons with pre-existing health conditions that make them especially vulnerable to COVID and its health effects.

[6] The figures for COVID deaths and confirmed cases are from the Johns Hopkins Coronavirus Resource Center at https://coronavirus.jhu.edu/region/united-states, accessed 28 September 2022. We obtain data on hospitalizations from Our World in Data at https://ourworldindata.org/covid-hospitalizations, accessed

or close friend who died from COVID-19 or required hospitalization to treat the disease probably number in the tens of millions. All of this happened in just two and one-half years. In light of these facts, we think personal and vicarious experiences with COVID-19 made infection risks more salient, encouraged social distancing behaviors, and affected labor force participation.

Previous research supports this view. As an example, Dryhurst et al. (2020) investigate COVID-related risk perceptions in a survey of nearly 7,000 persons across ten countries from mid-March to mid-April 2020. Their "COVID-19 risk perception index" captures the respondent's perceived risk of contracting COVID in the next six months, the perceived seriousness of the illness, and their virus-related worries with regard to friends, family, and others. Looking across persons, their index rises with both (a) personal experience with COVID-19 and (b) hearing about the disease from family and friends, conditional on personal knowledge of the government's strategy for dealing with the pandemic, confidence in the understanding of scientists, trust in government, trust in medical professionals, perceived efficacy of actions taken to mitigate COVID risks, and other factors. As Dryhurst et al. stress (page 1001), "experience with the virus stands out across all countries, such that people who have had personal and direct experience perceive significantly higher risk." They also find that "preventative health behaviors" (e.g., social distancing, mask wearing) increase with their risk perceptions index. Among the two-thirds of their sample that worked before the pandemic, 18 percent no longer worked four-to-six months after hospital discharge, and 19 percent had made a health-related occupational change.

Schneider et al. (2021) study the relationship of health-protective behaviors to COVID-19 risk perceptions in a series of cross-sectional surveys in the United Kingdom from March 2020 to January 2021. Looking across persons, the adoption of mask wearing and social distancing behaviors rises with risk perceptions, and the relationship becomes stronger in later survey waves. As in Dryhurst et al., risk perceptions rise with personal experience with COVID, conditional on a large set of other factors. Finally, Schneider et al. find that "psychological factors are more predictive of risk perception than an objective measure of situational severity, i.e. the number of confirmed COVID-19 cases at the time of data collection." Many other studies also find that (most) individuals undertake more self-protective behaviors when they perceive greater health-related

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on 28 September 2022. Specifically, we sum the daily data on new hospitalizations in the previous seven days to treat active COVID infections from 21 July 2020 to 26 September 2022, which yields a figure of 5.5 million.

risks. Examples include Brewer et al. (2004, Lyme disease), Brewer et al. (2007, meta study of vaccine take up), Weinstein et al. (2007, influenza), Sadiecki et al. (2007, influenza), Bruine de Bruin and Bennett (2020, COVID), and Wise et al. (2020, COVID).

In addition, there is now abundant evidence that many people experience impaired health for weeks, months or longer after the end of an acute COVID illness. Lingering symptoms include fatigue, dyspnea, pain, insomnia, headaches, loss of taste or smell, organ damage, memory impairment, and reduced cognitive function. One well-cited study of 1,077 persons in the United Kingdom who were hospitalized for COVID-19 and discharged in 2020 finds that only 29 percent felt "fully recovered" four-to-six months after discharge (Evans et al., 2021, page 11). In a meta study of the broader literature, Groff et al. (2021) find that more than half of COVID-19 survivors experienced symptoms six months after recovery. The most common symptoms "involved functional mobility impairments, pulmonary abnormalities, and mental health disorders." People who live with post-infection symptoms receive daily, sometimes constant, reminders that their health is adversely affected by a previous bout with COVID. These reminders keep COVID-related risks top of mind, and they may increase the salience of other infection risks as well.

There is also evidence that perceived own risks of developing a life-threatening health condition are greater when family members have had the condition. For example, persons with a family history of lung cancer perceive a two- or three-fold greater risk of developing the disease than others (Chen and Kaphingst, 2011). Women with a family history of breast cancer perceive a higher personal risk of breast cancer and are more likely to screen for the condition (Katapodi et al., 2009). Experimental studies find that exposure to (information about) one type of risk, when it generates a strong emotional response, raises the perceived likelihood of other, unrelated risks. See, for example, Johnson and Tversky (1983) and Lee et al. (2010).

Since early in the pandemic, public health authorities have undertaken extensive, sustained campaigns to inform the population about COVID-related risks and to encourage (and often mandate) social distancing and other protective behaviors.[7] It would be surprising if these extraordinary communication and persuasion efforts did not leave a lasting imprint on COVID-related risk perceptions and on the behavioral responses of at least some people. Indeed, previous

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[7] See, for example, the "COVID-19 Public Education Campaign," which the U.S. Department of Health and Human Services describes as a "national initiative to increase public confidence in and uptake of COVID-19 vaccines while reinforcing basic prevention measures such as mask wearing and social distancing." https://wecandothis.hhs.gov/about, accessed 28 August 2022.

research finds that strong fear appeals by public health authorities yield high levels of perceived risk in the population, more health-protective behaviors, and greater expressed intentions to engage in such behaviors. See the meta study by Witte and Allen (2020) and the review of experimental studies in Sheeran, Harris and Epton (2014). Athey et al. (2022) conduct a large-scale evaluation of public information campaigns and find that they influenced self-reported beliefs.

Media sources amplified the messaging efforts of public health authorities. Sacerdote, Seghal and Cook (2020) show that coverage of COVID-related developments in the top 15 U.S. media sources (by readership and viewership) was overwhelmingly negative in the first months of 2020, and much more negative than the scientific literature and major media sources outside the United States. They also find that major U.S. media devote more attention to the positive effects of mask wearing and social distancing than major non-U.S. media. Ash et al. (2020), Bursztyn et al. (2020) Simonov et al. (2020) all find that the tone of media coverage affects the propensity to engage in social distancing behaviors.

To sum up, the frequency of direct personal experiences with COVID-19, the frequency of COVID-related deaths and hospitalizations among family and friends, the high incidence of persistent symptoms among those who recover from COVID, the extraordinary campaign by public health officials to highlight COVID risks and underscore the need for preventative health measures, and media amplification of official messaging all operated to raise the perceived risk of COVID and to encourage social distancing behaviors. These developments motivate the hypothesis that new and intensified concerns about infection risks since the onset of the pandemic have reduced labor force participation. We investigate this hypothesis in Section 5.

There is some prior evidence that exposure to one type of risk can raise the perceived likelihood of other risks, but the existing literature appears to be thin in this regard. We are unaware of research that investigates the extent to which personal and vicarious experiences with one type of negative health shock affect the salience or perceived likelihood of other health risks. In particular, we know of no research that assesses whether negative COVID-19 experiences raise the perceived likelihood of influenza, pneumonia or other infectious diseases. There also appears to be little research on the persistence of risk perception reactions and behavioral responses to experiences with infectious diseases and to public health campaigns and media messaging about infection risks and preventative behaviors. Section 6 provides evidence that social distancing and labor force participation responses are quite persistent for a small but nontrivial share of the population.

3. The Survey of Working Arrangements and Attitudes (SWAA)

We have fielded a Survey of Working Arrangements and Attitudes (SWAA) of our own design since May 2020. Each month, we sample thousands of U.S. residents, 20 to 64 years of age, who meet a prior earnings requirement.[8] We ask about demographics, labor force status, industry and occupation of current or most recent job, working from home, attitudes towards remote work, social distancing intentions, and more. From May 2020 to March 2021, sample inclusion requires earnings of at least $20,000 in 2019. From April to September 2021, we transitioned to a lower earnings threshold of $10,000 in 2019. From January to March 2022, we transitioned to a threshold of $10,000 in 2021, which applies to most of the data we use in this study.

To implement the SWAA, we contract with market research firms like IncQuery. The market research firm provides a platform to program the survey questions and intermediates with other firms (e.g., Lucid) that offer access to pre-recruited panels of prospective survey participants. When a survey wave goes to field, the market research firm issues email invitations to prospective respondents and continues until reaching the desired number and mix of participants. Email recipients are selected based on their location within the United States and their (imperfectly known) demographic characteristics. The email message states the estimated survey completion time, but does not describe the topic, and includes a link to an online questionnaire. Respondents who complete the survey receive cash, vouchers or award points, which they can donate. We do not contact respondents ourselves, do not collect personally identifiable information, and have no way to re-contact them. See Aksoy et al. (2022) for a fuller discussion of this survey technology and evidence of its widespread use in commercial applications.

Before proceeding to our empirical analysis, we drop "speeders" with survey completion times so short as to suggest a lack of careful attention to questions and response options. After dropping speeders (about 16 percent of the sample), median survey completion times range from 7 to 12 minutes across waves, which vary in number and complexity of questions. We then reweight the SWAA data to match CPS employment shares in cells defined by the cross product

[8] We adopted this requirement to cost-effectively sample persons with recent working experience. As our funding grew, we relaxed and then eliminated this requirement over the course of several months in 2022. The next draft will also consider the impact of infection worries and social distancing intentions on the current labor force participation of persons who do not meet a prior-earnings requirement.

of age, sex, education, and earnings categories.[9] The aim is to construct a sample that is representative of our target population.

Much of this paper focuses on a sample of 27,632 responses collected in six waves from February to July 2022 (inclusive). These waves cover all questions needed to estimate the impact of Long Social Distancing on labor force participation, using either regression models or self-assessed causal effects. We also use SWAA data back to July 2020 for some of our robustness checks and extensions.

Our core analysis samples drop respondents who fail any of the three attention check questions shown in appendix Figures A.1, A.2, and A.3. These questions aim to identify respondents who fail to read questions carefully. For "What color is grass?... Make sure that you select purple…" we keep respondents who choose purple or green. For "In how many cities with more than 500,000 inhabitants have you lived?... Irrespective of your answer please insert the number 33," we drop respondents who do not report 33. For "What is 3 + 4?" we drop respondents who give any response other than 7. An additional 12% of respondents (after dropping speeders) fail one or more attention check questions.[10]

Despite our best efforts to construct a representative sample for the target SWAA population, non-random selection on unobservables could still bias our estimates of labor supply responsiveness to infection worries and social distancing intentions. To assess this concern, we fielded an HPS question about the "main reason for not working for pay or profit" in the August 2022 SWAA. We then compare HPS and SWAA responses to the HPS question. Because the HPS does not ask about earnings, we use household income data to create an HPS sample that crudely approximates the individual earnings requirement that defines our target SWAA population.

[9] To avoid large monthly changes in the weight on any given cell, we use a rolling-weights scheme since April 2021. In month *t*, we compute the share of observations in each age-sex-education-earnings cell during the six months covering *t-5* to *t*. We construct the weights for month *t* by up- or down-weighting those proportions so as to match the CPS share of the population in each cell. We construct the weights for May 2020 to March 2021 by pooling across all months during that period, so the weights are identical for the same cell across months during that period.

[10] We first included attention-check questions in late 2021 and did not include "What is 3 + 4?" till March 2022. Thus, we cannot make use of these questions in the parts of our empirical analysis that extend back to 2020. Fortunately, our main results are not very sensitive to the exclusion of persons who fail attention-check questions in the more recent data.

As reported in Table 1, 1.5 percent of the resulting HPS sample gave "I was concerned about getting or spreading the coronavirus" as the reason for not working. 2.1 percent of the SWAA sample gave this reason. The difference is statistically insignificant but consistent with a modest tilt in the SWAA sample towards persons who don't work because of COVID-19 concerns. However, another 2.4 percent of the HPS sample gave their reason for not working as "I was sick with coronavirus symptoms or caring for someone who was sick with coronavirus symptoms." Only 1.3 percent of the SWAA sample gave this reason. Someone who is sick with the coronavirus, or caring for someone who is, could reasonably select either response option shown in Table 1. Doing the arithmetic, 3.9 percent of the HPS sample gave one of the two responses related to coronavirus fears, as compared to 3.4 percent of the SWAA sample. This comparison gives no indication that the SWAA sample suffers from a form of selection that would overstate the impact of infection worries on labor force participation. Thus, we see these comparisons as broadly reassuring about the representativeness of the SWAA sample along the key dimension that matters for our study. That said, we recognize that this analysis does not prove the absence of selection bias, given the imperfect nature of our HPS-SWAA sample comparisons, the ambiguity of the HPS response options, and the possibility that the HPS itself suffers from selection problems.

For more information about the SWAA, we refer interested readers to Barrero, Bloom, and Davis (2021b) and www.WFHresearch.com/. The monthly SWAA survey instruments are available at www.WFHresearch.com/survey-design-and-question-repository/, and the SWAA micro data are accessible to interested researchers at https://wfhresearch.com/data. For description and analysis of data from a closely related many-country survey, see Aksoy et al. (2022).

4. The Long Social Distancing Phenomenon

We quantify and characterize social distancing intentions using versions of a SWAA question first fielded in July 2020. The version in effect since June 2022 reads as follows:

> **As the COVID-19 pandemic ends,** *which of the following would best fit your views on social distancing?*
> - *Complete return to pre-COVID activities*
> - *Substantial return to pre-COVID activities, but I would still be wary of things like riding the subway or getting into a crowded elevator*
> - *Partial return to pre-COVID activities, but I would be wary of many activities like eating out or using Uber, Lyft, or other ride hailing services*
> - *No return to pre-COVID activities, as I will continue to social distance*

Over time, we modified the initial clause in this question to keep the focus on a post-pandemic future. From October 2021 to May 2022, the question began with *"Once the COVID-19 pandemic* *has ended…"* and continued with a nearly identical set of response options, as shown in Appendix Figure A.4.[11] From March to September 2021, we began with *"Once most of the population has been vaccinated against COVID …",* because the prevailing view then held that sufficiently high vaccination rates would produce herd immunity and halt the pandemic. In January and February 2021, the question began *"If a COVID vaccine becomes widely available …"*, and in December 2020 it began *"If a COVID vaccine is approved and made widely available …"* Earlier waves began *"If a COVID vaccine is discovered and made widely available …"*

Figure 1 shows the distribution of responses to this question from February to July 2022. 13% of respondents intend "No return to pre-COVID activities, as I will continue to social distance." 46% intend either a "Substantial" or "Partial" return. Only 42% say they plan a "Complete return." We refer to intentions to continue at least some forms of social distancing after the pandemic as "Long Social Distancing." It is reasonable to hypothesize that such intentions subside over time with the discovery and roll-out of SAR-COV-2 vaccines, the spread of (partial) immunity due to recovery from COVID, and better treatments for the disease. In fact, rates of hospitalization and deaths attributed to COVID fell markedly but unevenly over time. These developments could lessen fears related to COVID, and perhaps other infectious diseases as well, and lead to a fall in social distancing intentions.

Figure 2 considers this hypothesis by plotting from July 2020 to July 2022 the percent of SWAA respondents who (a) plan a complete return to their pre-COVID activities after the pandemic and (b) intend to continue strong-form social distancing. Those planning a complete return rise from about 25% in July 2020 to more than 40% in all but one month of 2022 thus far. The share temporarily dips in the Winter of 2020-2021 and late Summer of 2021, when the United States saw large surges in COVID infections. In contrast, the share that intends "no return to pre-COVID activities" has stabilized at roughly 12 percent since summer 2021. In the descriptive analysis to follow, we focus on this strong form of Long Social Distancing. Our analysis in Sections 5 and 6 uses the full range of expressed social distancing intentions.

The strong form of Long Social Distancing falls sharply with education and earnings (Figure 3), rises with age (Figure 4), and is higher for women than men at all ages (Figure 5). These patterns make sense. People with less education and lower earnings have a higher incidence

[11] In June 2022, we randomized over the older and newer versions of the question.

of pre-existing health conditions that place them at greater risk of death or serious illness from COVID and other infectious diseases. They also tend to hold jobs that place them at greater risk of infection (e.g., Mongey, Pilossoph and Weinberg, 2021). Older people are also at greater risk from COVID-19, a pattern that became evident and widely reported early in the course of the pandemic. Compared to men, women are more likely to be primary care givers for children (some of whom are too young for vaccination) and the elderly (who are highly vulnerable to COVID and other infectious diseases). Their greater care-giving responsibilities may lead women to practice more social distancing as part of precautionary efforts to protect those in their care.

The incidence of Long Social Distancing also varies with partisan affiliation. Aggregating over the sub-groups reported in Figure 6, only 9.7 percent of Republicans intend to practice strong forms of social distancing after the pandemic as compared to 12.4 percent of Democrats, 14.9 percent of Independents, and 21.0 percent of those who identify with a small party or don't know/prefer not to say their partisan affiliation. This pattern is consistent with other evidence on the relationship of partisan affiliation and political leanings to perceptions about COVID risks and social distancing behaviors. For example, Allcott et al. (2020) find that Republicans were less likely to engage in social distancing behaviors during the pandemic. They also provide suggestive evidence that partisan differences in news consumption sources partly account for differences in COVID-related risk perceptions and social distancing behaviors. Likewise, Pennycook et al. (2021) find that COVID-related risk perceptions and risk-avoidance behaviors during the pandemic correlate with political leanings.

The appendix documents several other cross-sectional patterns. Strong-form social distancing intentions are more common among people who work (or most recently worked) in industries and occupations that present higher infection risks because the jobs are not amenable to working from home, because they require a high volume of face-to-face encounters with others, or both. See Figures A.6 and A.7, which report the incidence of strong-form Long Social Distancing by industry sector and occupational category. For example, the rate of strong-form Long Social Distancing is 14 percent in the Health Care & Social Assistance and Leisure & Hospitality sectors but only 9 percent in Finance, Insurance & Real Estate and in the Information sector. It is 16-18 percent in Transportation-related occupations and Other Personal Services but only 9 percent in Office and Administrative Support functions and in Construction & Extraction occupations. Desired work-from-home days rise with the strength of social distancing intentions

(Figure A.8). Finally, Table A.1 reports the joint distribution of social distancing intentions and the self-assessed role of infection fears as a reason for not working or seeking work. Stronger social distancing intentions go hand-in-hand with a larger role for infection worries in deterring labor force participation. Consider strong-form social distancing intentions relative to the incidence of a complete return to pre-COVID activities. This ratio is 3.5 times higher among persons who cite infection worries as the "main reason" for not working or seeking work compared to those who say it is not a factor. The ratio is 2.6 times higher among persons who cite infection worries as a secondary reason for non-participation.

In summary, the SWAA data reveal several noteworthy patterns in social distancing intentions. First, most respondents say they intend to continue at least some forms of social distancing after the pandemic ends. Second, the rate of strong-form social distancing intentions rises with age and falls sharply with education and earnings. It is also higher for women than men at all ages. Third, strong-form incidence is greater among people who work in industries and occupations that offer less scope for remote work and require more face-to-face encounters. Fourth, among respondents outside the labor force in the survey reference week, social distancing intentions are stronger for those who attribute a larger role to infection worries for their labor force status. These cross-sectional patterns indicate that expressions of social distancing intentions are more than cheap talk. In particular, persons who face higher infection risks by virtue of their jobs, and those who face greater mortality and health risks if they contract COVID (or influenza or many other infectious diseases), express stronger social distancing intentions.

5. The Impact of Long Social Distancing on Labor Force Participation

We have established that most adult Americans with prior work experience express intentions to continue at least limited forms of social distancing after the pandemic, and that more than one-tenth intend to continue a strong form of social distancing. We turn now to an investigation of how these intentions and infection worries affect labor force participation.

A. Infection worries deter labor force participation

Since February 2022, we have put the following question to SWAA respondents who are outside the labor force (i.e., not working and not seeking work) in the survey reference week:

Are worries about catching COVID or other infectious diseases a factor in your decision not to seek work at this time?

- *Yes, the **main reason***
- *Yes, a **secondary reason***

- *No*

We randomize the ordering of the two "Yes" options, so that half see "main reason" first and the other half see "secondary reason" first.

This question elicits the respondent's own assessment of whether infection worries are a causal factor in their decision not to seek work. As shown in Figure 7, 9.3 percent of respondents cite infection worries as the main reason for not seeking work, and another 12.5 percent cite such worries as a secondary reason. These results provide direct evidence that infection worries deter labor force participation in the period from February to July 2022.

We deliberately frame the question in terms of "catching COVID or other infectious diseases" to allow for the possibility that the pandemic experience increased the salience of all work-related infection risks, not just COVID-related ones. In fact, when we compare responses across this question and the earlier HPS question, we find strong evidence that COVID-related infection risks are <u>not</u> the only infection worries that deter labor force participation as of August 2022. Table 2 reports the comparison: 2.3 percent of respondents to the HPS question say their concern "about getting or spreading the coronavirus" is "the main reason for not working for pay or profit," whereas 8.3 percent say that "worries about catching COVID or other infectious diseases" are the "main reason" for not seeking work. This comparison says that a narrow framing around COVID-related risks only understates the full impact of the pandemic experience on labor force participation.

Perhaps Figure 7 overstates the role of infection worries as a deterrent to labor force participation, because the underlying question places the two "Yes" options before the "No" option. Here, and elsewhere, our SWAA data could be affected by primacy bias – a tendency of respondents to pick answers that appear earlier in the list of response options. Our practice of dropping speeders eliminates respondents who simply click on the first option, which reduces the potential for primacy bias. In addition, our short survey instrument and omission of persons who fail an attention-check question mitigates any tendency to pick early options that arises from survey fatigue or inattentiveness. Nevertheless, these practices do not eliminate the potential for primacy bias to affect our results.

In light of this concern, we are transitioning to a heavier reliance on randomized response orderings in the SWAA. In the June and July waves, we randomized over two versions of the preceding question: The "No" option appeared first half the time and last half the time. In both cases, we continue to randomize the order of the two "Yes" options. We find that 79.9 percent of respondents choose "No" when it appears first, and 77.4 percent do so when it appears last. The difference of 2.5 points is statistically insignificant, with a t-statistic of 0.8. The percentage who select "Yes, secondary reason" is about one point higher when it appears first rather than last, with a t-statistic of 0.3 for the difference. Finally, 9.9 percent select "Yes, main reason" when it appears first as compared to 6.6 percent when it appears last. The t-statistic for this difference is 1.7, which is statistically significant at the 10 percent level but not the 5 percent level. Thus, there is limited evidence that the response ordering in the earlier SWAA waves leads us to overstate the impact of infection worries on labor force participation.[12]

B. Quantifying the causal effect of infection worries on labor force participation

Our first approach to estimating the impact of Long Social Distancing on participation relies on the self-assessed causal effects of infection worries. Table 3 presents our baseline calculation. Column (1) reports the response distribution to our question about infection worries among persons outside the labor force, and column (2) reports the corresponding distribution in the full sample. Column (3) reports the values we assign to "Yes, main reason" and "Yes, secondary reason" in quantifying the causal effect of infection worries on participation. We attribute non-participation fully to infection worries for those who cite infection worries as the "main reason" and fifty percent for those who cite it as a secondary reason. We attribute no role to infection worries to all others outside the labor force in the reference week and to those who are working, unemployed or furloughed.[13]

Column (4) describes the resulting calculation and bottom-line estimate. It says that infection worries dragged down the labor force participation rate by 2.0 (0.1) percentage points in the period from February to July 2022. Repeating the calculations on an earnings-weighted basis yields an estimated labor force drag of 1.4 (0.1) points. Appendix Table A.2 considers other attribution values in calculating the effects of infection worries. They yield estimated drags on labor force participation of 1.3 to 2.3 percentage points. Our most conservative attribution values (90 percent for "main concern" and 10% for "secondary concern") yield an estimated drag on the participation rate of 1.3 percentage points. Following up on our earlier discussion, we also assess

[12] If present, primacy bias leads us to understate the strength of social distancing intentions, given the ordering of responses to the SWAA question set forth at the outset of Section 3.

[13] We treat persons who are employed and paid but not working in the reference week as in the labor force.

the potential impact of primacy bias. Using data from the June and July 2022 waves, we estimate a labor force drag of 1.9 (0.2) points when "No" appears last in the response ordering and 1.5 (0.1) points when it appears first. The corresponding earnings-weighted estimates are 1.2 and 1.1 points, respectively, with a standard error of 0.1 points in both cases.[14] Thus, we find evidence of primacy bias, but its impact is modest.

C. Regression Analysis of Social Distancing Intentions and Participation

Our second approach to estimating the impact of Long Social Distancing on participation relies on regression-based quantifications of counterfactual scenarios. Table 4 reports a bare-bones regression specification that relates participation to social distancing intentions and illustrates how we quantify the implied effects. We regress $100 \times \mathbf{1}(\text{Not working and not looking for work})_{it}$ for person i in month t on his or her social distancing intentions. Column (1) reports the fitted regression in SWAA data from February to July 2022. Relative to those who plan a "complete return to pre-COVID activities," persons who plan "No return" are 15.3 (1.1) percentage points more likely to be out of the labor force, a huge effect. Those who plan a "partial return" are 4.1 (0.9) points more likely to be outside the labor force, and those who plan a "substantial return" are 0.4 (0.6) points more likely.

Next, we multiply the sample share in each category of social distancing intentions by the corresponding regression coefficient to obtain the implied drag on participation relative to "complete return." Then we sum the resulting products in the rightmost column of Table 4 to obtain a total effect on labor force participation of minus 2.6 percentage points. If the regression is correctly specified and social distancing intentions are exogenous with respect to participation, this procedure yields an estimate for the causal effect of Long Social Distancing on the participation rate relative to a counterfactual scenario that turns off all social distancing intentions.

Table 5 fits regressions with successively larger sets of controls and repeats the same type of calculations. In each specification, the key coefficients of interest increase monotonically with the intensity of social distancing intentions. While the controls greatly improve the regression goodness-of-fit, they have very little impact on the overall estimated effect of social distancing intentions on the participation rate. The specification in column (5) – which controls for survey wave, sex, age categories, and education categories – yields on overall estimated Long Social

[14] As we discuss more fully in Section 6.C, the estimated effects of infection worries and social distancing intentions on labor force participation have diminished somewhat in recent months.

Distancing drag on the labor force of 2.5 (0.3) percentage points. The corresponding earnings-weighted drag (not shown) is 1.5 percentage points.

If we add industry fixed effects to the specification in column (5), the estimated drag falls to 1.8 percentage points. Thus, when looking across persons with current or recent work history in the same industry, social distancing intentions have somewhat weaker negative effects on participation. Even in this case, the estimated labor force drag is large in magnitude. We do not think the inclusion of industry (or occupation) controls is appropriate for the purposes of estimating causal effects of Long Social Distancing. For one thing, industry and occupation effects control for job characteristics rather than individual characteristics or time effects. Someone with a previous history of working in the Leisure & Hospitality sector, for example, might continue working in the sector, find work in another sector, or exit the labor force. These choices are surely correlated with social distancing intentions and will mechanically affect the industry classification of those who switch sectors. The same point pertains to occupation controls. Thus, our preferred specifications do not include industry and occupation controls.

As we discussed in the introduction, the equal-responsiveness assumption embedded into the specifications in Tables 4 and 5 is overly restrictive. Table 6 relaxes this assumption by letting the coefficients on social distancing intentions vary freely across education groups.[15] As anticipated, social distancing intentions have stronger effects on participation for persons with less education. Recall from Section 3 that social distancing intentions are also stronger for the less educated. Thus, we estimate a much larger drag on participation for the less educated: 4.8 (0.7) points for persons who did not attend college, 2.4 (0.5) points for persons with 1-3 years of college, 0.6 (0.5) for those with a college degree, and 0.9 (0.6) points for those with a graduate degree. For the two highest education groups, the estimated drag is positive but statistically insignificant. The results in Table 6 imply an overall labor force drag of 2.5 percentage points on an equal-weighted basis and 1.4 points on an earnings-weighted basis.

Among other things, the results in Table 6 imply that Long Social Distancing substantially reduces the relative labor supply of the less educated, which raises economywide average labor productivity through a composition effect. These results also throw light on why our estimates for

[15] Column 2 pools across respondents with no high school degree and only high school degree, and the education fixed effects allow for separate constants for these two groups. In columns 3 to 5, the education category fixed effects collapse into a constant term, since those samples only include a single education group at a time.

the overall earnings-weighted drag on labor force participation are a good deal smaller than the equal-weighted estimates. The earnings-weighted drag is a more useful summary statistic for thinking about certain macroeconomic implications, e.g., the effects on potential output.

D. Labor force drag estimates at the group level: Comparing the two approaches

Appendix Tables A.3 and A.4 report, respectively, equal-weighted and earnings-weighted estimates of the labor force drag under our two approaches. We let the effects of social distancing intentions vary freely across groups under the regression approach in light of our discussion around Table 6. Conceptually, the flexible specification is also closer to the non-parametric nature of our self-assessment approach. The main new findings in Tables A.3 and A.4 can be anticipated from our earlier analysis. Specifically, the estimated drag due to infection worries (self-assessment approach) and social distancing intentions (regression approach) falls with earnings, rises with age, is higher for women, and is higher in the service sector than the goods sector. Interestingly, we also find that labor force participation decisions of Democrats are much more sensitive to infection worries and social distancing intentions than is the case for Republicans and Independents.

Figure 8 summarizes the equal-weighted results (Table A.3) in the form of a scatter plot that highlights the similarity of the group-level drag estimates across the two approaches. The figure shows the estimated drag effect under the self-assessment approach on the horizontal scale and under the regression approach on the vertical scale. The two sets of estimates display a strong, nearly linear relationship, although the regression approach tends to yield larger drag estimates for the groups that are most impacted by the Long Social Distancing phenomenon. We see Figure 8 as highly reassuring about our main inferences regarding the effects of Long Social Distancing on labor force participation. In particular, the figure provides strong evidence for the internal validity of our estimates, given that the two approaches use different data, rest on different identifying assumptions, and rely on different methods.

In closing this section, we stress that our analysis is by no means a full treatment of the forces affecting labor force participation in 2021 and 2022. Extremely tight labor markets in the past year (as of September 2022) have helped boost participation. Unusually strong household balance sheets have probably reduced participation. Disruptions in schooling and childcare services in the early stages of the pandemic may have had persistent effects on participation. And COVID-related care-giving may continue to reduce participation. These effects of these forces are likely to differ by age, sex, and education.

6. Implications and Prospects

A. Long Social Distancing reduces output

We now combine our labor force drag estimates with a simple equilibrium model to quantify the implied effects on potential output. To do so, we adopt an efficiency-units formulation of the aggregate labor input and posit a standard aggregate production function that exhibits constant returns to scale and a labor input elasticity of two-thirds. In computing labor efficiency units, we weight persons (and groups of persons) by earnings, which accounts for variation in hours worked per employed person. Implicitly, this weighting method also assumes that people are paid their marginal value products, at least on average. That assumption is surely an approximation, but it is a useful one in this context.

Using this theoretical framework, we quantify the impact of Long Social Distancing on potential output using our estimate of its overall impact on the earnings-weighted labor force participation rate. The specific calculation for the percentage impact is

$$\text{Potential Output Loss} = 100\left(\frac{2}{3}\right)\ln(1 - \text{Labor Force Drag}). \qquad (1)$$

Plugging in the earnings-weighted labor force drag estimate of 1.4 percent from both Table 3 and Table 6 implies a loss in potential output of 0.94 percent. Thus, we conclude that Long Social Distancing reduced potential output in the U.S. economy by about one percent in the first half of 2022 relative to a counterfactual with no participation-deterrent role for infection worries or social distancing intentions.

U.S. labor markets have been extremely tight in 2022, at least through July. So, it is reasonable to supplement our potential output calculation with a full-employment assumption. With that extra assumption, this analysis also implies that Long Social Distancing reduced actual U.S. output by about one percent in the first half of 2022. This is a material effect, corresponding to an annual GDP flow of about $250 billion dollars at current prices.

B. Long Social Distancing shrinks the college wage premium

We now assess the impact of Long Social Distancing on the college wage premium. To do so, we combine our labor force drag estimates by education group with a standard labor demand model. In particular, we posit a CES technology defined over two labor types and treat relative wages as the outcome of a competitive equilibrium. See Katz and Murphy (1992, Section VI) for a well-known application of this framework to the evolution of the U.S. college wage premium. They use the framework to quantify how much rising educational levels moderated the impact of increased demand for better-educated workers on the college wage premium. We use it to assess how much Long Social Distancing reduced the college wage premium.

Let *C* and *HS* index college-equivalent and other workers, respectively. In this framework, the college wage premium responds to a shift in the relative supply of college-equivalent workers according to

$$\Delta \ln\left(\frac{w^C}{w^{HS}}\right) = -\left(\frac{1}{\sigma}\right)\Delta \ln\left(\frac{L^C}{L^{HS}}\right), \qquad (2)$$

where $\Delta \ln\left(\frac{L^C}{L^{HS}}\right)$ is the relative supply shift, σ is the elasticity of substitution between college-equivalent and other workers in the production technology, and the equation gives the model-implied change in the college wage premium. Katz and Murphy (1992) adopt $\sigma = 1.41$ as their preferred estimate for the substitution elasticity. Other studies also conclude that a value in the neighborhood of 1.5 is appropriate for the elasticity of substitution between college-educated and other workers. See Ciccone and Peri (2005), for example.

To operationalize (2), we obtain supply shifts by education group from Table 6 and compute $\Delta \ln\left(\frac{L^C}{L^{HS}}\right)$ in a standard manner. Recall from Table 6 that Long Social Distancing reduced the labor force participation of the *HS* group by an estimated 4.8 percentage points. For the college-equivalent group, we average the estimated labor force drag effects over the "some college," "4-year college" "graduate degree" groups using their sample shares as weights. The average drag for college-equivalent workers is -1.4 percentage points. Putting the pieces together and calculating the right side of (2), we obtain $-\left(\frac{1}{1.41}\right)\Delta \ln\left(\frac{1-0.014}{1-0.048}\right) = -\left(\frac{1}{1.41}\right)(0.035) = -0.025.$ In words, Long Social Distancing raises the relative supply of college-equivalent workers by 3.5 percentage points, which shrinks the college wage premium by 2.5 percentage points.

If, instead, we use the self-assessment approach, and repeat the same calculations (drawing on results reported in Table A.3), Long Social Distancing raises the relative supply of college-equivalent workers by 1.3 percentage points, shrinking the college wage premium by 0.9 percentage points. The self-assessment approach yields a smaller effect on the college wage premium mainly because it delivers a much smaller labor force drag estimate for non-college workers, and, secondarily, because it yields a modestly larger drag for college-equivalent workers.

We close this discuss with two additional remarks: First, the foregoing wage-premium estimates rely on a substitution elasticity value used to explain year-to-year and medium-run changes in the college wage premium. The COVID-19 pandemic was a surprise event that drove an abrupt increase in the relative supply of college-educated workers. The possibilities for substitution between more and less educated workers in the near-term aftermath of the pandemic may be more limited than implied by a 1.41 elasticity value. If, for example, the near-term substitution elasticity is only half as large as the 1.41 value, the implied effects on the college wage premium are twice as big.

Second, our analysis here quantifies only one channel through which the pandemic affected the wage structure. The pandemic also operated on the wage structure through other channels. For example, it reduced the amenity value of low-pay jobs that require many face-to-face encounters (jobs held disproportionately by less educated workers), and it raised the amenity value of jobs that offer new-found opportunities for remote work (held disproportionately by highly educated workers). See Barrero et al. (2022c) for a fuller discussion and evidence that wages have responded to pandemic-induced changes in the amenity value of work. The point is that our analysis here is not mean to capture the full impact of the pandemic on the college wage premium. Instead, it quantifies the impact through one particular channel.

C. On the persistence of Long Social Distancing and its effects

The evidence and analysis above raise two questions: How long will Long Social Distancing persist? How long will its effects persist? We cannot provide definitive answers to these questions, but we can marshal evidence that supports an informed prognosis. We do so now.

A natural conjecture is that Long Social Distancing and its effects rise and fall with pandemic severity. As it turns out, this conjecture finds little support in the data. Figure A.9 in the appendix displays the seven-day moving average of daily COVID deaths and hospitalizations in the United States through August 2022. These two indicators of pandemic severity show only a weak time-series relationship to the strength of social distancing intentions in Figure 2. The share of respondents who say they intend a "complete return to pre-COVID activities" falls somewhat in late 2020/early 2021 and again in autumn 2021, two periods with local peaks in COVID death rates. Yet the responses are modest, and Figure 2 shows no discernible response of social distancing intentions to the roughly 75 percent drop in COVID deaths since early 2022. This time-series evidence provides little reason to anticipate an end to the pandemic will bring a rapid end to social distancing behaviors. The cross-sectional survey evidence in Schneider et al. (2021) discussed in Section 2 supports the same conclusion.

Figure 9 plots the estimated impact of Long Social Distancing on the participation rate by month throughout the period covered by our data. In month t we use data for the three-month window covering $t-2$ to t to implement the regression-based approach. The estimated drag on participation drifts upward from fall 2020 to spring 2022, more than doubling over this period, before falling over the last few months of our sample. The estimated effects in recent months remain greater than in any period from July 2020 through the end of 2021. Clearly, there is no simple relationship between the effects of Long Social Distancing and the current or recent severity of the pandemic. These patterns give little reason to think that Long Social Distancing and its effects will naturally and gradually wind down if, and when, the pandemic recedes more fully.

Instead, this evidence suggests that Long Social Distancing and its effects will persist for many months or years. That assessment also aligns with other evidence that searing personal experiences have persistent effects on perceptions and risk-taking behavior. As Malmendier and Wachter (2022) put it in their summary of research in this area, "More recent experiences have a stronger impact on individual expectations and risk-taking than experiences made earlier in life, though big enough shocks have a detectable impact on individuals decades later."

Another explanation for the persistence of Long Social Distancing and its effects is that the negative experiences and perceptions associated with COVID-19 have continued to accumulate: more and more people have contracted the virus over time, many have contracted it more than once (dispelling any hope that recovery confers immunity from future infections), vaccines have proven tremendously useful but no guarantee against infection, herd immunity is now understood as an elusive or unattainable goal, and evidence has mounted that Long COVID is a major concern. In all these respects, people with a cautious bent or with underlying health conditions that place them at higher risk of death or serious illness from COVID-19 can find sound, understandable reasons to continue and even intensify their social distancing practices. People who live with or care for immuno-compromised persons also have sound reasons to continue social distancing.

There are some countervailing forces. First, the pandemic drew attention to indoor air quality and its role in raising or lowering infection risks at the workplace. Better ventilation and other steps to improve air quality could draw some people back into the labor force. However, improving indoor air quality is costly and can require a complex set of changes, especially in existing buildings and worksites (U.S. Environmental Protection Agency, 2022). So, gains on this front are likely to be incremental, unfolding over many years.

Second, the pandemic catalyzed a large, lasting increase in working from home (Barrero et al., 2021b, and Aksoy et al., 2022). That made it much easier to socially distance while remaining employed. But work-from-home opportunities remain scarce for non-college workers. And as we saw in Figure 3 and Table 6, social distancing intentions and their labor force drag effects are much stronger for non-college workers. It may well be that work-from-home opportunities substantially mitigate the negative participation effects of infection worries for highly educated persons, but that those effects have already played out.[16] Our results are consistent with this view. In any event, the scope for drawing non-college workers into the labor force via jobs that let them work from home most or all of the time appears to be rather modest.

Third, household savings soared during the period covered by our empirical analysis through a combination of reduced consumer spending in the early stages of the pandemic, massive transfer payments to households as part of expanded income support programs, and extraordinary forbearance in loan repayment obligations (often mandated by government policies).[17] As a result, households enjoyed unusually strong liquid asset positions during the period covered by our empirical analysis. The strength of their balance sheets meant that many households could exit the labor force, at least temporarily, while maintaining a desired standard of living. That may have facilitated decisions to withdraw from the labor force in reaction to infection worries. By 2022, the extraordinary factors that had curtailed household spending and boosted non-labor income in 2020 and 2021 had largely disappeared. Thus, many households will spend down their liquid assets and face stronger financial pressures to seek work in the coming months or years. Whether, and how much, that will weaken the link between infection worries and labor force participation remains to be seen. We know of no research that speaks directly to that issue.

Finally, if labor force participation remains depressed because of infection concerns, particularly among the less-educated, it will encourage substitution responses on the demand side of the labor market (e.g., more automation, more scope for remote work) and on the supply side

[16] According to a survey conducted by the Pew Research Center in January 2022, 42 percent of Americans who work from home most or all of the time do so because of concerns about work-related exposure to the coronavirus (Parker, Horowitz and Minkin, 2022).

[17] See Cherry (2021) and Higgins and Klitgaard (2021) on these developments. According to the U.S. Bureau of Economic Analysis, the personal savings rate averaged 7.4 percent from 2015 to 2019, as compared to 16.3 percent in 2020, 12.1 percent in 2021 and 5.4 percent in the first half of 2022. See the PSAVERT series on FRED, accessed on 3 September 2022.

(e.g., less education, selective sorting into remote work) that moderates the longer-term output and relative wage effects of social distancing.

On balance, these various pieces of evidence and observations lead us to conclude that Long Social Distancing and its effects will persist for many months and perhaps for several years. The direct evidence in Figure 2 and Figure 9 supports this conclusion.. The countervailing forces we identified are likely to act with modest force in the near term, with the possible exception of how household balance sheets influence the extent of Long Social Distancing and its effects on labor force participation. We see that as an open question.

7. Concluding Remarks

More than ten percent of Americans with recent work experience say they will continue social distancing after the COVID-19 pandemic ends. Another 45 percent will do so in limited ways. We uncover this Long Social Distancing phenomenon in our monthly Survey of Working Arrangements and Attitudes. The phenomenon is more common among older persons, women, the less educated, those who earn less, and in occupations and industries that require many face-to-face encounters. We estimate that Long Social Distancing reduced the labor force participation rate by 2.0 to 2.5 percentage points in the first half of 2022, or 1.4 points on an earnings-weighted basis. We find large effects on the participation of non-college workers, moderate effects on those with some college, and small effects on the participation of the college-educated. When combined with simple equilibrium models, our estimated participation effects imply that Long Social Distancing reduced output by nearly one percent and shrank the college wage premium by 1.0 to 2.6 percentage points. The weight of the available evidence suggests that Long Social Distancing and its effects will persist for many months and perhaps years.

In closing, we highlight two directions for future research. First, to what extent do the labor force participation effects of Long COVID overlap with those of Long Social Distancing? Long COVID is a health condition that impairs work capacity, which directly impedes labor force participation. Long COVID can also affect participation indirectly through its impact on risk perceptions, infection worries, and social distancing intentions. Insofar as Long Social Distancing deters participation because people suffer from Long COVID – or worry about it – medical advances that cure, effectively treat or prevent the condition will erase the deterrent effect on labor force participation. Insofar as Long Social Distancing and its effects arise from a generalized fear of infection risks brought on by personal and societal experience of the pandemic, they will not. So, resolving this question is interesting as a means of gaining insight into how experience affects economic behaviors *and* as a means of gauging the impact of COVID-related medical advances on future labor force participation.

Second, our study illustrates how surveys can be used to elicit self-assessed causal effects at the individual level, and how the resulting individual-level data can be combined with equilibrium models to quantify aggregate implications. We hope our study inspires more research in a similar vein. The idea of asking people about the reasons for their economic behaviors is not a new one. Indeed, Freeman (1989) remarks that John Dunlop, his undergraduate professor and doctoral advisor at Harvard in the 1960s, encouraged researchers to speak with labor and management to obtain insights about the operation of markets. Freeman continues, “Getting the opinions of the subjects of our research is about the only advantage we have over physicists. Quarks and gluons do not talk about what they do or why, not even to Richard Feynman.” That line resonates with us, and we think economists have under invested in the use of surveys and structured interviews to elicit self-assessed causal effects. There are exceptions, to be sure. Bewley’s book (1999) on the sources of downward wage rigidity is a prominent example, but one that stands out for its unusual methods as well as its insights. Of course, the use of surveys to elicit self-assessed causal effects is subject to many challenges, pitfalls, and limitations. That’s true of every method economists have at their disposal to assess causal effects.

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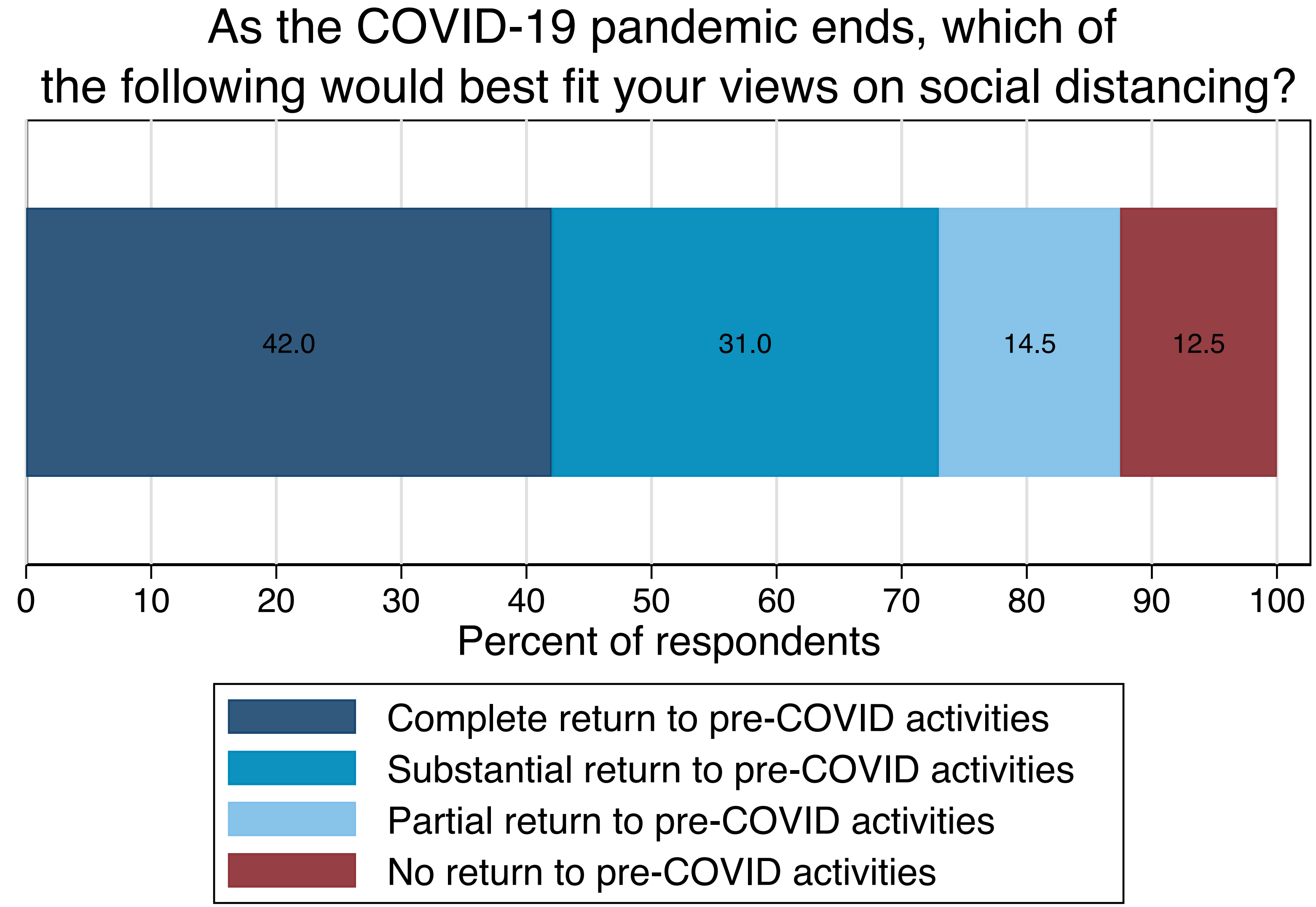
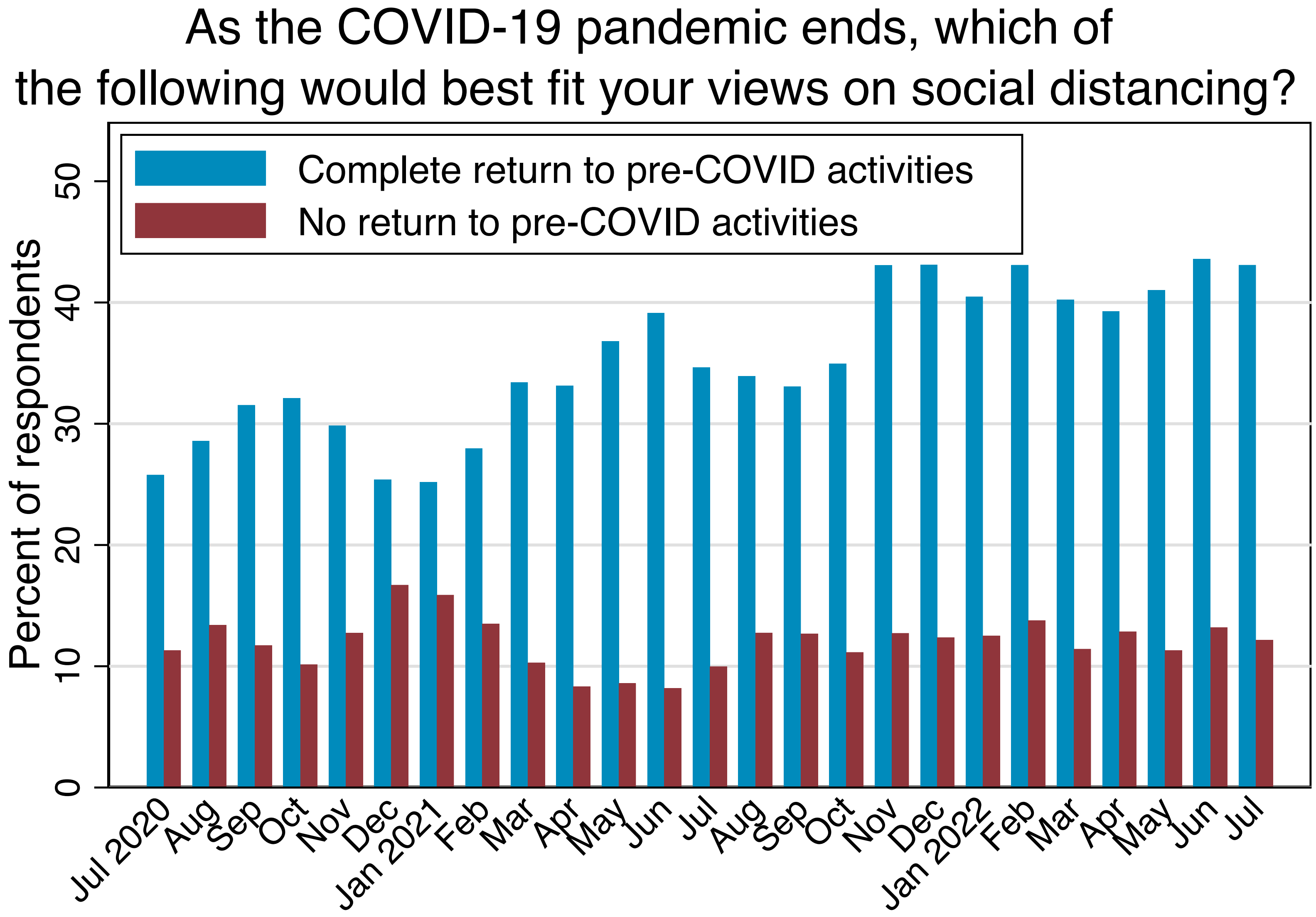
Figure 1. Long Social Distancing: 13% of respondents plan no return to pre-COVID activities after the pandemic ends, and another 46% plan less than a complete return.



Notes: The title of the chart shows the latest version of the survey question underlying the data. The sample includes respondents from the February 2022 to July 2022 SWAA waves. The SWAA samples US residents aged 20 to 64 who earned $10,000 or more in 2019 or 2021. (In February we randomized across the two years and asked about 2021 starting with the March survey.)

N = 27,632.

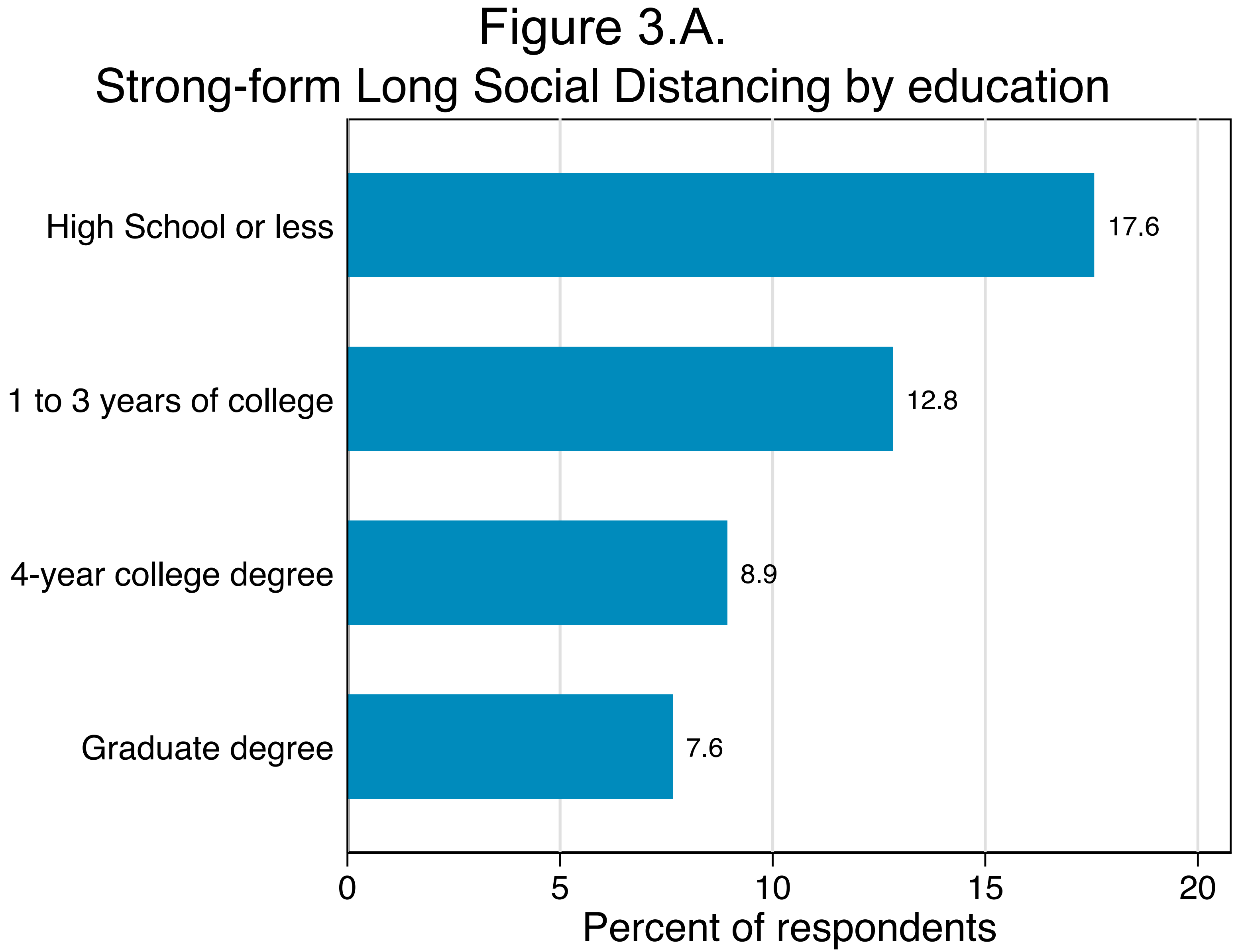
Figure 2. Social Distancing Intentions by Month, July 2020 to July 2022



Notes: The title of the chart shows the latest version of the survey question underlying the data. In 2020 we initally asked respondents about the possibilities of vaccine discovery, then vaccine approval and wide availability, and then in 2021 to a scenario when most of the population would be vaccinated. The sample includes respondents from the July 2020 to July 2022 waves of the SWAA. The SWAA samples US residents aged 20 to 64 who earned $10,000 or more in 2019 or 2021. (Starting in January 2022, we transitioned to a prior-year earnings requirement).

N = 94,355.

Figure 3. Strong-form Long Social Distancing Falls with Education and Earnings

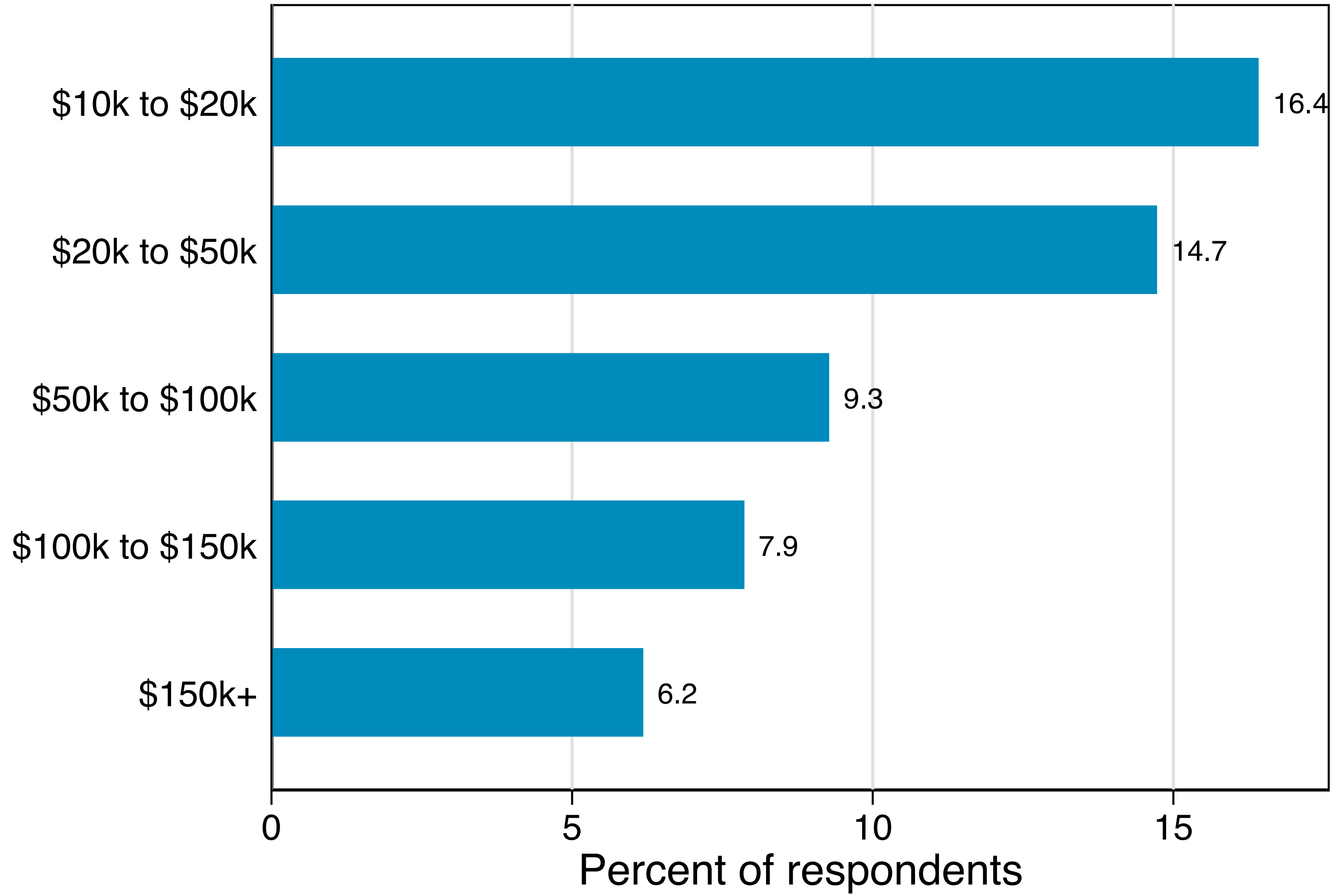


Notes: The sample includes respondents from the February to July 2022 survey waves. The SWAA samples US residents aged 20 to 64 who earned $10,000 or more.

N = 27,632.

Figure 3.B.

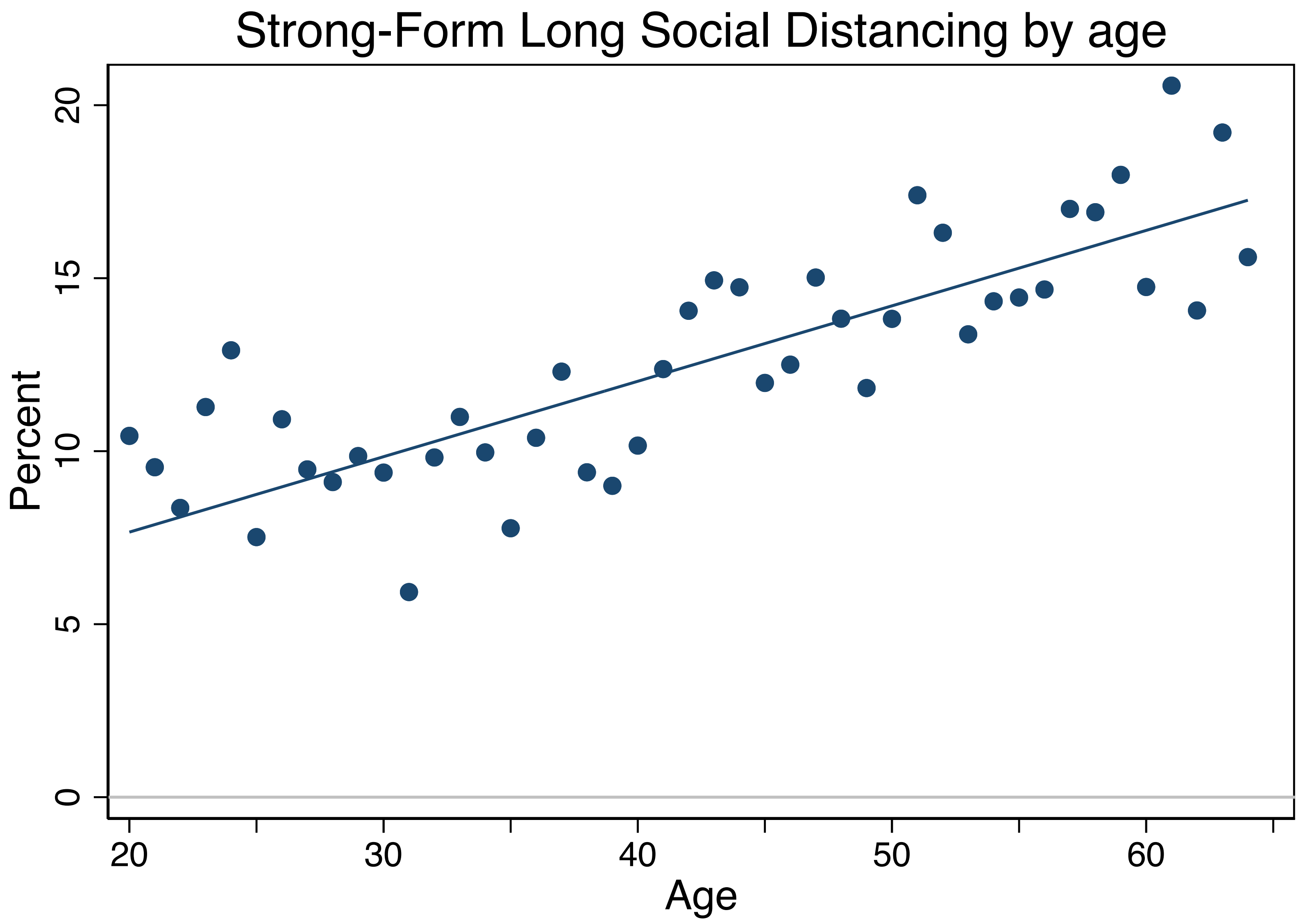
Strong-form Long Social Distancing by earnings



Notes: The sample includes respondents from the February to July 2022 survey waves. The SWAA samples US residents aged 20 to 64 who earned $10,000 or more using 2019 or 2021 earnings. See Appendix Figure A.5 for a more granular set of earnings bins.

N = 27,632.

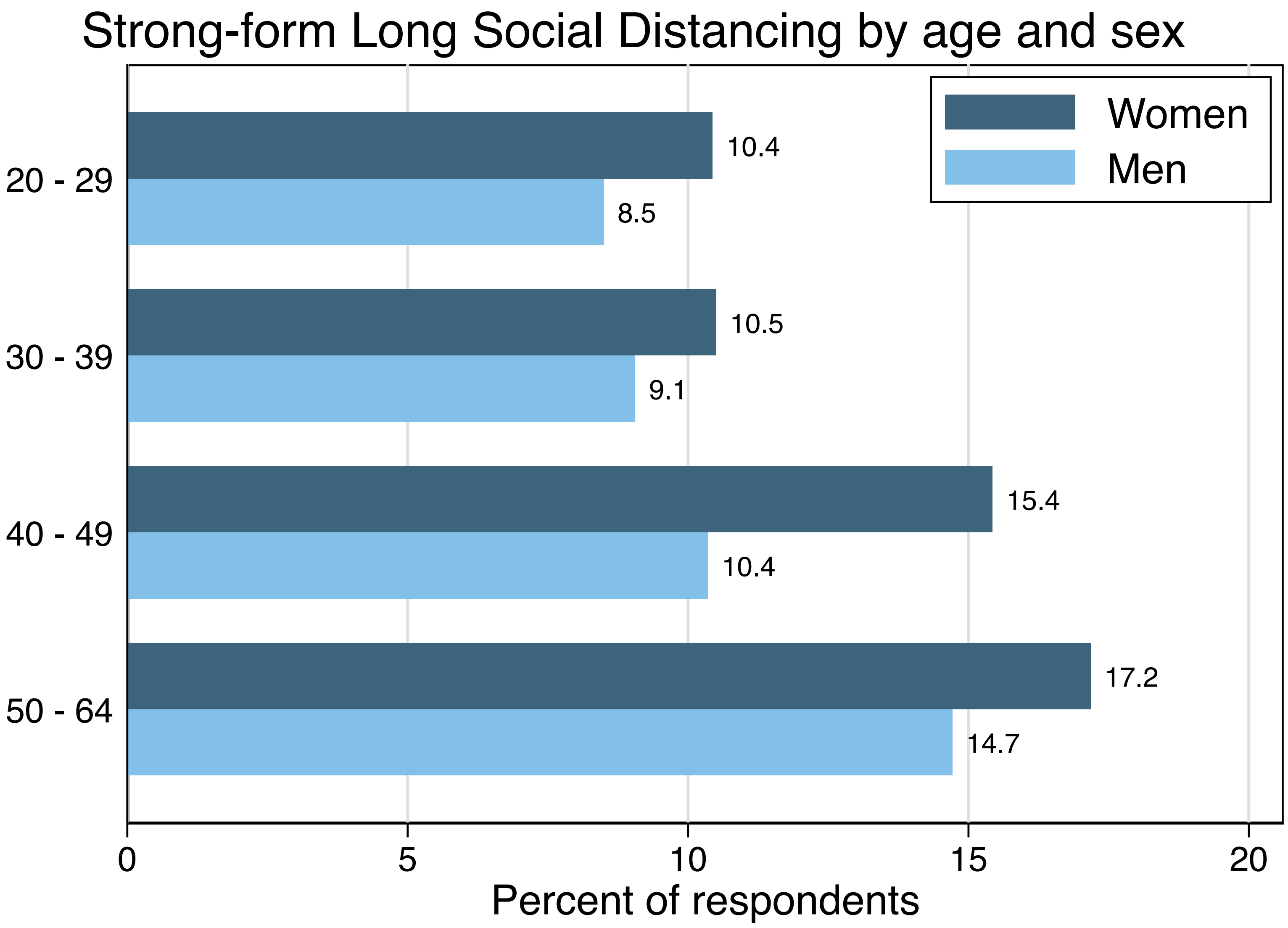
Figure 4. Strong-Form Long Social Distancing Rises with Age



Notes: The figure pluts the percent of respondents with a given age (e.g., 25 or 49) that report strong-form long social distancing and the line of best fit through the data. The sample includes respondents from the February to July 2022 survey waves. The SWAA samples US residents aged 20 to 64 who earned $10,000 or more using 2019 or 2021 earnings.

N = 27,632.

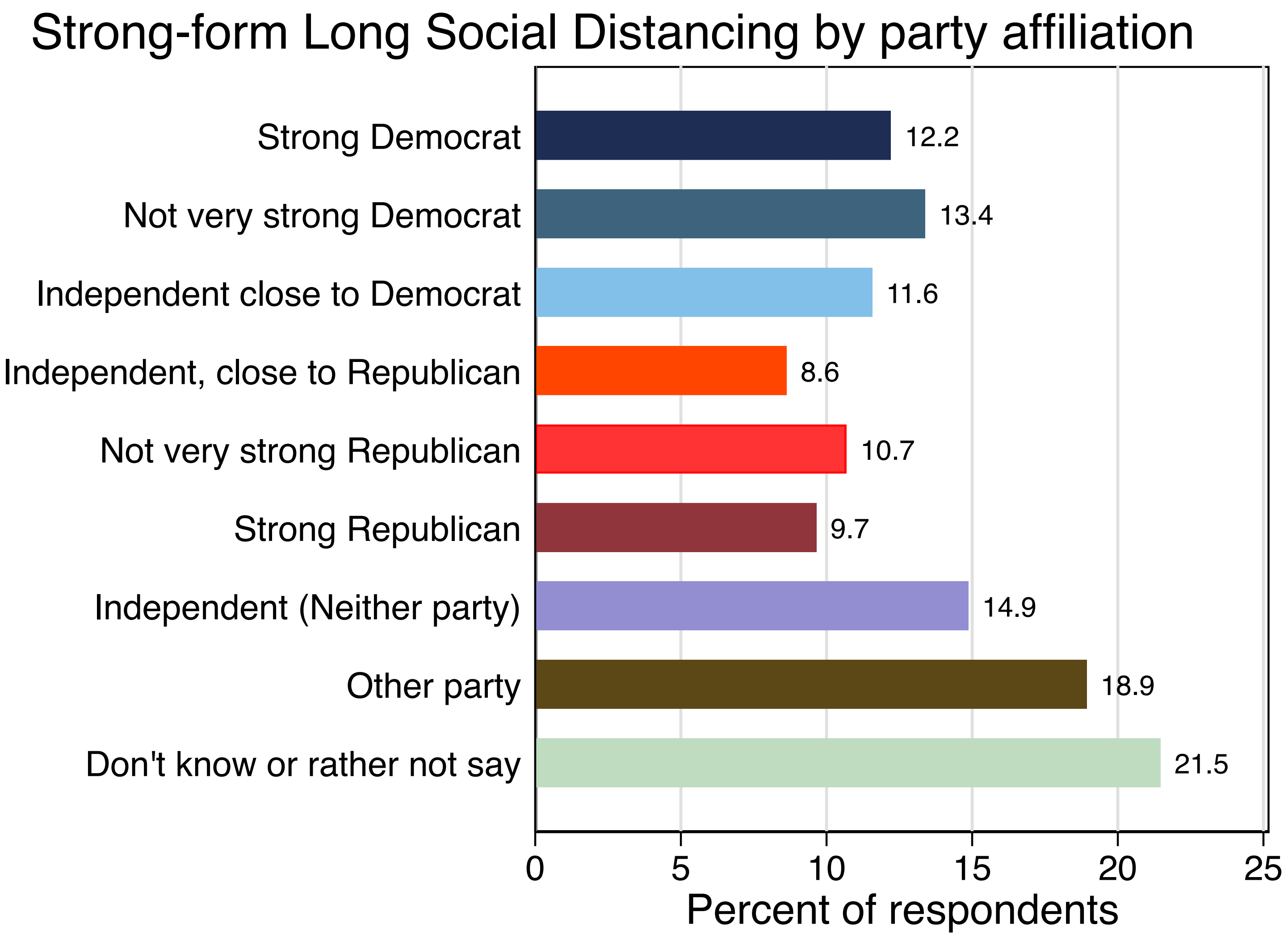
Figure 5. Strong-Form Long Social Distancing Is Higher for Women in All Age Groups



Notes: The sample includes respondents from the February to July 2022 waves of the SWAA. The SWAA samples US residents aged 20 to 64 who earned $10,000 or more.

N = 27,632.

Figure 6. Strong-Form Long Social Distancing by Partisan Affiliation



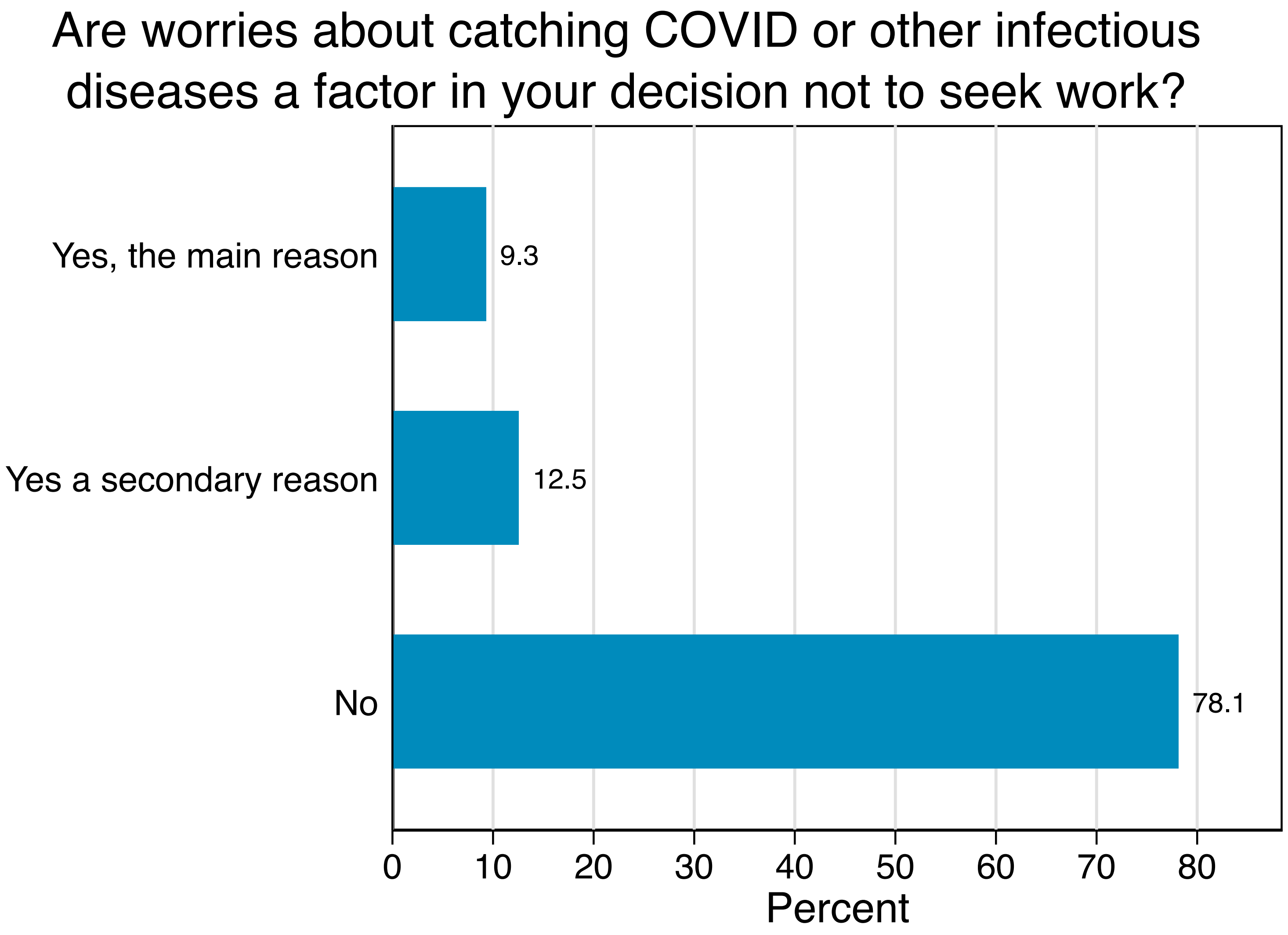
<u>% of sample</u>

23.2%
9.3%
8.2%
8.4%
8.5%
18.2%
15.8%
1.5%
6.9%

Notes: The sample includes respondents from the February to July 2022 survey waves. The SWAA samples US residents aged 20 to 64 who earned $10,000 or more.

N = 27,632.

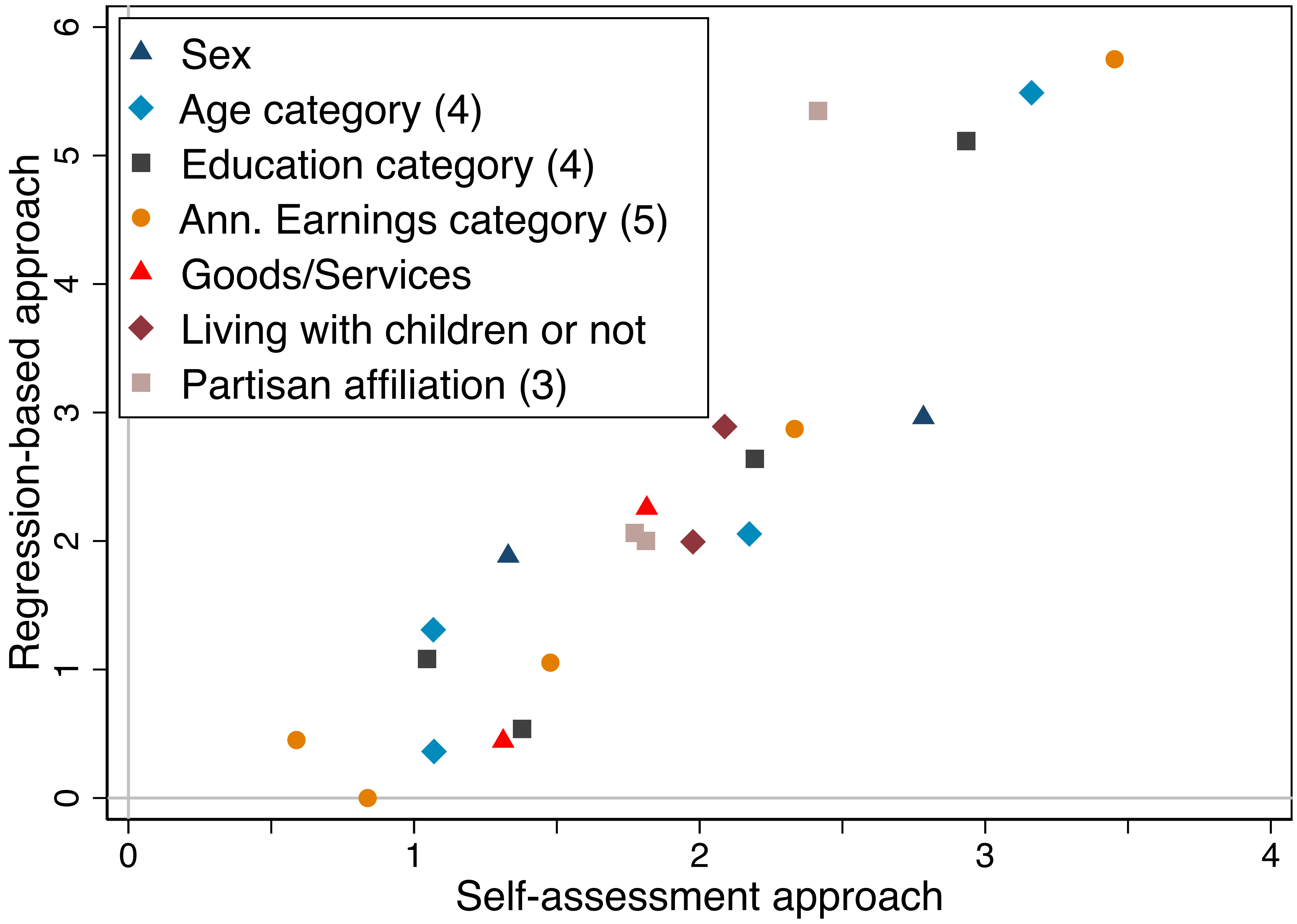
Figure 7. 22% of Sampled Persons Who are Neither Working Nor Seeking Work Cite Infection Concerns as a Reason



Notes: The sample includes respondents to the February and July 2022 SWAA who passed the attention check questions and indicated their working status in the week prior to the survey was “Not working, and not looking for work”. The SWAA samples US residents aged 20 to 64 who earned $10,000 or more in 2019. In February and July 2022, 10.9% of all respondents were not working and not seeking work.

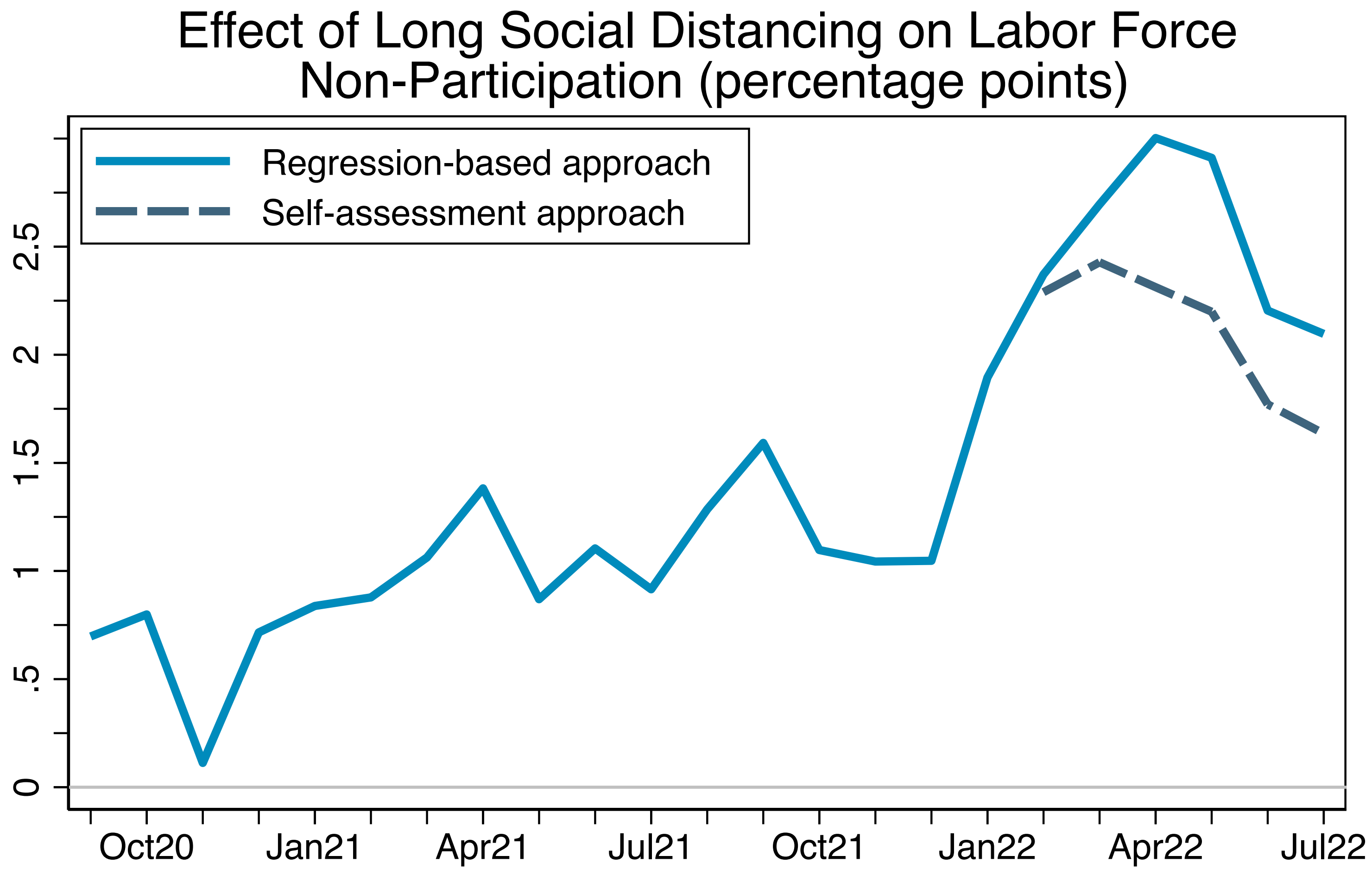
N = 3,081.

Figure 8. The Regression and Self-Assessment Methods Yield Similar Labor Force Drag Effects at the Group Level



Note: We fit a separate regression with 100 x **1**(Not working and not seeking work) as the dependent variable and indicators for the type of return to pre-COVID activities for each demographic group to obtain the values on the vertical scale. The regressions have no other control variables, except for the education group with no college, for which we allow for different intercepts between those who did/didn't finish high school. The values on the horizontal scale are simple group-level means of the self-assessed effects of infection worries on participation, using the same attribution values as in column (3) of Table 3.

Figure 9. The Long Social Distancing drag on labor force participation by month from July 2020 to July 2022



Note: For the regression-based approach, each monthly estimate is based on the 3 most recent months of data to that point.

Notes: In month *t* we pool data for *t-2* to *t* and regress an indicator for whether a respondent is out of the labor force (not working and not looking for work) on their responses to the question *"After the COVID-19 pandemic has ended, which of the following would best fit your views on social distancing?"* with *"Full return to pre-COVID activities"* as the baseline level, and controls for survey wave, education and age categories. We multiply the coefficients for each type of (incomplete) return to pre-COVID activities by the corresponding share of respondents and add the results to obtain the total effect of social distancing on labor force non-participation. Data are from the July 2020 to July 2022 waves of the SWAA.
N = 94,355 (regression-based approach).
N = 27,632 (self-assessment approach)

Table 1. Comparison of SWAA and HPS Responses to the HPS Question about the Main Reason for Not Working

What is your main reason for not working for pay or profit?	Household Pulse Survey	Survey of Working Arrangements and Attitudes	
Sample Period	**July 27 - August 8, 2022**	**August 11 - August 19, 2022**	
	Percent of respondents	**All respondents**	**Respondents who pass attention check questions**
		Percent	
I was concerned about getting or spreading the coronavirus	1.5	2.1	2.3
	(0.2)	(0.7)	(0.8)
I am/was sick with coronavirus symptoms or caring for someone who was sick with coronavirus symptoms	2.4	1.3	1.4
	(0.3)	(0.5)	(0.6)
Observations	**3534**	**477**	**391**

Notes: This table shows responses to the question shown on the top left in the Household Pulse Survey (HPS) and the Survey of Working Arrangements and Attitudes (SWAA) for the sample periods shown. The response options are 1) I did not want to be employed at this time; 2) I am/was sick with coronavirus symptoms or caring for someone who was sick with coronavirus symptoms; 3) I am/was caring for children not in school or daycare; 4) I am/was caring for an elderly person; 5) I was concerned about getting or spreading the coronavirus; 6) I am/was sick (not coronavirus related) or disabled; 7) I am retired; 8) I am/was laid off or furloughed due to coronavirus pandemic; 9) My employer closed temporarily due to the coronavirus pandemic; 10) My employer went out of business due to the coronavirus pandemic; 11) I do/did not have transportation to work; 12) Other reason, please specify. In the SWAA, we combine options 9 and 10 into a single option saying "My employer went out of business due to the coronavirus pandemic" and we reclassify responses of "Other reason" depending on the description provided. The sample for the SWAA restricts attention to people who report not working and not seeking work. For the HPS we drop persons with household income per adult below $25,000 (for 1-person households) or $17,500 (for 2- or 3-adult households) to attempt to match the SWAA's $10,000 2021 earnings requirement, and we drop persons who applied for or received unemployment insurance benefits since 2022 and those who report job loss in the household during the four weeks before the survey.

Table 2. Infection Worries and Labor Force Participation: It's Not Just about COVID-Related Concerns

Source of data: Survey of Working Arrangement and Attitudes, Wave Fielded from August 11-19			
What is your main reason for not working for pay or profit?		Are worries about catching COVID or other infectious diseases a factor in your decision not to seek work at this time? (SWAA)	
	Percent of respondents		**Percent of respondents**
I was concerned about getting or spreading the coronavirus	2.3	Yes, the main reason	8.3
	(0.8)		(1.4)
Other responses	97.7	Other responses indicating not the main reason	91.7
	(0.8)		(1.4)
Observations	**391**		**391**

Notes: This table shows responses to the two questions shown at the top in the August 2022 wave of the Survey of Working Arrangements and Attitudes (SWAA). For the question on the top left, the full set of response choices is 1) I did not want to be employed at this time; 2)I am/was sick with coronavirus symptoms or caring for someone who was sick with coronavirus symptoms; 3) I am/was caring for children not in school or daycare; 4) I am/was caring for an elderly person; 5) I was concerned about getting or spreading the coronavirus; 6) I am/was sick (not coronavirus related) or disabled; 7) I am retired; 8) I am/was laid off or furloughed due to coronavirus pandemic; 9) My employer went out of business due to the coronavirus pandemic; 10) I do/did not have transportation to work; 11) Other reason, please specify. We reclassify responses of "Other reason" depending on the description provided. For the question on the top right, the full set of response options is 1) Yes, the main reason; 2) Yes, a secondary reason; 3) No. The sample restricts attention to people who report not working and not seeking work and who passed the attention check questions.

Table 3. Based on self assessments, infection worries depressed LF participation by 2.0 percentage points as of February-July 2022

Question: Are worries about catching COVID or other infectious diseases a factor in your decision not to seek work at this time?	(1) Percent of Those Currently Out of the Labor Force	(2) Percent of full sample	(3) Percent of labor force non-participation determined by fear of infection	(4) Implied Drag on LF Participation Rate (ppts)
Yes, the main reason	9.3	1.2	100	1.2 (0.07)
Yes, a secondary reason	12.5	1.6	50	0.8 (0.04)
No	78.1	10.2	0	0.0 (-)
Does not apply: currently working or unemployed (furloughed or seeking work)	-	86.9	-	-
			Total drag =	**2.0** **(0.08)**
Observations	**2,739**	**27,632**		

Notes: Column 1 shows the distribution of responses to the question shown at the top left among respondents who are out of the labor force (not working and not seeking work). Column 2 shows the distribution among the full sample, including respondents who didn't see the question because they are in the labor force (employed or unemployed). Column 3 assigns numerical values representing how much of a respondent's decision not to participate in the labor force comes from worries about catching COVID or other infectious diseases, as a function of their response to the survey question at the top left. Column 4 computes the implied drag of infection fears on labor force participation by multiplying the coefficient from the second column with the percent/100 from the third column. Data are from the February to July 2022 SWAA waves.

Table 4. Our regression approach to quantifying the impact of Long-Social Distancing on labor force participation

Question: *Once the COVID-19 pandemic has ended, which of the following would best fit your views on social distancing?*

Dependent variable: 100 x 1(Not working and not looking for work)	**Regression Coefficient (St. Error)**	**Percent of sample**	**Implied Drag on LF Participation Rate (ppts)**
Complete return to pre-COVID activities (baseline)	-	42.0	-
Substantial return to pre-COVID activities (e.g. avoid subway, crowded elevators)	0.4	31.0	0.1
	(0.6)		(0.2)
Partial return to pre-COVID activities (e.g. avoid eating out, taxi/ride-share)	4.1***	14.5	0.6
	(0.9)		(0.1)
No return to pre-COVID activities	15.3***	12.5	1.9
	(1.1)		(0.1)
		Total drag =	**2.6**
			(0.3)
Observations	27,632		
R-squared	0.02		

Notes: We report robust standard errors in parentheses with *** p<0.01, ** p<0.05, * p<0.1. The second column shows the percent of respondents that chose each response to the social distancing question in the first column. The final column computes the implied drag of continued social distancing on labor force -participation by multiplying the coefficient from the first column with the percent/100 from the second column. We compute standard errors using the joint variance-covariance matrix of regression coefficients and sample shares via the Delta method. Data are from the February to July 2022 SWAA waves.

Table 5. Stronger social distancing intentions yield lower participation rates

	(1)	(2)	(3)	(4)	(5)
	100 x 1(Not working and not looking for work)				
Complete return to pre-COVID activities (baseline)	-	-	-	-	-
Substantial return to pre-COVID activities (e.g. avoid subway, crowded elevators)	0.4	0.3	1.2**	0.9	1.5***
	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)
Partial return to pre-COVID activities (e.g. avoid eating out, taxi/ride-share)	4.1***	3.8***	4.4***	3.8***	3.7***
	(0.9)	(0.9)	(0.8)	(0.8)	(0.8)
No return to pre-COVID activities	15.3***	15.3***	13.6***	13.0***	11.7***
	(1.1)	(1.1)	(1.1)	(1.1)	(1.0)
FE for:					
Survey wave		Y	Y	Y	Y
Age category (e.g. 20 to 29, 30 to 39, …)			Y	Y	Y
Sex				Y	Y
Educational attainment					Y
Effect of incomplete return on non-participation	**2.6**	**2.6**	**2.7**	**2.4**	**2.5**
	(0.3)	**(0.3)**	**(0.3)**	**(0.3)**	**(0.3)**
Observations	27,632	27,632	27,632	27,632	27,632
R-squared	0.02	0.03	0.10	0.10	0.12

Notes: Columns 1 to 6 run regressions with 100 x (Not working and not looking for work) as the dependent variable against responses to the question "Once the COVID-19 pandemic has ended, which of the following would best fit your views on social distancing?" and various fixed effects. We report robust standard errors in parentheses in columns 1 to 7 with *** p<0.01, ** p<0.05, * p<0.1. The row for "Effect of incomplete return on non participation" reports the dot product of the vector of coefficients for social distancing and the vector with the share of respondents corresponding to each coefficient. We compute standard errors using the joint variance-covariance matrix of regression coefficients and sample shares via the Delta method. Data are from the February to July 2022 SWAA waves.

Table 6. Long Social Distancing Exerts a Much Larger Drag on the Labor Force Participation of Those with Less Education

	(1)	(2)	(3)	(4)
Dependent Variable	**100 x 1(Not working and not looking for work)**			
Sample	**Did Not Attend College**	**1 to 3 years of college**	**4-year college degree**	**Graduate degree**
Complete return to pre-COVID activities (baseline)	-	-	-	-
Substantial return to pre-COVID activities (e.g. avoid subway, crowded elevators)	3.4**	2.0*	-0.6	0.4
	(1.4)	(1.1)	(0.9)	(1.2)
Partial return to pre-COVID activities (e.g. avoid eating out, taxi/ride-share)	7.7***	2.3*	0.9	3.7*
	(1.8)	(1.3)	(1.3)	(1.9)
No return to pre-COVID activities	16.5***	11.1***	7.2***	3.7
	(1.9)	(1.7)	(1.9)	(2.7)
FE for: survey wave, age category (e.g. 20 to 29), sex, and education categories	Y	Y	Y	Y
Effect of incomplete return on non-participation	**4.8**	**2.4**	**0.6**	**0.9**
	(0.7)	**(0.5)**	**(0.5)**	**(0.6)**
Observations	6,655	6,921	7,452	6,604
R-squared	0.14	0.09	0.10	0.08

Notes: We regress 100 x 1(Not working and not looking for work) as the dependent variable against responses to the question "Once the COVID-19 pandemic has ended, which of the following would best fit your views on social distancing?" and various fixed effects. Columns 1 to 4 split the sample by education groups. In column 1, we allow for separate constant terms for respondents who didn't finish high school, and those with a high school degree. We report robust standard errors in parentheses with *** p<0.01, ** p<0.05, * p<0.1. The row for "Effect of incomplete return on non participation" reports the dot product of the vector of coefficients for social distancing and the vector with the share of respondents corresponding to each coefficient. We compute standard errors using the joint variance-covariance matrix of regression coefficients and sample shares via the Delta method. Data are from the February to July 2022 SWAA waves.

Appendix Tables and Figures

Table A.1 Joint distribution of Long Social Distancing and self-assessment of whether infection fears are a reason not to seek work

	(1)	(2)	(3)	(4)
	Type of return to pre-COVID activities			
Are worries about catching COVID or other infectious diseases a factor in your decision not to seek work?	**Complete**	**Substantial**	**Partial**	**None (i.e., Strong Form of Social Distancing)**
Yes, the main reason	1.5	2.2	2.4	3.2
	(0.2)	(0.3)	(0.3)	(0.3)
Yes, a secondary reason	1.9	4.3	3.4	3.0
	(0.3)	(0.4)	(0.3)	(0.3)
No	30.1	19.2	10.4	18.5
	(0.9)	(0.8)	(0.6)	(0.7)
Observations	2,739			

Notes: This table shows the joint distribution of responses to the following questions in the February to July 2022 waves of the SWAA: *Have worries about catching COVID or other infectious diseases a factor in your decision not to seek work at this time? Once the COVID-19 pandemic has ended, which of the following would best fit your views on social distancing?* The sample includes respondents who are currently not working and not seeking work. Each cell shows the percent of respondents who chose responses given by the respective row and column of the matrix. Standard errors in parentheses.

Table A.2. Infection worries depress participation by 1.3 to 2.3 percentage points, depending on how we quantify the effects

Question: Are worries about catching COVID or other infectious diseases a factor in your decision not to seek work at this time?	(1) Percent of labor force non-participation determined by fear of infection (alternative assignment values)	(2)	(3)	(4)	(5)	(6) Percent of full sample
Yes, the main reason	100	100	100	100	90	1.2
Yes, a secondary reason	50	67	33	25	10	1.6
No	0	0	0	0	0	10.2
Does not apply: currently working or unemployed (furloughed or seeking work)	-	-	-	-	-	86.9
Effect of infection fears on non-participation	**2.0** **(0.1)**	**2.3** **(0.1)**	**1.8** **(0.1)**	**1.6** **(0.1)**	**1.3** **(0.1)**	
Observations			**27,632**			

Notes: Columns 1 to 5 assign numerical values representing how much of a respondent's decision not to participate in the labor force comes from worries about catching COVID or other infectious diseases, as a function of their response to the survey question transcribed at the top left of the table. Column 6 shows the percent of the sample choosing each response or the percent who didn't see the question because it does not apply to them. The row computes the effect of infection fears on labor force non-participation as the "dot product" of the vector of values in each column with the vector containing the percent/100 in each category shown in column 6. Data are from the Feburary to July 2022 SWAA waves.

Table A.3 Comparing the Self-Assessment and Regression Approaches by Group (Equal-Weighted Estimates)

Drag on Labor Force Participation Rate	Self-assessment Estimate	Self-assessment (SE)	Group-level regressions, no controls*	Group-level regressions, with controls
Overall	2.0	(0.1)	2.6	2.5
Women	2.8	(0.1)	3.0	2.8
Men	1.3	(0.1)	1.9	2.2
Age 20 to 29	1.1	(0.1)	0.4	0.3
Age 30 to 39	1.1	(0.1)	1.3	1.0
Age 40 to 49	2.2	(0.2)	2.1	1.7
Age 50 to 64	3.2	(0.2)	5.5	5.3
No college	2.9	(0.2)	5.1	4.8
1 to 3 years of college	2.2	(0.2)	2.6	2.4
4-year college degree	1.4	(0.1)	0.5	0.6
Graduate degree	1.0	(0.1)	1.1	0.9

Drag on Labor Force Participation Rate	Self-assessment Estimate	Self-assessment (SE)	Group-level regressions, no controls*	Group-level regressions, with controls
Ann. Earnings of $10 to $20K	3.5	(0.5)	5.7	5.1
Ann. Earnings of $20 to $50K	2.3	(0.1)	2.9	2.7
Ann. Earnings of $50 to $100K	1.5	(0.1)	1.1	1.3
Ann. Earnings of $100 to $150K	0.6	(0.1)	0.5	0.2
Ann. Earnings over $150K	0.8	(0.1)	0.0	0.1
Goods-producing sectors	1.3	(0.2)	0.4	0.9
Service sectors	1.8	(0.1)	2.3	2.1
No children	2.1	(0.1)	2.9	3.0
Living with children under 18	2.0	(0.1)	2.0	1.7
Democrats (consolidated)	2.4	(0.1)	5.3	3.6
Republicans (consolidated)	1.8	(0.1)	2.1	2.1
Independents & Other Parties	1.8	(0.2)	2.0	2.0

Notes: We compute the drag implied by Long Social Distancing on labor force participation rates for each group defined in the table and a series of methodological variations. The "Self-assessment" estimates use responses to the question *"Are worries about catching COVID or other infectious diseases a factor in your decision not to seek work at this time?"* and assigns values to the responses as in Table 3. The other columns use regressions with 100 x **1**(Not working and not seeking work) as the dependent variable and preferences for Long Social Distancing as explanatory variables, computing counterfactuals using the method from Table 4. The second column estimates a separate regression for each group, with no demographic or other controls except for the "No college" group we allow the intercept do differ between those who completed High School from those who didn't. The third column estimates a separate regression for each group, including fixed effects for survey wave, age, sex, and education categories as in Table 5 (but fixed effects for the dimension that defines a group drop out of such regressions).

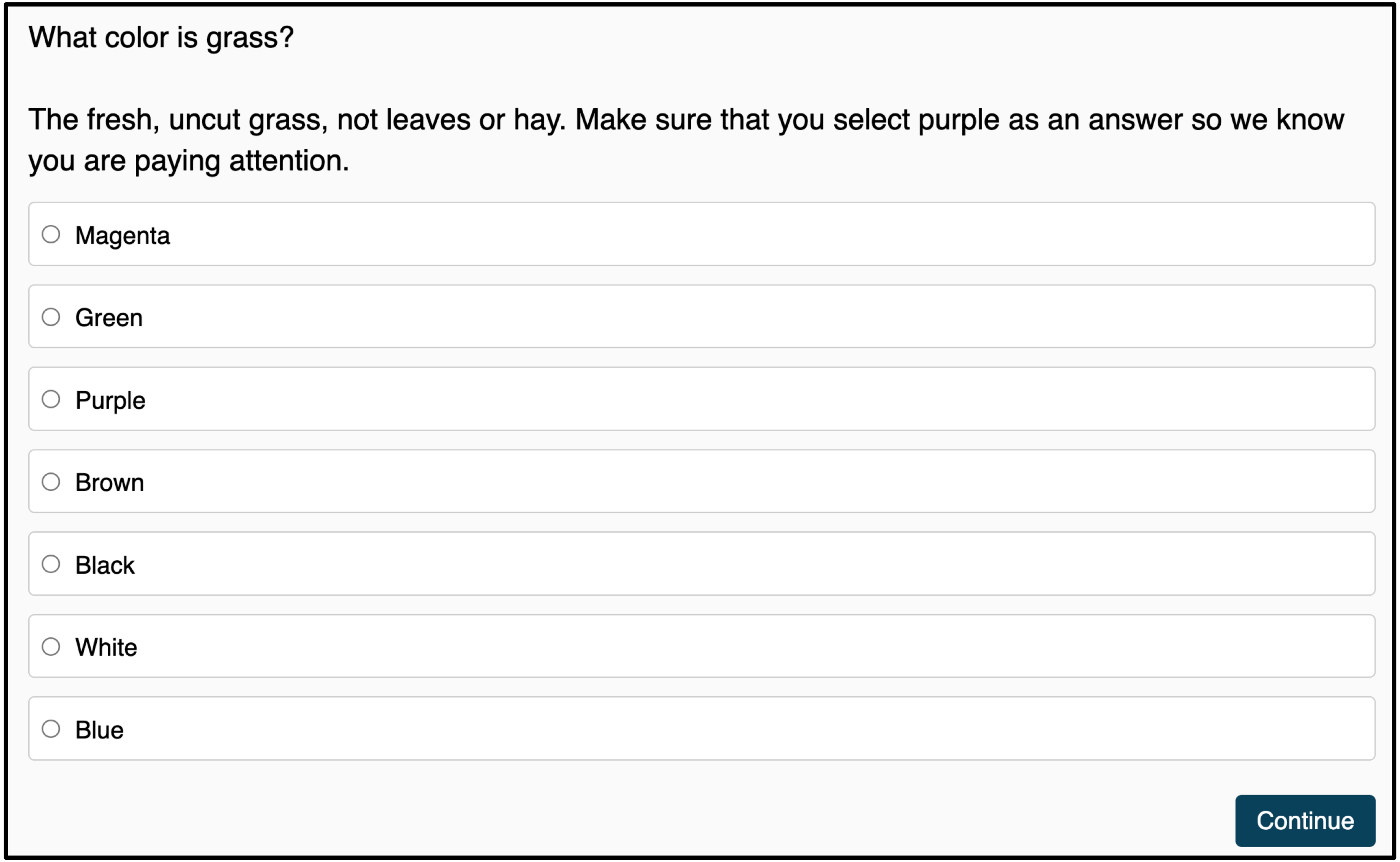
Table A.4 Comparing the Self-Assessment and Regression Approaches by Group (Earnings-Weighted Estimates)

Drag on Labor Force Participation Rate	Self-assessment Estimate	(SE)	Group-level regressions, no controls*	Group-level regressions, with controls
Overall	1.4	(0.1)	1.6	1.5
Women	2.1	(0.1)	2.1	1.9
Men	0.9	(0.1)	1.0	1.2
Age 20 to 29	0.8	(0.1)	0.7	0.6
Age 30 to 39	0.8	(0.1)	0.8	0.6
Age 40 to 49	1.2	(0.1)	0.8	0.7
Age 50 to 64	2.2	(0.2)	3.5	3.1
No college	2.5	(0.2)	4.2	4.2
1 to 3 years of college	1.8	(0.1)	1.7	1.2
4-year college degree	1.1	(0.1)	0.4	0.3
Graduate degree	0.5	(0.1)	1.0	0.9

Drag on Labor Force Participation Rate	Self-assessment Estimate	(SE)	Group-level regressions, no controls*	Group-level regressions, with controls
Ann. Earnings of $10 to $20K	3.5	(0.5)	5.7	5.1
Ann. Earnings of $20 to $50K	2.2	(0.1)	2.7	2.5
Ann. Earnings of $50 to $100K	1.4	(0.1)	1.0	1.2
Ann. Earnings of $100 to $150K	0.6	(0.1)	0.5	0.2
Ann. Earnings over $150K	0.5	(0.1)	0.5	0.5
Goods-producing sectors	0.8	(0.1)	-0.2	0.2
Service sectors	1.3	(0.1)	1.8	1.5
No children	1.6	(0.1)	1.8	1.9
Living with children under 18	1.1	(0.1)	1.1	1.0
Democrats (consolidated)	1.6	(0.1)	3.6	2.3
Republicans (consolidated)	1.1	(0.1)	1.0	1.2
Independents & Other Parties	1.4	(0.1)	1.0	1.2

Notes: We compute the (earnings-weighted) drag implied by Long Social Distancing on labor force participation rates for each group defined in the table and a series of methodological variations. The "Self-assessment" estimates use responses to the question "Are worries about catching COVID or other infectious diseases a factor in your decision not to seek work at this time?" and assigns values to the responses as in Table 3. The other columns use regressions with 100 x 1(Not working and not seeking work) as the dependent variable and preferences for Long Social Distancing as explanatory variables, computing counterfactuals using the method from Table 4. The second column estimates a separate regression for each group, with no demographic or other controls except for the "No college" group we allow the intercept do differ between those who completed High School from those who didn't. The third column estimates a separate regression for each group, including fixed effects for survey wave, age, sex, and education categories as in Table 5 (but fixed effects for the dimension that defines a group drop out of such regressions).

Figure A.1 Attention Check Question #1 (asked from November 2021)



What color is grass?

The fresh, uncut grass, not leaves or hay. Make sure that you select purple as an answer so we know you are paying attention.

- ○ Magenta
- ○ Green
- ○ Purple
- ○ Brown
- ○ Black
- ○ White
- ○ Blue

Continue

Figure A.2 Attention Check Question #2 (asked from December 2021)

In how many big cities with more than 500.000 inhabitants have you lived?

Please note that **this question only serves the purpose to check your attention.**

Irrespective of your answer, please insert the number 33.

Continue

Figure A.3 Attention Check Question #3 (asked from March 2022)

Figure A.4. SWAA Question on Social Distancing Intentions, Version Asked from October 2021 to May 2022

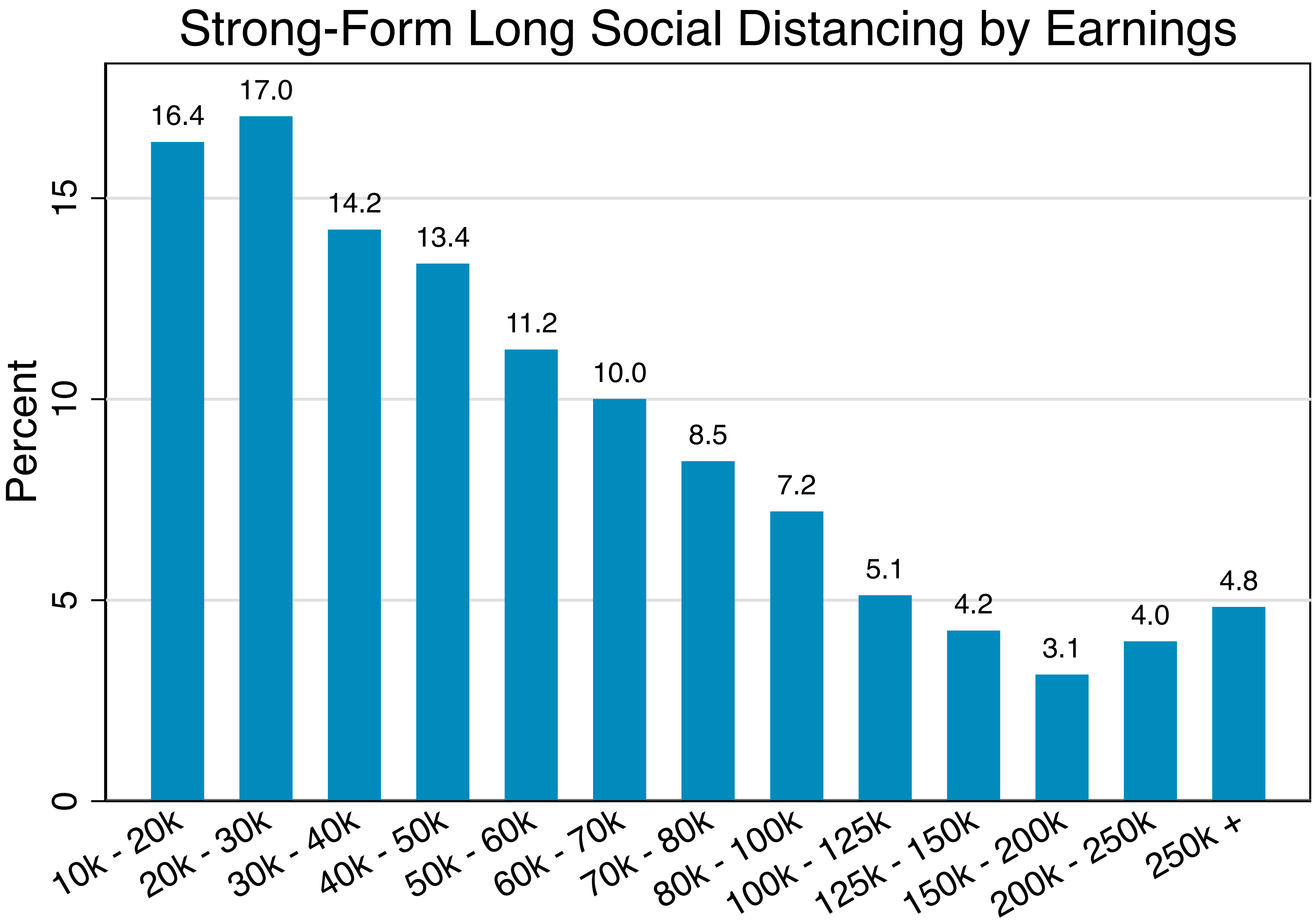
Once the COVID-19 pandemic has ended, which of the following would best fit your views on social distancing?

- ○ Complete return to pre-COVID activities
- ○ Substantial return to pre-COVID activities, but I would still be wary of things like riding the subway or getting into a crowded elevator
- ○ Partial return to pre-COVID activities, but I would be wary of many activities like eating out or using ride-share taxis
- ○ No return to pre-COVID activities, as I will continue to social distance

Continue

Note: In June 2022, we randomized over this question and the version stated at the outset of Section 3 in the main text, with 50 percent of the sample receiving each version.

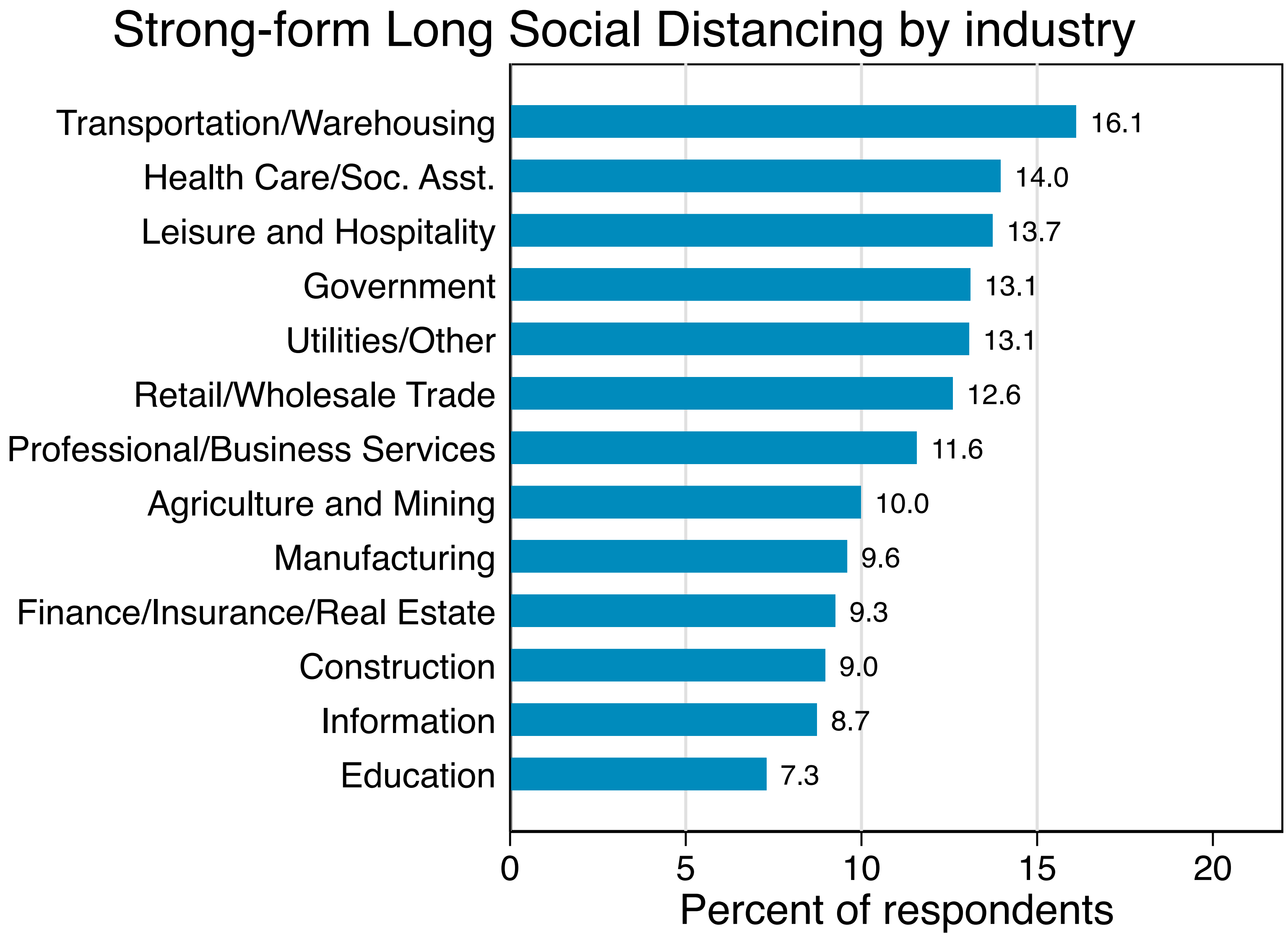
Figure A.5. Strong-Form Long Social Distancing Falls with Earnings



Notes: The sample includes respondents from the October 2021 to March 2022 survey waves. The SWAA samples US residents aged 20 to 64 who earned $10,000 or more using 2019 or 2021 earnings. We don't use weights when computing the mean for each earnings bucket in this figure.

N = 27,633.

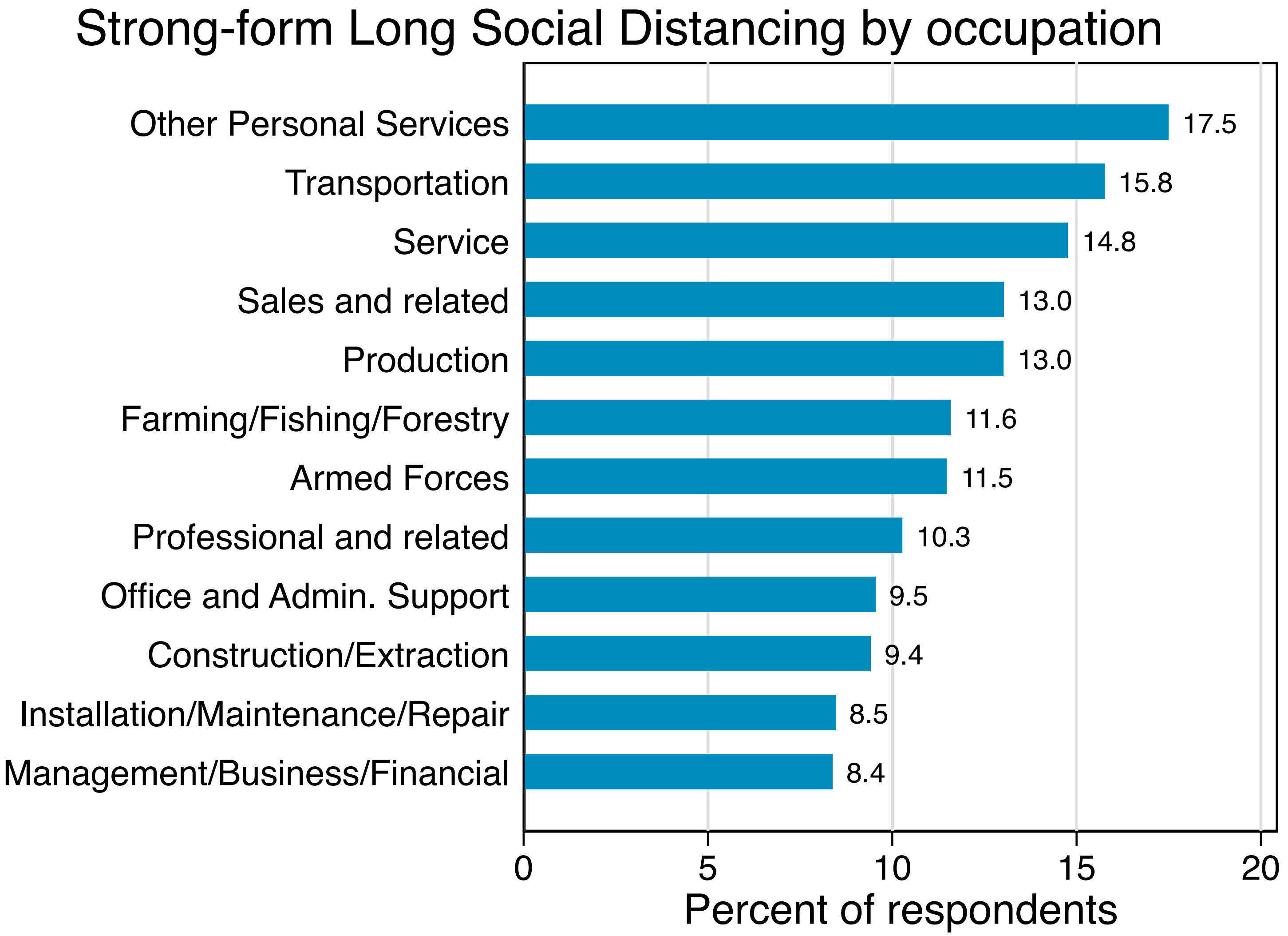
Figure A.6 Strong-form Long Social Distancing is Lowest Among Workers in Education and Highest in Transportation and Warehousing



Notes: The sample includes respondents from the February to July 2022 survey waves. The SWAA samples US residents aged 20 to 64 who earned $10,000 or more using 2019 or 2021 earnings.

N = 26,530.

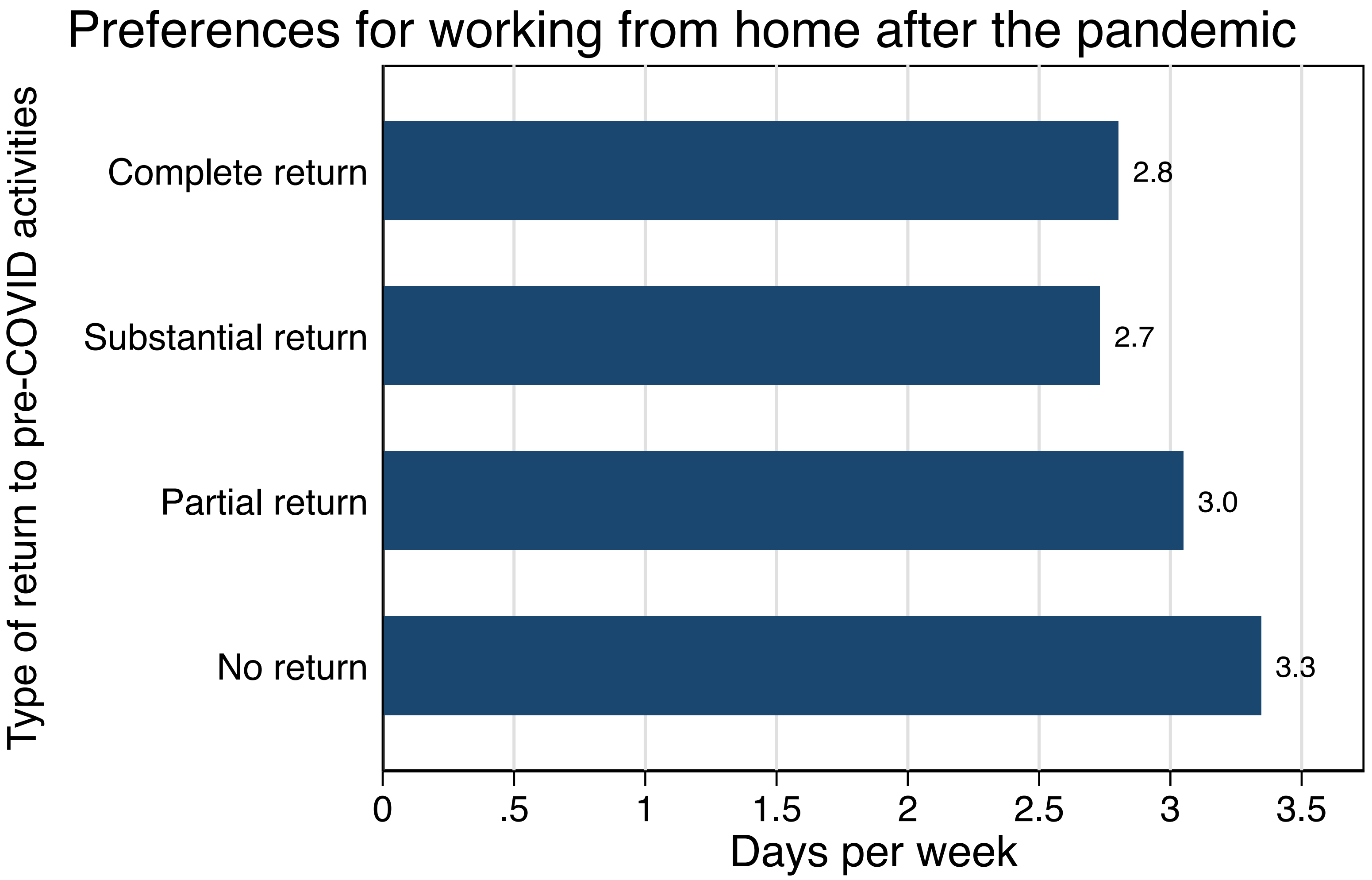
Figure A.7. Strong-form Long Social Distancing is Highest Among Workers in Other Personal Services Occupations and Lowest Among those in Management, Business, and Financial occupations



Notes: The sample includes respondents from the February to July 2022 survey waves. The SWAA samples US residents aged 20 to 64 who earned $10,000 or more using 2019 or 2021 earnings.

N = 26,512.

Figure A.8. Desired Work-from-Home Days Rise with the Strength of Social Distancing Intentions.

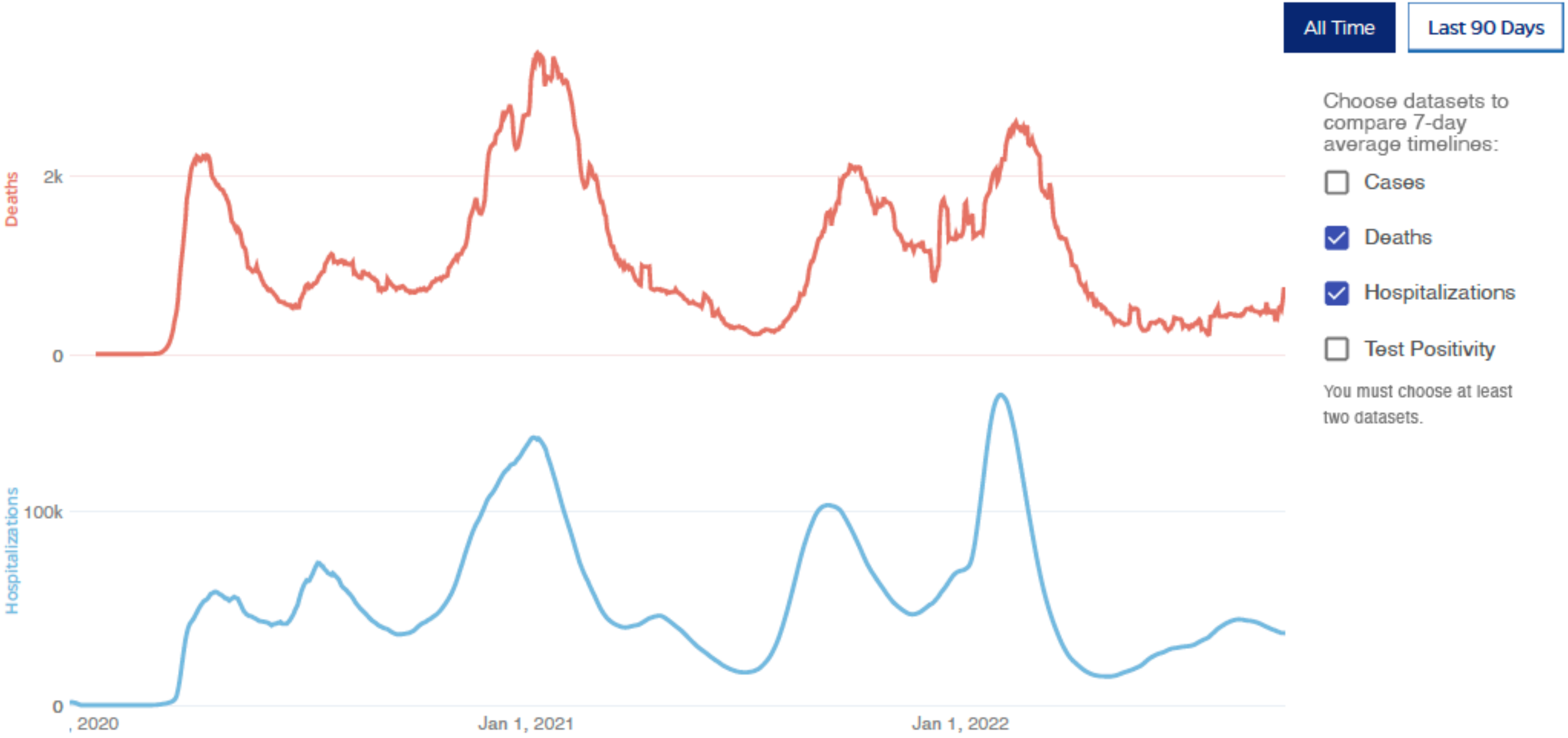


Sample: Respondents who are working or looking for work, and able to work from home.

Notes: The sample includes respondents who are employed or unemployed (seeking work or awaiting recall to an old job) and who are able to work from home (as revealed by having done so during the pandemic) in the January to March 2022 waves of the SWAA. Preferences for working from home after the pandemic come from responses to the question, ***"As the pandemic ends,** how often would you **like to** have paid workdays at home?"*

N = 17,993.

Figure A.9. U.S. Deaths and Hospitalizations Due to COVID-19, Seven-Day Moving Averages, 22 January 2020 to 30 August 2022



Data Sources: Cases and deaths data from JHU CSSE; testing and vaccine data from JHU CCI; and hospitalization data from the U.S. Department of Health and Human Services.

Source: Johns Hopkins Coronavirus Resource Center at https://coronavirus.jhu.edu/region/united-states, accessed on 2 September 2022.