I Z A Institute
of Labor Economics
Initiated by Deutsche Post Foundation

DISCUSSION PAPER SERIES

IZA DP No. 14431

Happy to Help: The Welfare Effects of a Nationwide Micro-Volunteering Programme

Paul Dolan
Christian Krekel
Ganga Shreedhar
Helen Lee
Claire Marshall
Allison Smith

MAY 2021

I Z A Institute
of Labor Economics

Initiated by Deutsche Post Foundation

DISCUSSION PAPER SERIES

IZA DP No. 14431

Happy to Help: The Welfare Effects of a Nationwide Micro-Volunteering Programme

Paul Dolan
LSE

Christian Krekel
LSE and IZA

Ganga Shreedhar
LSE

Helen Lee
NHS

Claire Marshall
NHS

Allison Smith
Royal Voluntary Service

MAY 2021

ISSN: 2365-9793

IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

ABSTRACT

Happy to Help: The Welfare Effects of a Nationwide Micro-Volunteering Programme

There is a strong suggestion from the existing literature that volunteering improves the wellbeing of those who give up their time to help others, but much of it is correlational and not causal. In this paper, we estimate the wellbeing benefits from volunteering for England's National Health Service (NHS) Volunteer Responders programme, which was set up in response to the Covid-19 pandemic. Using a sample of over 9,000 volunteers, we exploit the oversubscription of the programme and the random assignment of volunteering tasks to estimate causal wellbeing returns, across multiple counterfactuals. We find that active volunteers report significantly higher life satisfaction, feelings of worthwhileness, social connectedness, and belonging to their local communities. A social welfare analysis shows that the benefits of the programme were at least 140 times greater than its costs. Our findings advance our understanding of the ways in which pro-social behaviours can improve personal wellbeing as well as social welfare.

JEL Classification: I31, I38, D61, D64

Keywords: subjective wellbeing, volunteering, pro-social action, quasi-natural experiment, social welfare analysis, COVID-19

Corresponding author:
Christian Krekel
London School of Economics
Department of Psychological and Behavioural Science
Centre for Economic Performance (CEP)
Houghton Street
London WC2A 2AE
United Kingdom

E-mail: c.krekel@lse.ac.uk

1. Introduction

There is a strong suggestion from the existing literature that volunteering can improve the subjective wellbeing (SWB) of those who give their time to help others (see Borgonovi (2008), Meier and Stutzer (2008), Binder and Freytag (2013), Jenkinson et al. (2013), Son and Wilson (2015), Tabassum et al. (2016), Russel et al. (2018), Huang et al. (2019), or Lawton et al. (2020), for example). While these studies form an important evidence base, they are largely correlational and the direction of causality is often unclear. The few studies using longitudinal data analysis like fixed-effects regressions (Lawton et al., 2020; Russel et al., 2018) or quasi-experimental methods such as matching (Binder and Freytag, 2013), instrumental variables (Borgonovi, 2008), or difference-in-differences (Meier and Stutzer, 2008) report higher life satisfaction of volunteers compared to non-volunteers. A randomized controlled trial among students, however, did not find any effect of volunteering in a community service-learning programme on SWB (Whillans et al. 2017).

There is also a debate about the ways in which volunteering increases SWB, for instance, by yielding a "warm glow" from helping others, giving people a sense of purpose, or by connecting people to others in their local community (Andreoni, 1989; Meier and Stutzer, 2008; Son and Wilson, 2015). Volunteering can arguably affect different dimensions of SWB, including our life satisfaction and feelings that things in life are worthwhile, as well as feelings of belonging to the local neighbourhood and being connected to the local community. Few studies have jointly looked at the effects on both SWB and feelings of social belonging (Son and Wilson (2015) is a notable exception).

Whether and how volunteering improves wellbeing has important implications for economics. In the UK, four in ten adults (about 38%) reported to volunteer at least once during last twelve months in 2019, and two thirds of them at least monthly, with a median of

eight hours (NCVO, 2019). This makes more than 1.6 billion hours of unpaid, voluntary work per year in the UK alone.[1] The large scale of volunteering is also reflected in GDP figures. In the UK, it is valued at about 2.5% of annual GDP. In the US, this share is even higher, estimated to be about 3.7% (OECD, 2015). Typically, voluntary work enters national accounts via time use surveys, by multiplying the number of volunteering hours with the hourly wages in complementary, paid work, which then yields the economic value of volunteering. If volunteering has a causal effect on volunteers' wellbeing and if these wellbeing returns are positive and sizeable, this traditional method of accounting may underestimate the true social welfare effects of volunteering, by neglecting an important component of its private returns.[2]

Whether volunteering does causally improve wellbeing, however, is not *ex-ante* clear. Standard economic theory suggests that giving away time for free that could otherwise be used as inputs into labour or leisure leaves agents on a lower utility level, arguably reducing rather than raising wellbeing. On the other hand, the theory of warm-glow giving (Andreoni, 1990) and a growing experimental evidence base on the wellbeing returns on pro-social spending (Dunn et al., 2008; Aknin et al., 2020; Falk and Graeber, 2020) suggests that agents may be better off after donating time.[3]

This paper seeks to fill the gaps in whether and in what ways volunteering[4] affects wellbeing by taking advantage of a dataset uniquely equipped to do so. In March 2020,

---

[1] 66,700,000 x 0.38 x 0.67 x 8 x 12 = 1,630,254,710.

[2] Private, economic returns to volunteering have also been studied. For example, Freeman (1997) finds that volunteering is associated with a raise in paid work hours by between 3% and 7%. Besides economic and private returns, there may also be wider, societal returns to volunteering.

[3] In his book *Social Interest: A Challenge to Mankind*, the influential Austrian psychologist Alfred Adler stresses as early as 1938 that people are fundamentally striving to work towards a goal larger than their self-interest, and that satisfying this need produces positive cognition, which may be directly related to the notion of warm glow (Adler, 1938).

[4] For the purpose of our study, we define volunteering as helping others by voluntarily *giving time* to a non-profit organisation without compulsion and without expectation of direct monetary returns. Beyond this narrow definition, there is a body of research in experimental and social psychology on the effect of pro-social

England's National Health Service (NHS) and the UK Secretary of State for Health and Social Care Matt Hancock issued a mass call for volunteers via the NHS Volunteer Responders programme. The goal of the programme was to support clinically high-risk people shielding in their homes during the Covid-19 lockdown and to ease pressures on NHS staff. In this novel, digital, micro-volunteering programme, a smartphone application allocated low-commitment and flexible tasks directly to volunteers, such as dropping groceries off, having a friendly phone conversation with those isolating, or helping with transportation to health appointments. Three quarters of a million people registered their interest in just four days (NHS, 2020), thus resulting in the largest volunteer mobilisation since World War II.[5] The benefits to vulnerable communities were considerable: around 165,000 vulnerable people were helped at home during the pandemic from April 2020 to April 2021, with more than 1.8 million volunteering tasks completed.[6]

To estimate causal wellbeing returns, we exploit two unique features of the NHS Volunteer Responders (NHSVR) programme which inform our causal identification strategy: the oversubscription of volunteers and the random assignment of volunteering tasks based on a randomisation algorithm via a smartphone app. These features allow us to allocate volunteers into a treatment group or a control group.

We examined responses from over 9,000 volunteers who were surveyed three months after they signed up to the programme. To join, volunteers had to register online, by

---

behaviour (often operationalised as *giving windfall money*) on subjective wellbeing and, in particular, happiness (see Dunn et al. (2008, 2014), Aknin et al. (2013a, 2013b, 2015, 2020), or Falk and Graeber (2020), for example).

[5] The programme was officially announced by UK Secretary of State for Health and Social Care Matt Hancock on March 24, 2020. After the initial recruitment period of four days (March 25 and 26, 2020), the recruitment system was closed and did not reopen until after our data collection. The programme was open to those over 18 years of age and without current Covid-19 symptoms. Those vulnerable and self-isolating could also volunteer but their volunteering was limited to services over the phone.

[6] Personal communication with the NHS and the Royal Voluntary Service.

submitting their date of birth, proof of identity, contact information, geographical location, and preferences for the type of volunteering task.[7] When their identity had been verified, they had to download a smartphone app ('GoodSAM'), which they had to switch to 'on duty' and which alerted them once somebody in their vicinity needed help and a task became available.[8][9] Crucially, the allocation of tasks was unrelated to the individual characteristics of volunteers but depended on random assignment via the app.[10] We exploit the oversubscription of the programme and the random allocation of tasks, by comparing the wellbeing of volunteers who signed up to the programme, were randomly assigned a task, and undertook it (our treatment group) with those who signed up but were not randomly assigned a task (our main control group). We explore various other control group definitions, including volunteers who were randomly assigned a task but could not make it due to logistical constraints (mostly because they did not have time, or because the task was too far away for them).

We further extend past research by looking at a wider range of wellbeing outcomes, including volunteers' feelings of worthwhileness of things in life as well as their feelings of social connectedness and belonging to their local community. Moreover, in addition to looking at the extensive margin of volunteering, we estimate returns to wellbeing of volunteering at the intensive margin, by looking at the number and type of volunteering tasks. To the best of our knowledge, this is the first attempt to study the causal impact of large-scale, digital, micro-volunteering programmes on volunteer wellbeing in a real-world setting.

---

[7] The programme had three services: *Check In and Chat*, *Community Response*, and *Transport*. We will discuss them in more detail when estimating heterogeneous treatment effects in Section 3.3.
[8] Of the 750,000 volunteers who came forward in March 2020, 590,633 provided the necessary proof of identity and were approved, 491,813 downloaded and logged onto the smartphone app, and 384,896 switched it 'on duty' at least once by the end of September 2020.
[9] 'GoodSAM' has been developed by the social enterprise of the same name.
[10] The random allocation of volunteers to tasks via the app is described in detail in Section 2.2.

We find that volunteering in the NHSVR programme significantly increased volunteers' overall life satisfaction, feelings of worthwhileness of things in life, as well as their feelings of social connectedness and belonging to their local community. Our estimated effects are sizeable: the effect on life satisfaction (+0.17 on a zero-to-ten scale), for example, is about 25% of the size of being employed as opposed to being unemployed (+0.68, cf. Clark et al., 2018), about 30% of the size of being partnered as opposed to being single (+0.59, cf. ibid), or roughly 15% of the size of local-community interventions aimed explicitly at raising the wellbeing of general adult populations (+1.04, cf. Krekel et al., 2021; +1.1, cf. Heintzelman et al., 2020). Our effect sizes are in line with those reported in the literature on SWB and volunteering (which range between +0.14 and +0.3, cf. Binder and Freytag, 2013; Borgonovi, 2008) and are in the middle of the range. We detect impacts on volunteers' wellbeing up to three months after the last task was assigned and completed, suggesting that the returns to wellbeing from volunteering persist at least until the time when our data were collected.

Impacts of volunteering on wellbeing were mostly increasing with the number of volunteering tasks completed, although with diminishing returns, and with some measures pointing towards an inverse U-shape pattern. Volunteers generated the strongest benefits for themselves when volunteering in services of the NHSVR programme that provide more social interaction between them and the direct recipients of their volunteering. Our results are robust to various alternative control group definitions, matching treatment and control group, and controlling for a wide range of individual characteristics as well as various region and time fixed effects.

We conduct a social welfare analysis of the NHSVR programme, including a cost-benefit analysis that compares the total monetised wellbeing benefits of the programme with

its costs as well as a cost-effectiveness analysis that compares the benefit-cost ratio of the programme with that of other programmes, including the treatment of mental ill health by the NHS. We find that, irrespective of the type of social welfare analysis, the programme was highly cost-effective: its benefits were at least 140 times greater than its costs. Importantly, this is likely to be a conservative lower-bound estimate, as it does not account for the benefits to the direct recipients of volunteering, which are likely to be large. In other words, even the benefits to volunteers' wellbeing alone are already more than enough to make the programme worthwhile from a cost-benefit perspective.

To impose minimum assumptions in our social welfare analyses, we conduct a break-even analysis, calculating the counterfactual minimum impact necessary for the NHSVR programme to have been worthwhile from a social welfare perspective. We find that, to break even, the impact of volunteering on volunteers' life satisfaction would need to be as low as +0.01 points, which, when compared to our effect size and the reported effect size range in the literature, is likely to be the case. Put another way, to break even, we require an income coefficient estimate smaller than one when calculating the total monetised wellbeing benefits of the programme, which, when compared to the literature, is again likely.

Our paper contributes to various strands of literature in economics. It adds to the literature on pro-social behaviour (e.g. Ariely et al., 2009; Feldman, 2010; Al-Ubaydli and Lee, 2011; Stutzer et al., 2011; Mujcic and Leibbrand, 2018; Cassar and Meier, 2020), and in particular, to the sparse set of studies looking at the returns to volunteering (e.g. Freeman, 1997; Hackl et al., 2007; Sauer, 2015; Baert and Vujic, 2018), especially wellbeing (e.g. Borgonovi, 2008; Meier and Stutzer, 2008; Binder and Freytag, 2013). Finally, we add to the steadily growing literature that calculates compensating variations using wellbeing data to

monetarily quantify non-market goods and activities (e.g. van Praag and Baarsma, 2005; Luechinger, 2009a, 2009b; Levinson, 2012; Dolan et al., 2019).

The remainder of this paper is organised as follows: Section 2 introduces our data and empirical model, including our identification strategy. Section 3 presents our findings, including the average causal wellbeing return to volunteering in the NHSVR programme, intensive-margin returns, and heterogeneous treatment effects by service branch. Section 4 conducts a series of robustness checks scrutinising internal and external validity. Section 5 conducts a social welfare analysis by calculating income equivalents of volunteering and contrasting them with the costs of running the programme. Section 6 discusses our findings, puts them into context, and concludes with policy implications.

2. Data & Methods

2.1. Data

Our first data source is an online survey which was embedded as a link in a newsletter sent out to the universe of individuals who have signed up and were approved (due to valid proof of identity) to become an NHS Volunteer Responder (590,633 individuals). The newsletter was sent on July 6 and a separate reminder to complete the survey two weeks later, on July 20, 2020.[11] The response rate was, with 12,056 respondents, about 2%. Although this is low, it is unsurprising given that the survey was embedded in a newsletter. In Section 4.3, we will scrutinise our survey data for representativeness and external validity, by comparing our sample (on average and separately by treatment and control group) with the nationally representative Understanding Society Covid-19 wave and the UCL Covid-19 Social Study in

[11] The Web Appendix includes links to copies of the newsletter and reminder e-mails.

the UK, both of which were collected at about the same time as our data. Our second data source are admin data on volunteers collected by the Royal Voluntary Service via the GoodSAM app on behalf of the NHS, including the postcode of volunteers and the timestamps of the first and last volunteering tasks completed, which we subsequently merge with our survey data.

The survey asked respondents – besides background characteristics (including age, gender, health, whether the respondent was shielding or self-isolating, employment, religion, and region) and engagement with the programme – about their previous volunteering experience, whether they were involved in other volunteering activities besides the NHSVR programme, their motivations for joining, and the services they were volunteering in. Importantly, it asked respondents whether they had already completed a task (including the number), and if not, why not, including not yet given a task, unable to accept a task due to logistical constraints (like time or distance), and issues with setting up the smartphone app. We use these variables to construct our treatment and control groups, our main control group being passive volunteers who have not been given a task yet.

The survey included several questions on wellbeing. Two questions are *overall life satisfaction* ("Overall, how satisfied are you with your life nowadays?") and *feelings of worthwhileness in life* ("Overall, to what extent do you feel that the things you do in your life are worthwhile?"), each on a scale from zero ("not at all") to ten ("completely"). These questions are validated and routinely asked by the Office for National Statistics (ONS) in the UK to measure personal wellbeing (cf. Dolan and Metcalfe, 2012). The survey also asked respondents questions to capture their perceived belonging to the local community, including their *feelings of belonging* ("How strongly do you feel you belong to your immediate neighbourhood? Please think of the area within a few minutes walking distance from your

home", on a five-point scale from "very strongly" to "not at all strongly") and *connectedness* ("Do you feel more or less connected to your immediate neighbourhood and your neighbours since the Coronavirus (COVID-19) outbreak?", on a three-point scale from "more" to "less"). We dichotomise these outcomes such that *connectedness* takes on the value one for "more", and zero otherwise; *belongingness* the value one for "very strongly" and "fairly strongly", and zero otherwise.[12]

2.2. Estimation and Identification

We estimate the following regression equation:

$$y_i = \alpha + \delta Treatment_i + \beta_1' X_{1i} + \beta_2' X_{2i} + r + d + \varepsilon_i \qquad (1)$$

where y_i is the wellbeing of individual i who signed up to the NHSVR programme; $Treatment_i$ is a treatment dummy that equals one if the individual actively volunteered at any point in time, and zero if the individual did not actively volunteer after signing up because they had not been given a task yet (our main control group).[13]

X_{1i} is a set of individual-level controls, including age, gender, ethnicity, religion, employment status, whether the individual has a long-term physical or mental health condition, whether he or she is shielding or self-isolating, whether he or she has volunteered before, and whether he or she is currently volunteering elsewhere. We also control for self-reported motivations for joining the NHSVR programme[14], which service they joined

[12] The Web Appendix includes a link to the complete survey.
[13] Our results are robust to using (ordered) logit instead of linear models (available upon request).
[14] See the Web Appendix for definitions of motivations (including purely altruistic, impurely altruistic, time use, and skills or career-related motivations, amongst others) and a heterogeneous treatment effect analysis by motivations for joining the NHSVR programme.

(*Transport*, *Community Response*, or *Check In and Chat*), and for a respondent's fidelity in completing the survey (measured in terms of time taken from survey start to completion).[15]

Additionally, X_{2i} is a set of regional-level Covid-19 controls, including the daily new and cumulative number of people with at least one lab-confirmed positive Covid-19 test result; the daily new and cumulative number of Covid-19 patients admitted to hospital; the daily new and cumulative number of deaths of people who had a positive test result for Covid-19 and died within 28 days of the first positive test; the daily number of confirmed Covid-19 patients in hospital at midnight the preceding night; and the daily number of confirmed Covid-19 patients in mechanical ventilation beds. Regional-level Covid-19 controls are obtained from official NHS and UK Government statistics (UK Government, 2020a) and merged onto our data at the level of NHS regions (i.e. East of England, London, Midlands, North East and Yorkshire, North West, South East, and South West). Finally, we routinely control for NHS region *(r)* and interview date fixed effects (*d*), as not all respondents completed the survey on the same date.

Randomisation Algorithm. We exploit the oversubscription of the programme and the random allocation of volunteering tasks to estimate causal effects. Random allocation is based on a randomisation algorithm via the smartphone app. For both location-based (*Transport* and *Community Response*) and phone-based services (*Check In and Chat*), help is primarily requested via the smartphone app. Alternatively, a person in need can either call the NHS Support Centre to make a self-referral or a professional (for example, their GP, nurse, or

[15] These controls are, in most cases, time-invariant and pre-treatment. Excluding employment status, volunteering elsewhere, or shielding and self-isolating (which may change between signing up to the programme and data collection) leaves our results unchanged.

social worker) can make a referral on their behalf. Help can include one-off volunteering tasks or regular support.

For location-based services, the request is then registered and assigned to a pool of volunteers in a 25km radius to the origin of the request. The app then picks the volunteer who is geographically closest (Euclidean distance) and sends this volunteer an alert. In the unlikely case that two volunteers happen to be at exactly the same distance, the app picks one of them at random. If the volunteer who has been sent the alert does not accept the task within fifteen minutes, or rejects it, the next geographically closest volunteer is picked and sent the alert, and so on. If no volunteer is found within a 25km radius, the app automatically increases the radius to 30km. If unanswered, a task will automatically time out after five days. Hence, for location-based services, the allocation of tasks to volunteers is as good as random, conditional on regional demand for volunteers.

For phone-based services, the request is registered and assigned to the pool of *all* volunteers, irrespective of geographical location. The app then picks one of them at random. If the volunteer who has been sent the alert does not pick up the task within fifteen minutes, or rejects it, another volunteer is picked at random and sent an alert, and so on. Hence, for phone-based services, the allocation of tasks to volunteers is unconditionally random.[16]

Identifying Assumptions. Our empirical model rests on the comparison of volunteers who signed up and volunteered at any point in time in the NHSVR programme (our treatment group) with those who signed up but did not get to volunteer because they had not been given a task yet (our main control group). In other words, our comparison is *between* individuals

[16] For both location-based and phone-based services, the app prioritises volunteers who have not completed any task yet. Appendix Figure A1 illustrates the allocation of tasks to volunteers, Appendix Figures A2 to A4 show some of the functionalities of the smartphone app.

who selected into the programme, presumably based on observable and, importantly, unobservable characteristics. This eliminates the first stage of selection, namely into volunteering. The randomisation algorithm via the smartphone app further ensures that being allocated a task is independent of individual observable or unobservable characteristics. Our two remaining identifying assumptions then are:

1. In case of location-based services, the allocation of tasks to volunteers is random conditional on regional demand for volunteers. To the extent that regional characteristics are independent of wellbeing, or that controlling for regional characteristics renders them conditionally independent, the coefficient δ can be interpreted as the (sample) average treatment effect on the treated, and hence as causal. That is, $Treatment_i \perp \{0, 1\} \mid X_{2i}, r$.

2. In case of both location-based and phone-based services, signing up to the scheme does not by itself constitute a (positive) treatment for our control group, for example by inducing warm-glow effects (Andreoni, 1989, 1990) or by receiving social recognition, thereby deflating δ. Likewise, waiting for a task does not constitute a (negative) treatment for our control group, by inducing disappointment effects, thereby inflating δ. That is, for δ to reflect the true effect of volunteering in the NHSVR programme on active volunteers' wellbeing, outcomes in the main control group (that is, individuals who signed up but did not get to volunteer because they had not been given a task yet) must remain on the same underlying trend in wellbeing as the treatment group.

Regarding (1), we routinely include regional-level Covid-19 controls (to capture regional demand for volunteers) and region fixed effects (to capture unobserved heterogeneity at the regional level which may be correlated with wellbeing) throughout our regressions to ensure conditional exogeneity. Moreover, Table 1 shows summary statistics for individual-level, regional-level Covid-19, and region fixed effects, separately by treatment and control group, including normalised differences between both groups to adjust for the relatively large group sizes. According to Imbens and Wooldridge (2009), a normalised difference greater than 0.25 suggests covariate imbalance. With the exception of three individual-level covariates – the treatment group reports to enjoy helping people more and is somewhat more represented in two services (*Patient Transport* and *Community Response*) – covariates seem well-balanced between both groups. Note that we routinely control for individual-level controls throughout our regressions to net out any remaining differences between treatment and control group. Finally, Appendix Table A1 shows that excluding controls does not qualitatively alter our results, suggesting that our first identifying assumption is likely satisfied.

Regarding (2), we are concerned about disappointment effects (as opposed to warm-glow effects or positive effects due to social recognition, both of which would yield lower-bound estimates). Here, we consider – in addition to our main control group – four alternative control groups that should, in theory, differ in their degree of disappointment due to not being allocated a task: first, individuals who signed up but did not get to volunteer (agnostically, for any reason); second, individuals who did get a task but could not complete it for logistical reasons (for example, due to time or geographical constraints); third, individuals who signed up, had not been given a task yet, and reported to volunteer elsewhere; and fourth, individuals who signed up, had not been given a task yet, and reported to not volunteer elsewhere. The latter two essentially partition our main control group into one sub-group that may have

substituted volunteering in the NHSVR programme with volunteering opportunities elsewhere, and another one that chose not to do so. Although there are differences in effect sizes and significance levels depending on the choice of counterfactual, we find that average treatment effects are largely in line with our baseline specification. Results are shown in Section 4.1. Moreover, when comparing our sample with two external samples restricted to the same observation period as ours (i.e. July 2020) – the nationally representative Understanding Society Covid-19 (USC19) wave and the UCL Covid-19 Social Study (UCL19), both of which include a share of volunteers who should not suffer from disappointment effects – we find a similar pattern in terms of life satisfaction between volunteers and non-volunteers: volunteers are consistently more satisfied with their lives than non-volunteers, by about 0.2 points when rescaled to a zero-to-ten scale.[17] This difference is very similar to our identified treatment effect. See Table A8 in the Appendix for a detailed comparison of the life satisfaction of volunteers and non-volunteers in these different datasets. When compared to the literature, our treatment effect is in line with the range of effect sizes of volunteering on life satisfaction, as mentioned previously and discussed in more detail in Section 5. Finally, one might argue that it is rather unlikely that people experience a substantial reduction in their quality of life due to not being called upon (arguably, it may even work the other way around, as the crisis may be less salient for inactive volunteers).

Regarding both (1) and (2), we re-estimate our average treatment effects after matching our main control group with our treatment group based on the universe of

[17] Our identified treatment effect of volunteering on life satisfaction is about 0.17. In the USC19 sample, volunteers score, on average, 0.23 points higher on life satisfaction on a zero-to-ten scale than non-volunteers (8.1 *versus* 7.87). In the UCL19 sample, this amounts to 0.22 points (6.23 *versus* 6.01). Interestingly, there is an average difference of about one point in life satisfaction between the USC19 and the UCL19 samples, whereas life satisfaction in our sample lies in-between (7.29 *versus* 7.12 for volunteers and non-volunteers, respectively). There may be various reasons for these level differences, for example survey mode.

exogenous controls that is available to us. We find again that average treatment effects are largely in line with our baseline specification. Results are shown in Section 4.2.

3. Results

3.1. Average Treatment Effects

We first look at average treatment effects. Table 2 compares the wellbeing of individuals who signed up and volunteered at any point in time in the NHSVR programme (our treatment group, for whom $Treatment_i$ takes on the value one) to those who signed up but did not get to volunteer because they had not been given a task yet (our main control group, for whom $Treatment_i$ takes on the value zero).[18]

[Table 2 about here]

We find that volunteering in the NHSVR programme has strong, positive effects on wellbeing, raising overall life satisfaction and feelings of worthwhileness by about 0.17 and 0.18 points on a zero-to-ten scale (0.08σ and 0.09σ), respectively. Likewise, it raises feelings of social belonging and connectedness to volunteers' immediate neighbourhood and their neighbours by about four and seven percentage points, respectively.

3.2. Treatment Effect Intensity

Table 3 replicates Table 2 by looking at individuals who signed up and volunteered at any point in time in the NHSVR programme, separately by their position in the overall task frequency distribution. On average, active volunteers completed about 5.4 tasks (standard

[18] Appendix Table A1 shows this table with the full set of controls.

deviation of 3.8). We allocate them into different quintiles. The dummy *40% to 59%*, for example, takes on the value one for those active volunteers (in our treatment group) who completed between 40% and 59% of the tasks in the overall task frequency distribution, and zero for passive volunteers who did not get to volunteer because they had not been given a task yet (which continues to be our main control group). On average, volunteers with less than 20% of tasks completed one task; volunteers in the 20% to 39% range two to three tasks; in the 40% to 59% range four tasks; in the 60% to 79% range five to seven tasks; and volunteers with more than 80% completed eight to eleven tasks.

[Table 3 about here]

We find that the wellbeing returns to volunteering in the NHSVR programme show, in some cases, an inverse U-shape pattern over the overall task frequency distribution. For volunteers' life satisfaction and their feelings of belonging to their immediate neighbourhood, the strongest effects can be found for volunteers who are located in the middle of the frequency distribution (between 40% and 59% or even up to 79% of all tasks in case of life satisfaction, and who thus complete a medium as opposed to small or large amount of tasks (i.e. between four and seven tasks). Apart from a statistical artefact, a possible reason could be overexposure to negative experiences of Covid-19 risk groups, or a growing time commitment that could become emotionally straining, whereby highly active volunteers fail to draw the boundary between their own wellbeing and that of others. However, for both life satisfaction and feelings of belongingness, we cannot statistically rule out diminishing returns (as opposed

to an inverse U-shape).[19] For volunteers' feelings of worthwhileness and their feelings of connectedness to their immediate neighbourhood and neighbours are increasing in the number of tasks, with diminishing returns.

3.3. Treatment Effect Persistence

We next look at treatment effect persistence. Clearly, we can only look into this exploratorily as volunteers were interviewed only three months after the programme was launched. Appendix Table A5 replicates Table 2 by restricting our treatment indicator to volunteers who, respectively, undertook their last task in one of the three months preceding their interview. *Treatment$_i$ (May 1 - May 31, 2020)*, for example, takes on the value one for those active volunteers (in our treatment group) who undertook their last task between May 1 and May 31, 2020, and zero for passive volunteers who did not get to volunteer (until their interview in July) because they had not been given a task yet.

We find significant effects for each preceding period, suggesting that, at least for three months since the programme was launched, volunteers continue to report higher wellbeing and feelings of social belonging. The coefficient for active volunteers who did their last task in April, for example, is not much different than that for active volunteers who did their last task in June, each compared to passive volunteers. Note that, for some outcomes, effects are strongest during the May period, i.e. between the initial setup period of the scheme (March and April) and the start of summer. A caveat of this analysis is that we only have timestamps on first and last tasks completed in the admin data for about a third of our original sample.

[19] The F-tests for equality of coefficients between *60% to 79%* and *>80%* yield F(1, 8901) = 0.27 and F(1, 8901) = 0.05 for life satisfaction and for feelings of belongingness, respectively.

3.4. Heterogeneous Treatment Effects by Type of Task

When signing up to the NHSVR programme, volunteers could select multiple services to join. *Check In and Chat* provides phone support to individuals who are at risk of loneliness as a consequence of self-isolation to positively impact on their mental health (it can be extended to the same individual for a duration of ten weeks with three calls per week in case of *Check In and Chat Plus*). *Community Response* involves collecting shopping, medication, or other essential supplies for individuals who are self-isolating and delivering these supplies to their homes (it can be extended to vulnerable individuals in case of *Community Response Plus*). Finally, *Transport* involves transporting equipment, supplies, or medication between NHS services and sites, including assisting pharmacies with medication delivery (this service can also be extended, to transporting patients who are discharged or who need to attend medical appointments in case of *Patient Transport*). For simplicity, we group each service with its extended version.

Selection into services is not random: when signing up, volunteers in our sample could state their preferences for (multiple) services they wanted to volunteer in. In fact, Appendix Table A3c shows that, perhaps unsurprisingly, volunteers in *Transport* tend to be younger and more often male than those in *Check In and Chat*, for example. We thus re-estimate our average treatment effects in Table 2 *separately* for each service to study heterogeneous treatment effects by type of task. That is, we now compare individuals who signed up to a particular service and volunteered at any point in time *within* that service to those who signed up to the same service but did not get to volunteer because they had not been given a task yet. Table 4 shows our findings.

[Table 4 about here]

We find a clear pattern when it comes to wellbeing: effects on overall life satisfaction and feelings of worthwhileness are strongest in *Check In and Chat*, arguably the service that allows for most social interaction. *Check In and Chat* is followed, with a huge gap, by *Community Response* and then *Transport*. While wellbeing benefits from volunteering may be increasing in the degree of social interaction with the direct recipients of volunteering, the observed gradient may also be explicable in terms of differential costs of participation: arguably, participating in *Check In and Chat* is, from a volunteer's perspective, less costly than participating in *Transport*, which is logistically more burdensome and potentially entails greater personal risks. When it comes to feelings of social belonging and connectedness to volunteers' immediate neighbourhood and their neighbours, however, benefits are much more evenly distributed across services.[20]

4. Robustness

So far, we have compared individuals who signed up and volunteered at any point in time (our treatment group) to those who signed up but did not get to volunteer because they had not been given a task yet (our main control group). We have chosen this control group because it is arguably the most comparable to our treatment group if our identifying assumptions (of conditional exogeneity) for location-based and (of exogeneity) for phone-based services hold.

While warm-glow effects or positive effects due to social recognition from joining the NHSVR programme may work in our favour by biasing our estimates downwards,

[20] In addition to type of task, we also estimated heterogeneous treatment effects by motivation for joining the NHSVR programme. We did not find strong evidence that volunteers who reported different motivations for joining show systematically different returns to wellbeing, perhaps because motivations of joining were quite uniformly distributed. See the Web Appendix for this analysis.

disappointment effects from being waitlisted may bias our estimates upwards and are, therefore, more of a concern for internal validity. To address this concern of internal validity, we run a series of robustness checks, including constructing alternative control groups and matching treatment and control group based on observable characteristics (which also addresses differential selection into taking the survey by group). Moreover, we add additional controls from admin data on volunteers to account for differences in waiting times between treatment and control group and to better account for unobserved heterogeneity in the local areas of volunteers (which may be correlated with wellbeing).

Apart from internal validity, there is also concern about external validity, given that our data come from a convenience sample that may not representative of the general population. To address this concern, we compare the observable characteristics of our sample, on average and separately by group, with the nationally representative Understanding Society Covid-19 wave and the UCL Covid-19 Social Study in the UK, both of which were in the field at about the same time when our data were collected and also include a subset of volunteers.

Finally, we account for multiple hypotheses testing by calculating stepdown P-values for our identified treatment effects in Table 2 to 4, following the Romano and Wolf (2005a, 2005b) procedure.

4.1. Alternative Control Groups

While the act of signing up to the NHSVR programme may generate warm-glow effects or positive effects due to social recognition that may bias our estimates downwards, a more serious threat to identification may stem from being waitlisted, which may bias our estimates upwards due to disappointment effects in case that highly motivated volunteers sign up but do

not receive any task. Although we do not expect such disappointment to lead to a substantial reduction in inactive volunteers' quality of life, we nevertheless look into this issue by replacing our main control group with four alternative control groups. Appendix Table A2 shows our findings.

In Panel A, we agnostically compare our active volunteers (who signed up and volunteered) with the universe of inactive volunteers (who signed up but did not get to volunteer, for whatever reason): estimates are largely in line with our baseline specification.

In Panel B, we compare our active volunteers with the set of inactive volunteers who did get a task but could not complete it for logistical reasons (mostly because they received it at a time that was inconvenient or it was geographically too far away from their location): estimates for life satisfaction are again in line with our baseline specification, yet turn insignificant for feelings of social belonging and connectedness as well as for feelings of worthwhileness. We speculate that the decrease for these outcomes may result from individuals in this control group substituting to other volunteering opportunities that may be logistically more feasible. We will return to this point in Panel C below. Note that the size of the control group drops to only 428 individuals in this specification.

Finally, we partition our main control group into one sub-group that may have substituted volunteering in the NHSVR programme with volunteering opportunities elsewhere and another one that chose not to do so. In particular, we compare our active volunteers with the set of inactive volunteers who signed up, had not been given a task yet, and either reported to volunteer elsewhere (presumably substituting to other volunteering opportunities) (Panel C) or reported to not volunteer elsewhere (Panel D). While estimates in either specification are largely in line with our baseline specification, the fact that feelings of worthwhileness and belongingness turn insignificant in Panel C may suggest that individuals who are substituting

to other volunteering opportunities generate some of the wellbeing benefits from volunteering elsewhere. This does not seem to be the case for those inactive volunteers who reported to not volunteer elsewhere (Panel D). Note that the decision to volunteer elsewhere (or not) is not random, so findings in Panels C and D should be interpreted with caution.

4.2. Matching

We have already shown that our treatment and main control group are, on average, well-balanced in terms of observables. Nevertheless, the former group is more than twice the size of the latter, and presumably not all individuals are directly comparable between both groups. Moreover, there may be concern about differential selection into taking the survey by group. To address these issues, we match our treatment and main control group based on the universe of exogenous controls that stand at our disposal, using one-to-one nearest neighbour propensity-score matching without replacement, and then re-estimate our baseline specification using only statistical clones (with equal group sizes).

The results can be seen in Appendix Table A3a: while coefficients for personal wellbeing are slightly attenuated, our previous findings are largely confirmed. Moreover, Table A3b shows that, after conducting our propensity-score matching, only few observables predict group allocation. In fact, only the service (i.e. *Transport*, *Community Response*, or *Check In and Chat*) predicts whether an individual is allocated to our treatment or main control group. However, this is little surprising: systematic differences in volunteer demand are likely to exist between services.

4.3. Additional Controls

Next, we leverage admin data on volunteers collected by the Royal Voluntary Service via the GoodSAM app to complement our models with additional controls. First, we add postcode fixed effects (where we aggregate postcodes to the first letter to avoid small cell sizes) in addition to NHS region fixed effects, to control for time-invariant, unobserved regional characteristics (which may be correlated with wellbeing) at a more precise geographical resolution (Appendix Table A4 Panel A). Then, we exploit the timestamps of the first and last tasks undertaken by each volunteer, which are recorded in the admin data, and calculate the time that elapsed between the last task undertaken and the survey date to control for disappointment effects (which we implicitly assume to be linearly increasing in waiting time) (Appendix Table A4 Panel B). Note that for volunteers in our main control group this turns into time lapsed since joining the NHSVR programme, while for volunteers in our treatment group this turns into time lapsed since undertaking the last task (which can go back as early as April). Both robustness checks yield results that are very similar to our baseline specification. As already mentioned, a caveat of this analysis is that we have data on postcodes and timestamps in the admin data for only a subset of observations in our original sample.

4.4. Sample Selection and External Validity

A cause for concern may be the non-randomness of our sample. This has several implications. First, our sample may be different from the general population in England, an issue of external validity. More worryingly, response rates (and characteristics) between individuals who actively volunteered at any point in time (our treatment group) and individuals who did not actively volunteer after signing up because they had not been given a task yet (our main control group) may be different, an issue of internal validity. This could bias our estimates, the direction of which is not *ex-ante* clear. We looked into this issue previously, by comparing

our treatment with our main control group in terms of normalised differences, by constructing alternative control groups, and by matching our treatment with our main control group prior to running our regressions.

As an additional robustness check, we test whether there exist systematic differences in observables between our sample, on average and separately by treatment and control group, and two other samples: the nationally representative Understanding Society Covid-19 wave (USC19) and the UCL Covid-19 Social Study (UCL19) in the UK. These surveys collected data at about the same time as our survey data were collected. In both cases, we restrict the observation period to July 2020, construct a set of covariates that match those in our sample as closely as possible, and then calculate normalised differences between sample averages and between groups. Appendix Tables A6 and A7 show the results of this exercise. Recall that, according to Imbens and Wooldridge (2009), a normalised difference greater than 0.25 suggests covariate imbalance.

We find that our sample is very similar to the USC19 sample in terms of socio-demographic characteristics, on average and separately by treatment and control group, including most age groups, gender, ethnicity, and the share of respondents across different regions in England (Table A6). However, there is, on average, a relatively lower share of respondents aged 75 or above and a lower share of respondents with long-term physical and mental health conditions in our sample. This is not necessarily surprising given the nature of the crisis: volunteering is likely to be lower amongst those aged 75 or above and those with long-term health conditions as they are more vulnerable to Covid-19 and may be more likely to be the direct recipients of volunteering rather than to volunteer themselves. We also find that there is a lower share of respondents reporting to be employed in our sample compared to the whole USC19 sample. However, there is no difference in the share of employed between

those who volunteered to address Covid-19 in our sample and the USC19 sample. As with the USC19 sample, we find that our sample is very similar to the UCL19 sample, on average and separately by treatment and control group (Table A7). If anything, differences seem to be even less pronounced.

4.5. Multiple Hypotheses Testing

To account for multiple hypotheses testing, we applied the stepdown multiple testing procedure suggested by Romano and Wolf (2005a, 2005b) to our identified treatment effects in Tables 2 to 4, with the four-step algorithm outlined in Romano and Wolf (2016). In essence, this algorithm constructs a null distribution for each of our hypotheses tests based on a set of null resampling test statistics (we use a bootstrap with 100 repetitions and robust standard errors in both the original regression and during resampling). Our stepdown-adjusted P values, which are shown in Tables 2 to 4 below the treatment indicators, continue to indicate significance at conventional levels for most of our identified treatment effects.

5. Social Welfare Analysis

The costs of running the NHSVR programme during the period from April to July 2020 was about GBP 3.1 million.[21] Was it worth it? To answer this question, we conduct a wellbeing cost-benefit analysis, looking at the benefits to volunteers. We first calculate the marginal rate of substitution between volunteering and income: on average, volunteering benefited the volunteers and increased their overall life satisfaction measured on a zero-to-ten scale by about 0.17 points. Taking an income coefficient from the literature (i.e. 0.7, cf. Sacks et al.,

[21] These are the direct and indirect administrative costs of running the NHS Volunteer Responders programme and do not include personal costs to volunteers such as time, effort, or direct expenses (e.g. phone bills).

2010), a 1% change in log annual gross household income increases overall life satisfaction, on average, by about 0.007 points.[22] Median annual gross household income in England in 2019 was about GBP 29,600 (ONS, 2019), or GBP 7,400 during the period from April to July 2020. Thus, volunteers would have to be compensated with, on average, GBP (74 x 0.17) / 0.007 = 1,800 to reach the same wellbeing level in the counterfactual case in which they had not taken part in the programme. With about 250,000 volunteers, this yields a total monetised wellbeing benefit of about GBP 445 million. The net benefit (or increase in social welfare) of running the NHSVR programme was, therefore, about GBP 445 million - GBP 3.1 million = GBP 442 million.

This is likely to be a lower bound: most importantly, it does not account for the wellbeing benefits to the direct recipients of volunteering, which are likely to be large. It neither takes into account the market value of the volunteering hours nor knock-on effects, for example intra-household wellbeing spillovers from volunteers to those living with them.[23] The net benefit of GBP 442 million is hence a conservative estimate.[24]

We next conduct a break-even analysis. We ask: how large would the wellbeing benefit to each volunteer have to be, on average, in order to make the programme worthwhile? We calculate the break-even effect of volunteering on overall life satisfaction to be 0.0012

[22] The authors report a standardised estimate of 0.35, which is 0.7 in natural units assuming a standard deviation of two. This is a relatively large estimate. Kahneman and Deaton (2010) report an estimate of 0.64, Lindqvist et al. (2020) of 0.4, Stevenson and Wolfers (2008) of 0.3, and Clark et al. (2018) and De Neve et al. (2018) of 0.2. Taking a smaller estimate will yield a larger net monetised wellbeing benefit. Our chosen estimate is thus conservative.

[23] In fact, the market value of the volunteering hours alone turns the net benefit of the programme positive: assuming that each volunteer did two hours of volunteering priced at the UK minimum wage of GBP 8.72 per hour in April 2020 (UK Government, 2020b), we obtain a total market value of about GBP 4.4 million, which is greater than the costs of the programme (GBP 3.1 million).

[24] Bounding the net benefit from the perspective of sickness avoided is more difficult: on the one hand, volunteers helped the vulnerable and self-isolating to not expose themselves to risk and fall sick (for example, by running errands for them). On the other hand, volunteers exposed themselves to risk. The programme did not keep track of how many volunteers fell sick, but anecdotal evidence from correspondence with the NHS and Royal Voluntary Service suggests that this was a quantitatively minor issue. Sickness avoided would further add to the wellbeing benefits.

(less than 0.1% of a standard deviation).[25] For effects greater than this, the net monetised wellbeing benefit of the programme turns positive. This is a very small effect in the literature (cf. Dolan and Peasgood, 2008; Clark et al., 2018; Frijters et al., 2020). As an alternative break-even analysis, we can calculate the required effect size the income coefficient needs to have to yield a positive net monetised wellbeing benefits of the programme. It turns out that the break-even income coefficient is smaller than one, which is again likely to be the case when compared to the literature (cf. Footnote 8).[26] It is hence likely that the benefits of the programme outweighed its costs.

Our wellbeing cost-benefit analysis depends on having an unbiased estimate of the income coefficient. To overcome this dependency, we conduct, as an alternative, a wellbeing cost-effectiveness analysis. We arrive at a wellbeing cost-effectiveness ratio of (0.17 x 250,000) / 3,100,000 = 0.0137, which can serve as a benchmark for future interventions in the area of volunteering. We can compare this ratio with the cost-effectiveness of other programmes (with similar durations). For example, the "Exploring What Matters" course, a manualised local-community intervention aimed at raising the wellbeing and pro-sociality of adults in the general population, has been found to increase participants' life satisfaction on a zero-to-ten scale by 1.04 points at a cost of about GBP 90 per participant (Krekel et al., 2021). This yields a cost-effectiveness ratio of about 1.04 / 90 = 0.0116, which is very similar to that of the NHSVR programme. The Improving Access to Psychological Therapies (IAPT) programme of the NHS in England, aimed at treating patients with mild depression and anxiety using cognitive behavioural therapy (CBT), has been found to improve life satisfaction by 2.7 points at an estimated cost of GBP 650 per patient (Gyani et al., 2013;

[25] This figure can be calculated as: 0.0012 = (3,100,000 / 250,000) / (74 / 0.007). The standard deviation of life satisfaction in our estimation sample is about 2.
[26] This figure can be calculated as: $\beta < (0.17 \times 74 \times 250{,}000) / 3{,}100{,}000$.

Clark and Layard, 2014). This yields a cost-effectiveness ratio of about 2.7 / 650 = 0.0042, about half that of the NHSVR programme.

6. Discussion

In this paper, we estimated the causal effect of volunteering on wellbeing in the context of the NHSVR programme, which is by far the biggest volunteer mobilisation in England since World War II. Volunteering had strong, positive effects on the wellbeing of volunteers, raising their overall life satisfaction and feelings of worthwhileness, as well as their feelings of social connectedness and belonging to their local communities. The impacts are sizeable: life satisfaction, for example, increased by about 0.17 points on a zero-to-ten scale (about 0.08σ), which is about 25% of the size of being employed as opposed to being unemployed (+0.68, cf. Clark et al., 2018), about 30% of the size of being partnered as opposed to being single (+0.59, cf. ibid), or roughly 15% of the effect of local-community interventions aimed explicitly at raising the wellbeing of general adult populations (+1.04, cf. Krekel et al., 2021; +1.1, cf. Heintzelman et al., 2020). The NHSVR programme can be interpreted as a scheme that provides meaningful volunteering activities in the local communities of volunteers in times of need. Importantly, we find that these impacts are sustained up to three months after the last task had been completed.

Our treatment effects are in line with those reported in the literature: Binder and Freytag (2013) report effects between 0.14 and 0.18 points (volunteering: at least once during the past twelve months) and Borgonovi (2008) of up to 0.3 points (volunteering: monthly but less than weekly), rescaled to a zero-to-ten scale. Meier and Stutzer (2008) find an effect of 0.26 (volunteering: weekly or monthly) using a difference-in-differences design that exploits the exogenous shock to volunteering opportunities in East Germany due to the German

reunification. Importantly, for the NHSVR programme to have been a worthwhile investment from a social welfare perspective, treatment effects would have to be as low 1% of these effect sizes.

We find that the effects of volunteering on wellbeing are mostly increasing in the number of tasks, with diminishing returns. However, some measures, notably volunteers' life satisfaction and their feelings of belongingness to their local community, suggest an inverse U-shape pattern, although we cannot statistically rule out diminishing returns. This may suggest that, at least for some dimensions of wellbeing, there could to be an optimal amount of volunteering that is located in the middle rather than the upper or lower tail of the frequency distribution. If so, this has practical implications for the optimal bunching or spacing out of tasks allocated to a volunteer in a given period of time, and can be an important insight to address problems such as volunteer burnout (Bakker et al., 2006). Apps like GoodSAM may be then be programmed such that they allocate tasks not only depending on distance but also depending on task history. As we cannot rule out diminishing returns, however, the potentially U-shaped pattern of wellbeing along the intensive margin is a promising area for future research.

There are other practical implications. The most important comes from our finding that benefits to wellbeing are stronger in volunteering environments where volunteers have more social interaction with the direct recipients of their volunteering, or alternatively, have lower entry costs to volunteering. To the extent that stronger benefits, in turn, attract more volunteers or make them volunteer more hours, volunteering environments should be designed in a way that allows for more such social interaction and that makes participating in volunteering easy. To the extent that volunteering is a credence good and people hedonically mis-predict the wellbeing benefits they may generate from volunteering (cf. Wilson and

Gilbert, 2003; Stutzer and Odermatt, 2019), communication in recruitment and outreach should highlight wellbeing benefits to volunteers. In a supplementary analysis, we found some evidence on volunteers generating stronger wellbeing benefits when being motivated by imperfectly altruistic reasons.[27] It may thus be interesting to experiment with open acknowledgement of volunteers for their volunteering (cf. Laffan and Dolan, 2020).

Our findings have several policy implications. As its benefits strongly outweigh its costs, the NHSVR programme as a nationwide micro-volunteering scheme could be seen as a model to learn from and to replicate in other countries, during the current and future crises (Churchill, 2020). It could also be run in normal times (for example, as a micro-volunteering system to help the elderly or support vulnerable people in their local communities), not only benefiting volunteers and their direct recipients but also indirectly contributing to higher social cohesion. As it is net-social-welfare-enhancing, a case can be made for public subsidies to organisations that promote volunteering, especially those with high benefits to direct recipients.

There are several shortcomings to our study, some of which present themselves as promising avenues for future research. Our study suggests that the wellbeing benefits from volunteering can last for at least three months afterwards, at the time when we collected our survey data. It is unclear, however, what the long-run impacts of volunteering on wellbeing are, not only in our context but also in the literature more generally. Do volunteers who stop volunteering continue to generate wellbeing or is there a return to baseline? Do volunteers who continue to volunteer hedonically adapt to their activities, and at some point, stop generating benefits (and then presumably give up volunteering)? Once the crisis is over, do volunteers continue to volunteer, by substituting to alternative activities elsewhere? We know

[27] See the Web Appendix for this analysis.

very little about wellbeing as antecedents and precedents over the volunteering life cycle. Lastly, it would be interesting to study whether volunteering (in our context or in general) has spillovers (cf. Dolan and Galizzi, 2015) on behaviours or attitudes in other life domains.

Notwithstanding some limitations and many unanswered questions, the results presented in this paper are strongly suggestive of significant, sizeable and, to some extent, sustainable, returns to wellbeing from volunteering. They further highlight the need for policy-makers to not only encourage volunteering for the benefit of others but also to make salient the considerable personal benefits that come from pro-sociality.

Acknowledgements

We are thankful to Richard Layard, Maria Cotofan, Ekaterina (Katya) Oparina, Nils Mallock, Clemens Hetschko, Canishk Naik, and Matt Whittaker, as well as seminar participants at the London School of Economics, University of Leeds, and various other places for helpful comments and suggestions. A special thanks goes to the NHSVR programme staff, the NHS, the Royal Voluntary Service, GoodSAM, and the many thousand volunteers in the programme whose dedication, commitment, and effort made this research possible in the first place.

We are indebted to Daisy Fancourt and the University College London Covid-19 Social Study team for providing access to their dataset. The University College London Covid-19 Social Study was funded by the Nuffield Foundation [WEL/FR-000022583], but the views expressed are those of the authors and not necessarily the Foundation. The study was also supported by the MARCH Mental Health Network funded by the Cross-Disciplinary Mental Health Network Plus initiative supported by UK Research and Innovation [ES/S002588/1], and by the Wellcome Trust [221400/Z/20/Z]. The researchers are grateful for the support of a number of organisations with their recruitment efforts including: the UKRI Mental Health Networks, Find Out Now, UCL BioResource, HealthWise Wales, SEO Works, FieldworkHub, and Optimal Workshop. The funders had no final role in the study design; in the collection, analysis and interpretation of data; in the writing of the report; or in the decision to submit the paper for publication.

References

Adler, A. (1938). *Social Interest: A Challenge to Mankind*. London: Faber & Faber.

Aknin, L. B., Barrington-Leigh, C. P., Dunn, E. W., Helliwell, J. F., Burns, J., Biswas-Diener, R., Kemeza, I., Nyende, P., Ashton-James, C. E., & Norton, M. I. (2013a). Prosocial Spending and Well-Being: Cross-Cultural Evidence for a Psychological Universal. *Journal of Personality and Social Psychology*, *104*(4), 635-652.

Aknin, L. B., Broesch, T., Hamlin, J. K., & Van de Vondervoort, J. (2015). Prosocial Behavior Leads to Happiness in a Small-Scale Rural Society. *Journal of Experimental Psychology: General*, *144*(4), 788-795.

Aknin, L. B., Dunn, E. W., Proulx, J., Lok, I., & Norton, M. I. (2020). Does Spending Money on Others Promote Happiness?: A Registered Replication Report. *Journal of Personality and Social Psychology*, *119*(2), e15-26.

Aknin, L. B., Dunn, E. W., Whillans, A. V., Grant, A. M., & Norton, M. I. (2013b). Making a difference matters: Impact unlocks the emotional benefits of prosocial spending. *Journal of Economic Behavior & Organization*, *88*, 90-95.

Al-Ubaydli, O., & Lee, M. (2011). Can Tailored Communications Motivate Environmental Volunteers? A Natural Field Experiment. *American Economic Review*, *101*(3), 323-328.

Andreoni, J. (1989). Giving with Impure Altruism: Applications to Charity and Ricardian Equivalence. *Journal of Political Economy*, *97*(6), 1447-1458.

Andreoni, J. (1990). Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving. *Economic Journal*, *100*(401), 464-477.

Ariely, D., Bracha, A., & Meier, S. (2009). Doing Good or Doing Well? Image Motivation and Monetary Incentives in Behaving Prosocially. *American Economic Review*, 99(1), 544-555.

Baert, S., & Vujic, S. (2018). Does it pay to care? Volunteering and employment opportunities. *Journal of Population Economics*, 31, 819-836.

Bakker, A. B., Van Der Zee, K. I., Lewig, K. A., & Dollard, M. F. (2006). The Relationship Between the Big Five Personality Factors and Burnout: A Study Among Volunteer Counselors. *Journal of Social Psychology*, *146*(1), 31-50.

Binder, M., & Freytag, A. (2013). Volunteering, subjective well-being and public policy. *Journal of Economic Psychology*, *34*, 97-119.

Borgonovi, F. (2008). Doing well by doing good. The relationship between formal volunteering and self-reported health and happiness. *Social Science & Medicine*, *66*, 2321-2334.

Cassar, L., & Meier, S. (2020). Intentions for Doing Good Matter for Doing Well: The Negative Effects of Prosocial Incentives. *Economic Journal*, forthcoming.

Churchill, N. (2020). Micro-volunteering at scale can help health systems respond to emergencies, such as the Covid-19 pandemic. *Patient Experience Journal*, *7(2)*, 160-164.

Clark, A. E., Flèche, S., Layard, R., Powdthavee, N., & Ward, G. (2018). *The Origins of Happiness: The Science of Well-Being Over the Life Course*. Princeton, NJ: Princeton University Press.

De Neve, J.-E., Ward, G., De Keulenaer, F., Van Landeghem, B., Kavetsos, G., & Norton, M. I. (2018). The Asymmetric Experience of Positive and Negative Economic Growth: Global Evidence Using Subjective Well-Being Data. *Review of Economics and Statistics*, *100*(2), 362-375.

Dolan, P., & Galizzi, M. M. (2015). Like ripples on a pond: Behavioral spillovers and their implications for research and policy. *Journal of Economic Psychology*, *47*, 1-16.

Dolan, P., Peasgood, T., & White, M. (2008). Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology*, *29*(1), 94-122.

Dolan, P., & Metcalfe, R. (2012). Measuring Subjective Wellbeing: Recommendations on Measures for use by National Governments. *Journal of Social Policy*, *41*(2), 409-427.

Dolan, P., Kavetsos, G., Krekel, C., Mavridis, D., Metcalfe, R., Senik, C., Szymanski, S., & Ziebarth, N. (2019). Quantifying the intangible impact of the Olympics using subjective well-being data. *Journal of Public Economics*, 177, 104043.

Dunn, E. W., Aknin, L. B., & Norton, M. I. (2008). Spending Money on Others Promotes Happiness. *Science*, *319*(5870), 1687-1688.

Dunn, E. W., Aknin, L. B., & Norton, M. I. (2014). Prosocial Spending and Happiness: Using Money to Benefit Others Pays Off. *Current Directions in Psychological Science*, *23*(1), 41-47.

Falk, A., & Graeber, T. (2020). Delayed negative effects of prosocial spending on happiness. *Proceedings of the National Academy of Sciences*, *117*(2), 6463-6468.

Feldman, N. E. (2010). Time Is Money: Choosing between Charitable Activities. *American Economic Journal: Economic Policy*, 2(1), 103-130.

Freeman, R. B. (1997). Working for Nothing: The Supply of Volunteer Labor. *Journal of Labor Economics*, *15*(1), S140-S166.

Frijters, P., Clark, A. E., Krekel, C., & Layard, R. (2020). A happy choice: wellbeing as the goal of government. *Behavioural Public Policy*, *4*(2), 126-165.

Gyani, A., Shafran, R., Layard, R., & Clark, D. M. (2013). Enhancing recovery rates: Lessons from year one of IAPT. *Behaviour Research and Therapy*, *51*(9), 597-606.

Hackl, F., Halla, M., & Pruckner, G. J. (2007). Volunteering and Income – The Fallacy of the Good Samaritan? *Kyklos*, 60(1), 77-104.

Heintzelman, S. J., Kushlev, K., Lutes, L. D., Wirtz, D., Kanippayoor, J. M., Leitner, D., Oishi, S., & Diener, E. (2020). ENHANCE: Evidence for the Efficacy of a Comprehensive Intervention Program to Promote Subjective Well-Being. *Journal of Experimental Psychology: Applied*, *26*(2), 360-383.

Huang, L. H. (2019). Well-being and volunteering: Evidence from aging societies in Asia. *Social Science & Medicine*, *229*, 172-180.

Imbens, G. W., & Wooldridge, J. M. (2009). Recent Developments in the Econometrics of Program Evaluation. *Journal of Economic Literature*, *47*(1), 5-86.

Jenkinson, C. E., Dickens, A. P., Jones, K., Thompson-Coon, J., Taylor, R. S., Rogers, M., Bambra, C. L., Lang, I., & Richards, S. H. (2013). Is volunteering a public health intervention? A systematic review and meta-analysis of the health and survival of volunteers. *BMC Public Health*, *13*(1), 773.

Kahneman, D., & Deaton, A. (2010). High income improves evaluation of life but not emotional well-being. *Proceedings of the National Academy of Sciences*, *107*(38), 16489-16493.

Krekel, C., De Neve, J.-E., Fancourt, D., & Layard, R. (2021). A Local Community Course That Raises Wellbeing and Pro-Sociality: Evidence From a Randomised Controlled Trial. *Journal of Economic Behavior & Organization*, forthcoming.

Laffan, K. M., and Dolan, P. (2020). In defence of charity which benefits both giver and receiver. *Nature Human Behaviour*, *4*, 670-672.

Lawton, R. N., Gramatki, I., Watt, W., & Fujiwara, D. (2020). Does Volunteering Make Us Happier, or Are Happier People More Likely to Volunteer? Addressing the Problem of Reverse Causality When Estimating the Wellbeing Impacts of Volunteering. *Journal of Happiness Studies*, 22, 599-624.

Layard, R., & Clark, D. M. (2014). *Thrive: The Power of Psychological Therapy*. London: Penguin Books.

Levinson, A. (2012). Valuing public goods using happiness data: The case of air quality. *Journal of Public Economics*, 96(9-10), 869-880.

Lindqvist, E., Östling R., & Cesarini, D. (2020). Long-run Effects of Lottery Wealth on Psychological Well-being. *Review of Economic Studies*, *87(6)*, 2703-2726.

Luechinger, S. (2009a). Valuing Air Quality Using the Life Satisfaction Approach. *Economic Journal*, 119(536), 482-515.

Luechinger, S., & Raschky, P. (2009b). Valuing flood disasters using the life satisfaction approach. *Journal of Public Economics*, 93(3-4), 620-633.

Meier, S., & Stutzer, A. (2008). Is Volunteering Rewarding in Itself? *Economica*, *75*, 39-59.

Mujcic, R., & Leibbrand, A. (2018). Indirect Reciprocity and Prosocial Behaviour: Evidence from a Natural Field Experiment. *Economic Journal*, 128(611), 1683-1699.

NCVO (2019). *Time well spent: A national survey on the volunteering experience*. Online: https://www.ncvo.org.uk/policy-and-research/volunteering-policy/research/time-well-spent, last accessed 24/04/2021.

NHS (2020). *NHS army of volunteers to start protecting vulnerable from coronavirus in England*. Online: https://www.england.nhs.uk/2020/04/nhs-volunteer-army-now-ready-to-support-even-more-people/, last accessed 22/04/2021.

Odermatt, R., & Stutzer, A. (2019). (Mis-)Predicted Subjective Well-Being Following Life Events. *Journal of the European Economic Association*, *17*(1), 245-283.

OECD (2015). *How's Life? Measuring Well-Being*. Paris: OECD Publishing.

ONS (2020). *Average household income, UK: financial year ending 2019*. Online: https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/bulletins/householddisposableincomeandinequality/financialyearending2019, last accessed January 11, 2021.

Romano, J. P., & Wolf, M. (2005a). Stepwise Multiple Testing as Formalized Data Snooping. *Econometrica*, 73(4), 1237-1282.

Romano, J. P., & Wolf, M. (2005b). Exact and Approximate Stepdown Methods for Multiple Hypothesis Testing. *Journal of the American Statistical Association*, 469(100), 94-108.

Romano, J. P., & Wolf, M. (2016). Efficient computation of adjusted p-values for resampling-based stepdown multiple testing. *Statistics & Probability Letters*, 113, 38-40.

Russell, A. R., Nyame-Mensah, A., de Wit, A., & Handy, F. (2019). Volunteering and Wellbeing Among Ageing Adults: A Longitudinal Analysis. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, 30(1), 115-128.

Sauer, R. M. (2015). Does It Pay For Women to Volunteer? *International Economic Review*, 56(2), 537-564.

Sacks, D. W., Stevenson, B., & Wolfers, J. (2010). Subjective Well-Being, Income, Economic Development and Growth. *NBER Working Paper*, 16441.

Son, J., & Wilson, J. (2015). The Psycho-Social Processes Linking Income and Volunteering: Chronic Financial Strain and Well-Being. *Sociological Forum*, *30(4)*, 1059-1081.

Stevenson, B., & Wolfers, J. (2008). Economic Growth and Subjective Well-Being: Reassessing the Easterlin Paradox. *Brookings Papers on Economic Activity*, *39*(1), 1-102.

Stutzer, A., Goette, L., & Zehnder, M. (2011). Active Decisions and Prosocial Behaviour: A Field Experiment on Blood Donation. *Economic Journal*, 121(556), F476-F493.

Tabassum, F., Mohan, J., & Smith, P. (2016). Association of volunteering with mental well-being: a lifecourse analysis of a national population-based longitudinal study in the UK. *BMJ Open*, *6*(8), e011327.

UK Government (2020a). *Coronavirus (COVID-19) in the UK: UK Summary*. Online: https://coronavirus.data.gov.uk/, last accessed November 3, 2020.

UK Government (2020b). *National Minimum Wage and National Living Wage rates*. Online: https://www.gov.uk/national-minimum-wage-rates, last accessed January 11, 2021.

van Praag, B. M. S., & Baarsma, B. E. (2005). Using Happiness Surveys to Value Intangibles: The Case of Airport Noise. *Economic Journal*, 115(500), 224-246.

Whillans, A. V., Seider, S. C., Chen, L., Dwyer, R. J., Novick, S., Gramigma, K. J., Mitchell, B. A., Savalei, V., Dickerson, S. S., and Dunn, E. W. (2016). Does volunteering improve well-being? *Comprehensive Results in Social Psychology*, *1(1-3)*, 35-50.

Wilson, T. D., & Gilbert, D. T. (2003). Affective forecasting. *Advances in Experimental Social Psychology*, *35*, 345-411.

Tables

Table 1: Summary Statistics for Treatment and Main Control Group

	Mean Control *Not Yet Given Task*	Mean Treatment *Volunteered*	Normalised Difference Control - Treatment
Individual Controls			
Age: 16 to 24	0.0104	0.0091	0.0094
25 to 34	0.0384	0.0394	0.0036
35 to 44	0.0714	0.0958	0.0626
45 to 54	0.2041	0.2350	0.0528
55 to 64	0.4222	0.4020	0.0289
65 to 74	0.2313	0.2017	0.0509
75 to 84	0.0154	0.0132	0.0134
85 or Over	0.0000	0.0005	0.0217
Prefer Not to Say	0.0068	0.0033	0.0351
Gender: Male	0.4293	0.3307	0.1445
Female	0.5595	0.6656	0.1548
Other	0.0014	0.0003	0.0268
Prefer Not to Say	0.0097	0.0035	0.0546
Ethnicity: Asian / Asian British - Bangladeshi	0.0022	0.0016	0.0096
Asian / Asian British - Chinese	0.0018	0.0036	0.0247
Asian / Asian British - Indian	0.0100	0.0196	0.0560
Asian / Asian British - Pakistani	0.0032	0.0052	0.0213
Asian / Asian British - Other	0.0029	0.0038	0.0110
Black / African / Caribbean / Black British - African	0.0029	0.0082	0.0505
Black / African / Caribbean / Black British - Caribbean	0.0025	0.0033	0.0103
Black / African / Caribbean / Black British - Other	0.0007	0.0013	0.0121

Mixed / Multiple Ethnic Groups - White and Asian	0.0018	0.0044	0.0331
Mixed / Multiple Ethnic Groups - White and Black African	0.0011	0.0005	0.0154
Mixed / Multiple Ethnic Groups - White and Black Caribbean	0.0007	0.0013	0.0121
Mixed / Multiple Ethnic Groups - Other	0.0025	0.0027	0.0022
White - British / English / Northern Irish / Scottish / Welsh	0.8863	0.8467	0.0824
White - Gypsy or Irish Traveller	0.0007	0.0013	0.0121
White - Irish	0.0133	0.0146	0.0079
White - Other	0.0581	0.0739	0.0449
Other Ethnic Group - Arab	0.0004	0.0022	0.0364
Other Ethnic Group - Other	0.0090	0.0061	0.0233
Religion: No Religion	0.4028	0.3412	0.0903
Buddhist	0.0100	0.0078	0.0165
Christian	0.5072	0.5755	0.0972
Hindu	0.0032	0.0099	0.0584
Jewish	0.0061	0.0110	0.0375
Muslim	0.0079	0.0111	0.0236
Sikh	0.0029	0.0042	0.0162
Other	0.0172	0.0168	0.0024
Prefer Not to Say	0.0427	0.0224	0.0808
Physical or Mental Health Condition: No	0.7683	0.7374	0.0506
Yes	0.2009	0.2380	0.0634
Don't Know	0.0104	0.0083	0.0153
Prefer Not to Say	0.0204	0.0163	0.0217
Self-Isolating: No	0.9394	0.9184	0.0577
Yes	0.0563	0.0770	0.0587
Don't Know	0.0043	0.0045	0.0026
Employment: Full-Time Employed	0.2500	0.2595	0.0153
Part-Time Employed	0.1625	0.1512	0.0219
Furloughed	0.0595	0.0841	0.0673

In Education	0.0082	0.0091	0.0065
Unemployed	0.0434	0.0499	0.0217
Disabled	0.0082	0.0152	0.0458
Retired	0.3565	0.3224	0.0511
Looking After Family	0.0412	0.0515	0.0343
Doing Something Else	0.0703	0.0573	0.0378
Motivation: Responding to National Crisis	0.8841	0.8820	0.0046
Had Some Time	0.0922	0.1046	0.0296
Wanted to Support NHS	0.6001	0.6809	0.1196
Wanted to Make Difference	0.5624	0.6563	0.1367
Wanted to Help Local Community	0.7070	0.7296	0.0355
Pursue Career	0.0208	0.0395	0.0775
Gain Skills	0.0900	0.1373	0.1055
Enjoy Helping People	0.4986	0.6795	0.2646
Wanted to Meet People	0.0280	0.0376	0.0384
Was Asked	0.0090	0.0107	0.0122
Needs of Family, Friends	0.0151	0.0205	0.0293
Thought It Was Expected	0.0606	0.0668	0.0180
Enjoy Telling Family, Friends	0.0219	0.0632	0.1456
Service: Community Response	0.3759	0.2080	0.2657
Community Response Plus	0.2209	0.2091	0.0204
Check In and Chat	0.5481	0.6540	0.1538
Check In and Chat Plus	0.0821	0.1297	0.1097
Patient Transport	0.3877	0.5942	0.2984
Transport	0.0527	0.0856	0.0919
Volunteered Before: No	0.2217	0.2074	0.0246
Yes	0.7783	0.7926	0.0246
Volunteered Elsewhere: No	0.6600	0.6610	0.0016
Yes, One Other Group	0.2109	0.2030	0.0138

Yes, More Than One Other Group	0.1291	0.1360	0.0143
Fidelity	1,634,604.0115	3,624,744.3464	0.2351
Regional Covid-19 Controls			
New Covid-19 Hospital Admissions	12.6901	12.5034	0.0193
Cumulative Covid-19 Hospital Admissions	15,088.2098	15,857.4671	0.0985
Current Covid-19 Hospital Cases	210.6851	214.8951	0.0270
Occupied Medical Ventilation Beds	18.5915	19.4704	0.0536
New Covid-19 Cases	61.7636	67.6323	0.1020
Cumulative Covid-19 Cases	3,4395.9953	3,5857.6424	0.0900
New Covid-19 Deaths	3.4727	3.1650	0.0796
Cumulative Covid-19 Deaths	5,050.7701	5,251.1504	0.0865
Other Controls			
East of England	0.1100	0.0964	0.0323
London	0.0808	0.1044	0.0573
Midlands	0.1571	0.1728	0.0259
North East and Yorkshire	0.1016	0.1338	0.0706
North West	0.1200	0.1286	0.0220
South East	0.2771	0.2381	0.0610
South West	0.1533	0.1259	0.0575
N	2,788	6,246	

Source: NHSVR Survey Data, July 2020; own calculations.

Table 2: Average Treatment Effects

	Life Satisfaction	Worthwhileness	Belonging	Connectedness
	(1)	(2)	(3)	(4)
$Treatment_i$	0.1685***	0.1801***	0.0418***	0.0699***
(Volunteered Vs. Not Yet Given Task)	(0.0483)	(0.0473)	(0.0112)	(0.0120)
Stepdown P-Value ($Treatment_i$)	0.0099	0.0099	0.0099	0.0099
Individual Controls	Yes	Yes	Yes	Yes
Regional Covid-19 Controls	Yes	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes
Day Fixed Effects	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes
Scaling	0-10	0-10	0-1	0-1
Mean	7.2	7.5	0.7	0.5
σ	2.1	2.0	0.5	0.5
Number of Treated	6,375	6,375	6,375	6,375
Number of Controlled	2,788	2,788	2,788	2,788
Number of Observations	9,163	9,163	9,163	9,163
R Squared	0.1195	0.1072	0.0582	0.0457

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: NHSVR Survey Data, July 2020; own calculations.

Table 3: Treatment Effect Intensity (% of Task Distribution)

$Treatment_i$ *(Volunteered Vs. Not Yet Given Task)*	Life Satisfaction (1)	Worthwhileness (2)	Belonging (3)	Connectedness (4)
<20% *(One Task)*	0.0253	-0.0059	0.0326**	0.0430**
	(0.0696)	(0.0684)	(0.0161)	(0.0172)
20% to 39% *(Two to Three Tasks)*	0.1974***	0.1587**	0.0433***	0.0466***
	(0.0666)	(0.0632)	(0.0154)	(0.0169)
40% to 59% *(Four Tasks)*	0.1821**	0.1501*	0.0683***	0.0724***
	(0.0902)	(0.0887)	(0.0209)	(0.0234)
60% to 79% *(Five to Seven Tasks)*	0.2615***	0.2729***	0.0476***	0.0911***
	(0.0714)	(0.0684)	(0.0168)	(0.0184)
>80% *(Eight to Eleven Tasks)*	0.2234***	0.3201***	0.0439***	0.1018***
	(0.0624)	(0.0598)	(0.0142)	(0.0156)
Stepdown P-Value (<20%)	0.8614	0.9109	0.1386	0.0396
Stepdown P-Value (20% to 39%)	0.0198	0.0396	0.0396	0.0396
Stepdown P-Value (40% to 59%)	0.0693	0.0693	0.0099	0.0099
Stepdown P-Value (60% to 79%)	0.0198	0.0099	0.0198	0.0099
Stepdown P-Value (>80%)	0.0099	0.0099	0.0099	0.0099
Individual Controls	Yes	Yes	Yes	Yes
Regional Covid-19 Controls	Yes	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes
Day Fixed Effects	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes
Number of Treated	6,246	6,246	6,246	6,246

Number of Controlled	2,788	2,788	2,788	2,788
Number of Observations	9,034	9,034	9,034	9,034
R Squared	0.1196	0.1104	0.0590	0.0479

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: NHSVR Survey Data, July 2020; own calculations.

Table 4: Heterogeneous Treatment Effects By Type of Task

	Life Satisfaction (1)	Worthwhileness (2)	Belongingness (3)	Connectedness (4)
Transport				
$Treatment_i$	0.1410*	0.1774**	0.0435**	0.0675***
(Volunteered Vs. Not Yet Given Task)	(0.0838)	(0.0818)	(0.0197)	(0.0210)
Stepdown P-Value ($Treatment_i$)	0.0693	0.0594	0.0594	0.0099
Number of Treated	1,845	1,845	1,845	1,845
Number of Controlled	1,248	1,248	1,248	1,248
Number of Observations	3,093	3,093	3,093	3,093
R Squared	0.1548	0.1327	0.0855	0.0661
Community Response				
$Treatment_i$	0.1569**	0.1812***	0.0399***	0.0813***
(Volunteered Vs. Not Yet Given Task)	(0.0615)	(0.0602)	(0.0142)	(0.0152)
Stepdown P-Value ($Treatment_i$)	0.0198	0.0198	0.0198	0.0099
Number of Treated	4,284	4,284	4,284	4,284
Number of Controlled	1,555	1,555	1,555	1,555
Number of Observations	5,839	5,839	5,839	5,839
R Squared	0.1243	0.1129	0.0583	0.0560
Check In and Chat				
$Treatment_i$	0.2829***	0.2947***	0.0479***	0.0736***
(Volunteered Vs. Not Yet Given Task)	(0.0700)	(0.0705)	(0.0163)	(0.0174)

Stepdown P-Value (Treatment$_i$)	0.0099	0.0099	0.0099	0.0099
Number of Treated	3,894	3,894	3,894	3,894
Number of Controlled	1,108	1,108	1,108	1,108
Number of Observations	5,002	5,002	5,002	5,002
R Squared	0.1358	0.1242	0.0660	0.0562
Individual Controls	Yes	Yes	Yes	Yes
Regional Covid-19 Controls	Yes	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes
Day Fixed Effects	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes

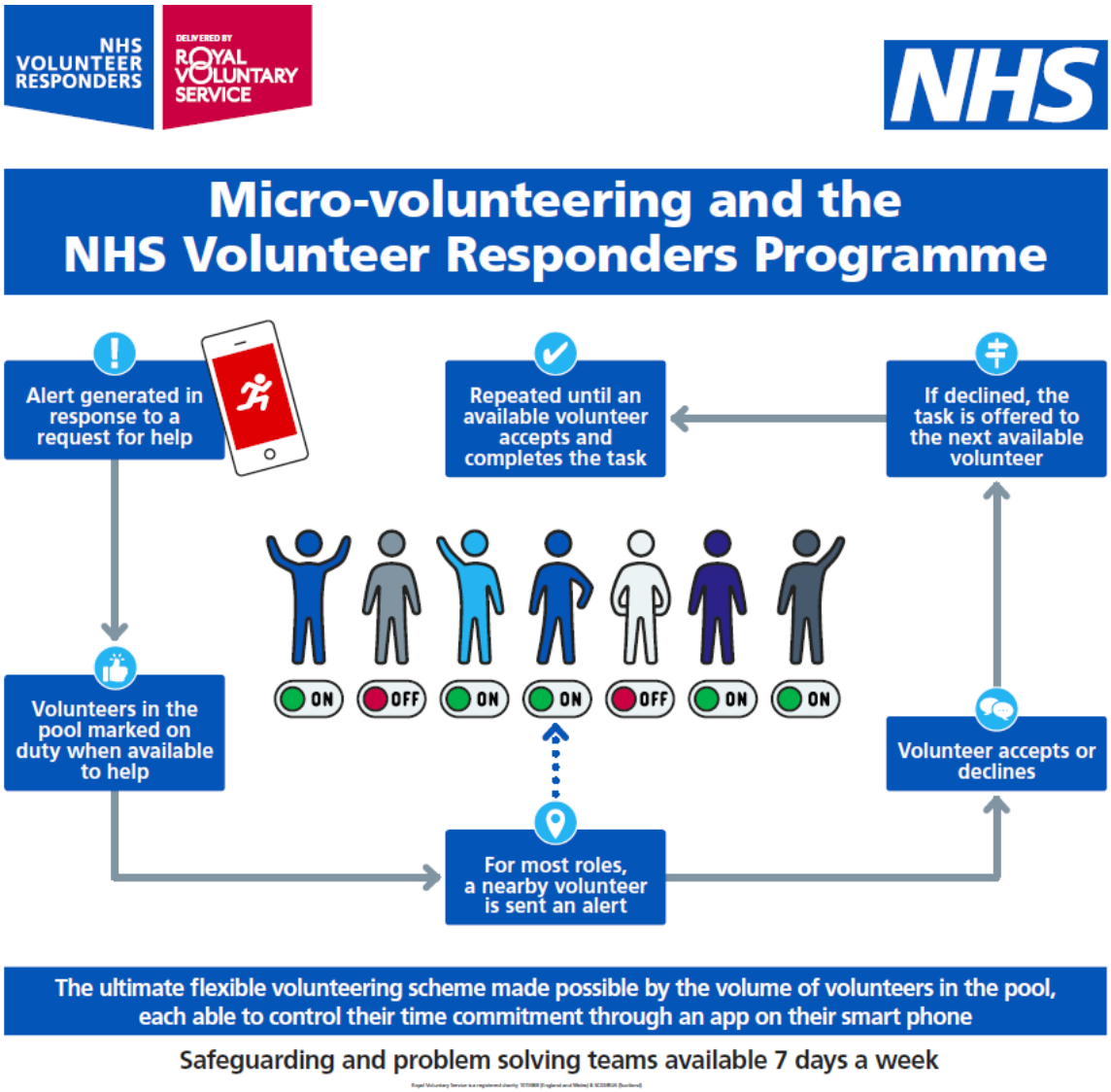
Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: NHSVR Survey Data, July 2020; own calculations.

Appendix

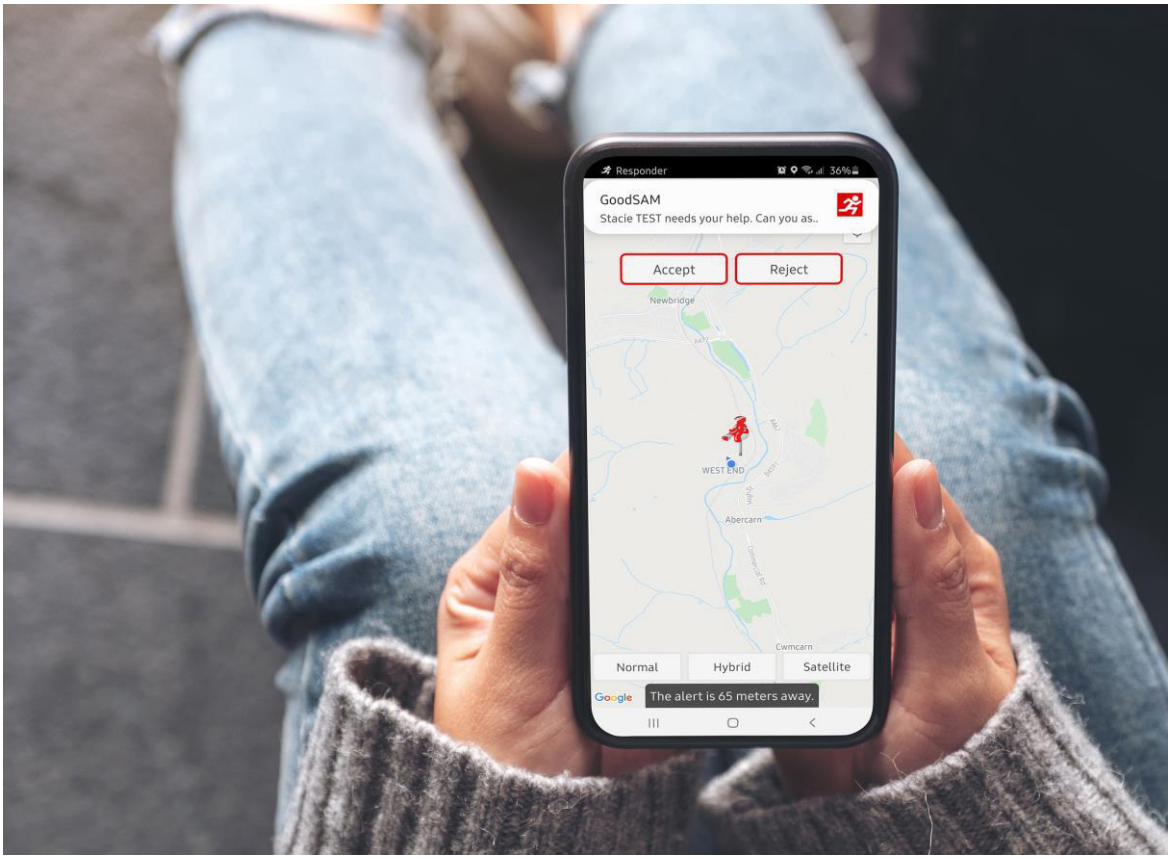
A1. Figures

Figure A1: Allocation of Tasks to Volunteers



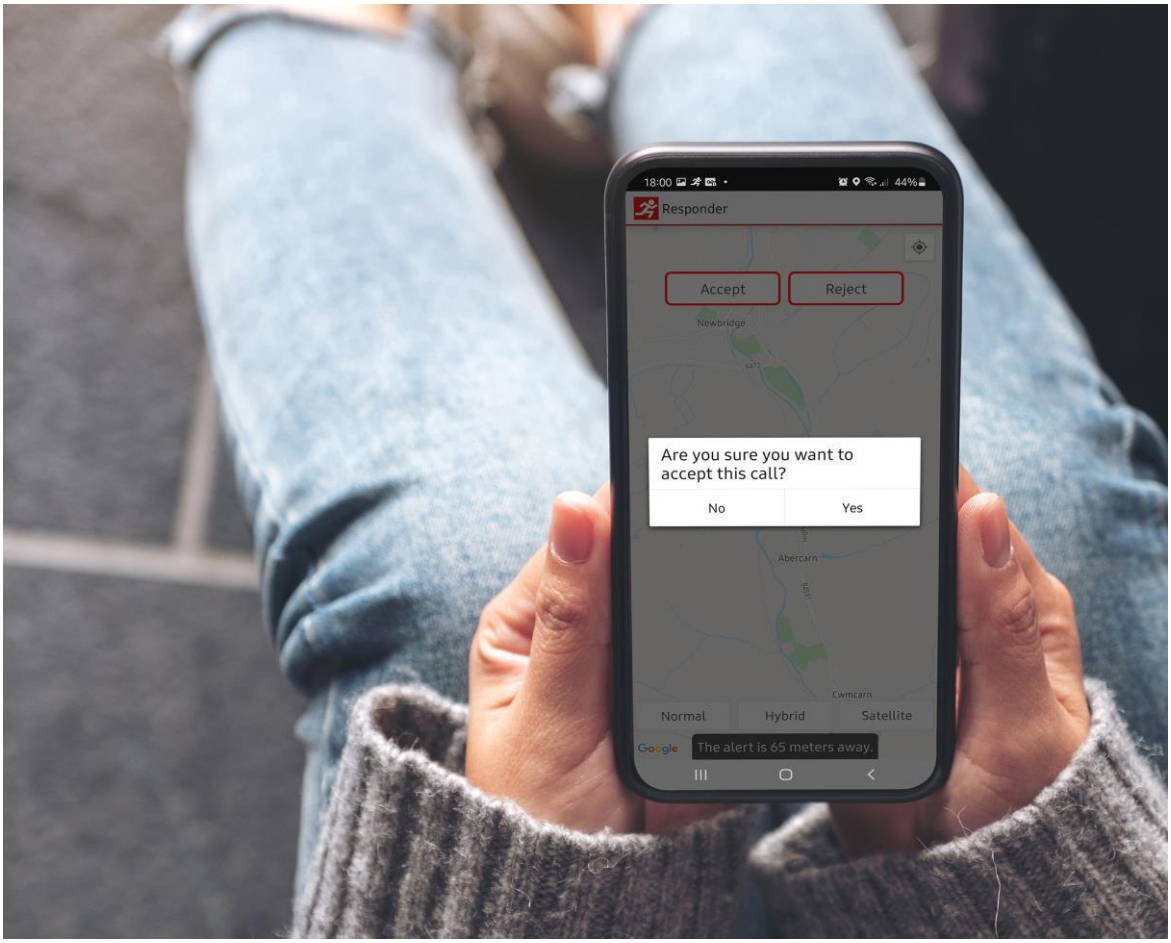
Source: NHSVR programme.

Figure A2: Smartphone App – Volunteer Receiving Alert Nearby



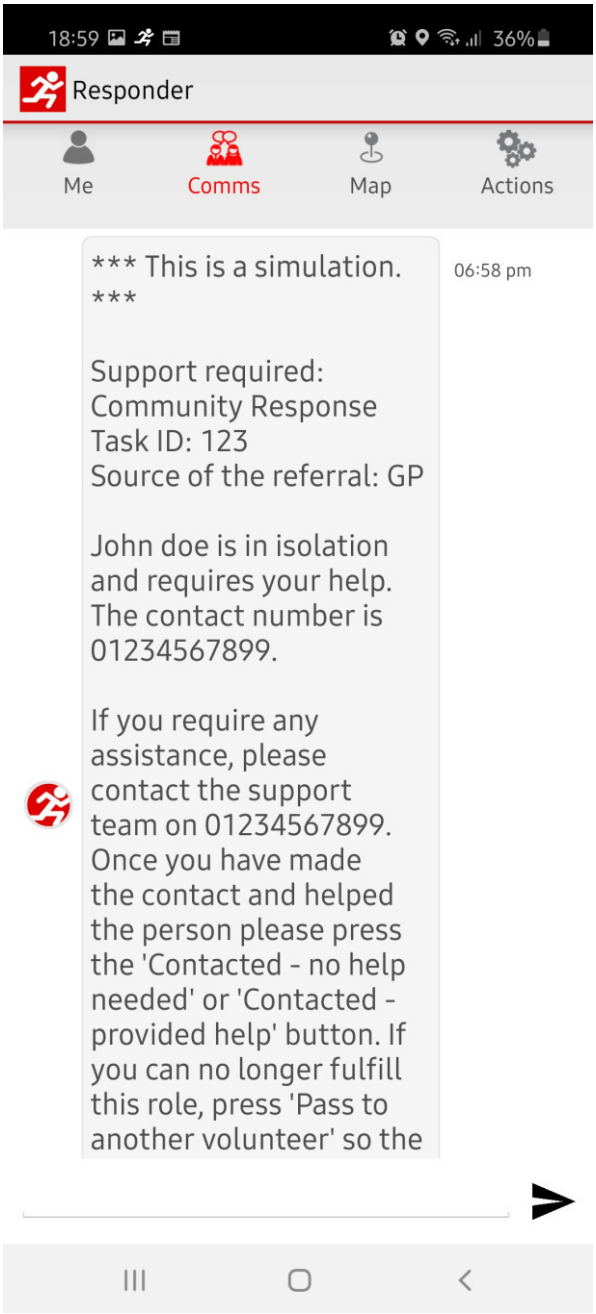
Source: NHSVR programme.

Figure A3: Smartphone App – Volunteer Accepting or Rejecting a Task



Source: NHSVR programme.

Figure A4: Smartphone App – Connecting Volunteer and Person in Need



Source: NHSVR programme.

A2. Tables

Table A1: Average Treatment Effects, Without and With Controls

	Life Satisfaction		Worthwhileness		Belonging		Connectedness	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
$Treatment_i$	0.1441***	0.1685***	0.2288***	0.1801***	0.0556***	0.0418***	0.0894***	0.0699***
(Volunteered Vs. Not Yet Given Task)	(0.0472)	(0.0483)	(0.0454)	(0.0473)	(0.0106)	(0.0112)	(0.0112)	(0.0120)
Individual Controls								
Age: 16 to 24		*Reference Category*		*Reference Category*		*Reference Category*		*Reference Category*
25 to 34		0.3337		0.5113*		0.0050		0.0100
		(0.2409)		(0.2665)		(0.0628)		(0.0616)
35 to 44		0.4009*		0.8824***		0.0940		0.0336
		(0.2315)		(0.2568)		(0.0607)		(0.0596)
45 to 54		0.7248***		1.1433***		0.1437**		0.0467
		(0.2242)		(0.2495)		(0.0594)		(0.0582)
55 to 64		0.9106***		1.2602***		0.1387**		0.0172
		(0.2228)		(0.2483)		(0.0593)		(0.0581)
65 to 74		1.0242***		1.3724***		0.1674***		0.0242
		(0.2277)		(0.2521)		(0.0604)		(0.0595)
75 to 84		1.2843***		1.1813***		0.2057***		-0.0035
		(0.2737)		(0.2935)		(0.0697)		(0.0727)
85 or Over		2.6278***		2.7007***		0.4007***		0.2637
		(0.3742)		(0.4701)		(0.0671)		(0.2733)
Prefer Not to Say		0.4557		1.0174**		-0.0125		-0.1068
		(0.4914)		(0.4877)		(0.1088)		(0.1013)
Gender: Male		*Reference Category*		*Reference Category*		*Reference Category*		*Reference Category*

Female	-0.1225**	-0.0097	0.0124	0.0470***
	(0.0485)	(0.0462)	(0.0112)	(0.0122)
Other	-0.6643	-0.5816	-0.2022	-0.2734***
	(1.1574)	(0.9481)	(0.1584)	(0.0647)
Prefer Not to Say	0.0224	-0.1570	-0.0484	0.0385
	(0.3690)	(0.3658)	(0.0828)	(0.0744)
Ethnicity: Asian / Asian British - Bangladeshi	*Reference Category*	*Reference Category*	*Reference Category*	*Reference Category*
Asian / Asian British - Chinese	0.3211	0.1796	0.1142	0.0254
	(0.5178)	(0.4717)	(0.1458)	(0.1585)
Asian / Asian British - Indian	-0.2535	-0.1605	0.0976	-0.1269
	(0.4440)	(0.3971)	(0.1278)	(0.1407)
Asian / Asian British - Pakistani	-0.0966	0.1500	0.1012	0.0592
	(0.4937)	(0.4409)	(0.1281)	(0.1449)
Asian / Asian British - Other	-0.6952	-0.3940	0.0420	-0.1365
	(0.5650)	(0.4953)	(0.1442)	(0.1553)
Black / African / Caribbean / Black British - African	0.4272	0.6204	-0.0508	-0.1290
	(0.4504)	(0.4170)	(0.1342)	(0.1444)
Black / African / Caribbean / Black British - Caribbean	0.3531	0.6797	0.0341	-0.1544
	(0.6094)	(0.4984)	(0.1531)	(0.1602)
Black / African / Caribbean / Black British - Other	0.5659	0.3545	-0.0326	-0.1942
	(0.6982)	(0.5168)	(0.2007)	(0.1970)
Mixed / Multiple Ethnic Groups - White and Asian	0.1980	0.2267	0.0292	0.0073
	(0.5120)	(0.4602)	(0.1437)	(0.1548)
Mixed / Multiple Ethnic Groups - White and Black African	0.8753	0.4889	0.2956*	-0.1127
	(0.9438)	(0.9977)	(0.1755)	(0.2154)

Mixed / Multiple Ethnic Groups - White and Black Caribbean	-0.7150	0.1576	-0.0860	-0.3218*
	(0.7720)	(0.7670)	(0.1967)	(0.1758)
Mixed / Multiple Ethnic Groups - Other	-0.0694	-0.2136	0.0758	-0.0432
	(0.5868)	(0.5052)	(0.1515)	(0.1689)
White - British / English / Northern Irish / Scottish / Welsh	-0.1479	-0.0958	0.1027	-0.0119
	(0.4035)	(0.3459)	(0.1185)	(0.1306)
White - Gypsy or Irish Traveller	0.6142	-0.7294	-0.0672	0.0051
	(0.7610)	(0.8612)	(0.1959)	(0.2034)
White - Irish	-0.1505	-0.1336	0.0355	-0.0241
	(0.4382)	(0.3814)	(0.1251)	(0.1372)
White - Other	-0.2490	-0.1521	0.0791	-0.0421
	(0.4104)	(0.3534)	(0.1195)	(0.1316)
Other Ethnic Group - Arab	0.8658	1.3652***	0.2546**	0.0711
	(0.6665)	(0.4153)	(0.1265)	(0.1737)
Other Ethnic Group - Other	-0.2216	0.0350	-0.0608	-0.2135
	(0.5008)	(0.4357)	(0.1323)	(0.1392)
Religion: No Religion	*Reference Category*	*Reference Category*	*Reference Category*	*Reference Category*
Buddhist	0.1547	0.0464	0.0083	-0.0133
	(0.2629)	(0.2531)	(0.0550)	(0.0565)
Christian	0.2562***	0.3316***	0.0692***	0.0213*
	(0.0458)	(0.0439)	(0.0106)	(0.0114)
Hindu	0.9698***	0.9724***	0.1191	0.0758
	(0.3714)	(0.3225)	(0.0746)	(0.0827)
Jewish	-0.0033	-0.0427	0.0254	-0.0070
	(0.1859)	(0.1728)	(0.0517)	(0.0561)
Muslim	0.7361***	0.8142***	0.2269***	0.0728
	(0.2796)	(0.2393)	(0.0658)	(0.0721)
Sikh	0.8967**	0.6548*	0.1314	0.0792

	(0.4067)	(0.3744)	(0.0922)	(0.1022)
Other	0.2850	0.4223**	-0.0139	0.0275
	(0.1849)	(0.1758)	(0.0400)	(0.0409)
Prefer Not to Say	-0.0497	-0.0971	0.0311	-0.0656**
	(0.1408)	(0.1347)	(0.0306)	(0.0318)
Physical or Mental Health Condition: No	*Reference Category*	*Reference Category*	*Reference Category*	*Reference Category*
Yes	-0.7640***	-0.6036***	-0.0282**	-0.0232*
	(0.0570)	(0.0545)	(0.0121)	(0.0132)
Don't Know	-1.6163***	-1.2432***	-0.0982*	-0.0678
	(0.2819)	(0.2568)	(0.0528)	(0.0557)
Prefer Not to Say	-0.9124***	-0.6522***	-0.0521	-0.1119***
	(0.1730)	(0.1715)	(0.0366)	(0.0373)
Self-Isolating: No	*Reference Category*	*Reference Category*	*Reference Category*	*Reference Category*
Yes	-0.2108**	-0.0927	-0.0150	-0.0182
	(0.0884)	(0.0832)	(0.0196)	(0.0215)
Don't Know	-0.3488	-0.2822	-0.0413	-0.0862
	(0.3469)	(0.3131)	(0.0752)	(0.0711)
Employment: Full-Time Employed	*Reference Category*	*Reference Category*	*Reference Category*	*Reference Category*
Part-Time Employed	0.0214	-0.0466	0.0167	0.0064
	(0.0666)	(0.0634)	(0.0160)	(0.0173)
Furloughed	-0.4030***	-0.3185***	-0.0092	0.0054
	(0.1010)	(0.0981)	(0.0228)	(0.0244)
In Education	-0.2008	0.0044	-0.0230	0.0062
	(0.2528)	(0.2561)	(0.0611)	(0.0615)
Unemployed	-1.4874***	-1.3738***	-0.0827***	-0.0262
	(0.1263)	(0.1216)	(0.0253)	(0.0259)

Disabled	-1.6996***	-1.7370***	-0.0768*	-0.1485***
	(0.2459)	(0.2766)	(0.0454)	(0.0446)
Retired	0.1238*	-0.1148*	0.0294*	0.0267
	(0.0662)	(0.0628)	(0.0157)	(0.0172)
Looking After Family	-0.2312**	-0.3068***	0.0126	0.0132
	(0.1044)	(0.1009)	(0.0240)	(0.0262)
Doing Something Else	-0.3115***	-0.2517***	-0.0111	0.0170
	(0.0991)	(0.0921)	(0.0226)	(0.0241)
Motivation: Responding to National Crisis	*-0.1162**	*-0.0916*	*-0.0080*	*0.0339***
	(0.0691)	*(0.0659)*	*(0.0155)*	*(0.0164)*
Had Some Time	-0.0666	-0.1473*	-0.0273	0.0028
	(0.0851)	(0.0845)	(0.0198)	(0.0209)
Wanted to Support NHS	0.1703***	0.1864***	0.0285**	0.0273**
	(0.0485)	(0.0461)	(0.0113)	(0.0123)
Wanted to Make Difference	-0.1280***	-0.0621	-0.0183	0.0334***
	(0.0473)	(0.0455)	(0.0112)	(0.0122)
Wanted to Help Local Community	0.0523	-0.0344	0.0536***	0.0235*
	(0.0519)	(0.0492)	(0.0122)	(0.0129)
Pursue Career	-0.1760	-0.1562	0.0055	0.0124
	(0.1395)	(0.1333)	(0.0291)	(0.0306)
Gain Skills	0.1315*	0.1489**	-0.0093	-0.0236
	(0.0678)	(0.0655)	(0.0155)	(0.0171)
Enjoy Helping People	0.1135**	0.1828***	0.0311***	0.0108
	(0.0485)	(0.0459)	(0.0114)	(0.0124)
Wanted to Meet People	-0.1813	-0.1467	-0.0471	0.0613**
	(0.1295)	(0.1216)	(0.0287)	(0.0294)
Was Asked	0.0328	0.0308	0.0160	0.0379
	(0.2115)	(0.2300)	(0.0447)	(0.0512)
Needs of Family, Friends	0.0750	0.1495	0.0644**	-0.0304

	(0.1517)	(0.1484)	(0.0326)	(0.0376)
Thought It Was Expected	-0.1647*	-0.1257	0.0196	-0.0023
	(0.0860)	(0.0823)	(0.0189)	(0.0213)
Enjoy Telling Family, Friends	0.1932*	0.3291***	0.0508**	0.1114***
	(0.1016)	(0.0937)	(0.0219)	(0.0245)
Service: Community Response	-0.0826	-0.0553	-0.0067	0.0037
	(0.0556)	(0.0533)	(0.0130)	(0.0141)
Community Response Plus	0.1357**	0.0237	-0.0184	-0.0078
	(0.0583)	(0.0552)	(0.0138)	(0.0150)
Check In and Chat	-0.0438	-0.1045**	-0.0045	0.0088
	(0.0500)	(0.0482)	(0.0115)	(0.0126)
Check In and Chat Plus	0.0075	0.1407**	0.0374**	-0.0032
	(0.0704)	(0.0646)	(0.0157)	(0.0177)
Patient Transport	-0.0131	0.0320	-0.0065	0.0100
	(0.0496)	(0.0477)	(0.0113)	(0.0125)
Transport	-0.0793	-0.0182	-0.0084	-0.0095
	(0.0891)	(0.0836)	(0.0192)	(0.0211)
Volunteered Before: No	*Reference Category*	*Reference Category*	*Reference Category*	*Reference Category*
Yes	-0.0308	0.0486	0.0214*	0.0189
	(0.0536)	(0.0522)	(0.0124)	(0.0132)
Volunteered Elswhere: No	*Reference Category*	*Reference Category*	*Reference Category*	*Reference Category*
Yes, One Other Group	-0.0170	0.0898*	0.0720***	0.0805***
	(0.0524)	(0.0500)	(0.0119)	(0.0134)
Yes, More Than One Other Group	0.0831	0.3089***	0.1007***	0.0911***
	(0.0635)	(0.0584)	(0.0137)	(0.0159)
Fidelity	-0.0000	0.0000	0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)

Regional Covid-19 Controls								
New Covid-19 Hospital Admissions		0.0082		0.0032		0.0004		0.0014
		(0.0072)		(0.0070)		(0.0017)		(0.0019)
Cumulative Covid-19 Hospital Admissions		0.0001		-0.0007		0.0002		0.0005*
		(0.0011)		(0.0011)		(0.0003)		(0.0003)
Current Covid-19 Hospital Cases		0.0011		0.0016		0.0005		0.0001
		(0.0013)		(0.0013)		(0.0003)		(0.0003)
Occupied Medical Ventilation Beds		-0.0049		-0.0049		-0.0005		0.0048*
		(0.0105)		(0.0104)		(0.0026)		(0.0028)
New Covid-19 Cases		-0.0006		-0.0011		-0.0009*		-0.0006
		(0.0022)		(0.0022)		(0.0005)		(0.0006)
Cumulative Covid-19 Cases		0.0001		0.0002*		0.0000		-0.0000
		(0.0001)		(0.0001)		(0.0000)		(0.0000)
New Covid-19 Deaths		0.0090		0.0020		0.0022		-0.0038
		(0.0147)		(0.0142)		(0.0035)		(0.0038)
Cumulative Covid-19 Deaths		0.0005		0.0004		0.0000		0.0001
		(0.0004)		(0.0007)		(0.0001)		(0.0001)
Region Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Day Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Treated	6,375	6,375	6,375	6,375	6,375	6,375	6,375	6,375
Number of Controlled	2,788	2,788	2,788	2,788	2,788	2,788	2,788	2,788
Number of Observations	9,163	9,163	9,163	9,163	9,163	9,163	9,163	9,163
R Squared	0.001	0.1195	0.0029	0.1072	0.0031	0.0582	0.0068	0.0457

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: NHSVR Survey Data, July 2020; own calculations.

Table A2: Alternative Control Groups

	Life Satisfaction (1)	Worthwhileness (2)	Belongingness (3)	Connectedness (4)
Panel A: Alternative Control Group 1				
$Treatment_i$	0.1830***	0.1871***	0.0348***	0.0658***
(Volunteered Vs. Not)	(0.0438)	(0.0431)	(0.0101)	(0.0109)
Number of Treated	6,375	6,375	6,375	6,375
Number of Controlled	3,652	3,652	3,652	3,652
Number of Observations	10,027	10,027	10,027	10,027
R Squared	0.1230	0.1072	0.0580	0.0451
Panel B: Alternative Control Group 2				
$Treatment_i$	0.1926**	0.0636	-0.0025	0.0354
(Volunteered Vs. Given Task But Logistically Infeasible)	(0.0960)	(0.0972)	(0.0224)	(0.0250)
Number of Treated	6,375	6,375	6,375	6,375
Number of Controlled	428	428	428	428
Number of Observations	6,803	6,803	6,803	6,803
R Squared	0.1286	0.1147	0.0560	0.0457
Panel C: Alternative Control Group 4				
$Treatment_i$	0.1745**	0.1193	0.0063	0.1012***
(Volunteered Vs. Not Yet Given Task, Volunteering Elsewhere)	(0.0798)	(0.0745)	(0.0172)	(0.0200)
Number of Treated	6,375	6,375	6,375	6,375

Number of Controlled	948	948	948	948
Number of Observations	7,323	7,323	7,323	7,323
R Squared	0.1217	0.1121	0.0540	0.0433
Panel D: Alternative Control Group 5				
$Treatment_i$	0.1607***	0.1988***	0.0610***	0.0533***
(Volunteered Vs. Not Yet Given Task, Not Volunteering Elsewhere)	(0.0586)	(0.0585)	(0.0141)	(0.0146)
Number of Treated	6,375	6,375	6,375	6,375
Number of Controlled	1,840	1,840	1,840	1,840
Number of Observations	8,215	8,215	8,215	8,215
R Squared	0.1216	0.1084	0.0597	0.0500
Individual Controls	Yes	Yes	Yes	Yes
Regional Covid-19 Controls	Yes	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes
Day Fixed Effects	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: NHSVR Survey Data, July 2020; own calculations.

Table A3a: Propensity-Score Matching – Average Treatment Effects on the Treated

	Life Satisfaction (1)	Worthwhileness (2)	Belongingness (3)	Connectedness (4)
$Treatment_i$	0.1348**	0.1576***	0.0482***	0.0809***
(Volunteered Vs. Not Yet Given Task)	(0.0530)	(0.0513)	(0.0123)	(0.0133)
Individual Controls	Yes	Yes	Yes	Yes
Regional Covid-19 Controls	Yes	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes
Day Fixed Effects	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes
Number of Treated	2,788	2,788	2,788	2,788
Number of Controlled	2,788	2,788	2,788	2,788
Number of Observations	5,576	5,576	5,576	5,576
R Squared	0.1148	0.0979	0.0645	0.0480

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: NHSVR Survey Data, July 2020; own calculations.

Table A3b: Propensity-Score Matching – Treatment Prediction

	Treatment$_i$ *(Volunteered Vs. Not Yet Given Task)* (1)
Individual Controls	
Age: 16 to 24	*Reference Category*
25 to 34	0.0310
	(0.0820)
35 to 44	-0.0213
	(0.0801)
45 to 54	-0.0188
	(0.0774)
55 to 64	0.0039
	(0.0771)
65 to 74	0.0232
	(0.0787)
75 to 84	0.0723
	(0.0932)
85 or Over	
Prefer Not to Say	0.0001
	(0.1270)
Gender: Male	*Reference Category*
Female	-0.0074
	(0.0154)
Other	-0.0698
	(0.1897)
Prefer Not to Say	-0.0921
	(0.0896)
Ethnicity: Asian / Asian British - Bangladeshi	*Reference Category*
Asian / Asian British - Chinese	0.1550
	(0.2136)
Asian / Asian British - Indian	0.0663
	(0.1740)
Asian / Asian British - Pakistani	0.0668
	(0.1859)
Asian / Asian British - Other	-0.0343
	(0.2063)
Black / African / Caribbean / Black British - African	-0.1930
	(0.2018)
Black / African / Caribbean / Black British - Caribbean	-0.1096

	(0.2093)
Black / African / Caribbean / Black British - Other	0.0574
	(0.2848)
Mixed / Multiple Ethnic Groups - White and Asian	-0.1620
	(0.2358)
Mixed / Multiple Ethnic Groups - White and Black African	0.1057
	(0.2307)
Mixed / Multiple Ethnic Groups - White and Black Caribbean	-0.1299
	(0.3554)
Mixed / Multiple Ethnic Groups - Other	0.0708
	(0.1976)
White - British / English / Northern Irish / Scottish / Welsh	0.0275
	(0.1547)
White - Gypsy or Irish Traveller	-0.1911
	(0.3226)
White - Irish	0.0035
	(0.1653)
White - Other	0.0278
	(0.1567)
Other Ethnic Group - Arab	-0.3443**
	(0.1640)
Other Ethnic Group - Other	0.0129
	(0.1673)
Religion: No Religion	*Reference Category*
Buddhist	0.0248
	(0.0658)
Christian	-0.0066
	(0.0145)
Hindu	-0.1066
	(0.1655)
Jewish	-0.1484
	(0.0961)
Muslim	0.0371
	(0.1051)
Sikh	-0.0128
	(0.1476)
Other	-0.0287
	(0.0518)
Prefer Not to Say	-0.0213
	(0.0372)
Physical or Mental Health Condition: No	*Reference Category*
Yes	-0.0025
	(0.0177)
Don't Know	-0.0296

	(0.0682)
Prefer Not to Say	0.0383
	(0.0462)
Self-Isolating: No	*Reference Category*
Yes	-0.0331
	(0.0316)
Don't Know	-0.0586
	(0.1081)
Employment: Full-Time Employed	*Reference Category*
Part-Time Employed	0.0166
	(0.0222)
Furloughed	-0.0463
	(0.0351)
In Education	0.0082
	(0.0878)
Unemployed	-0.0129
	(0.0357)
Disabled	-0.0763
	(0.0823)
Retired	-0.0068
	(0.0219)
Looking After Family	-0.0077
	(0.0364)
Doing Something Else	-0.0005
	(0.0300)
Motivation: Social: Pure Altruism	*-0.0050*
	(0.0464)
Social: Social Norm	0.0196
	(0.0289)
Social: Reputation	-0.1517***
	(0.0537)
Social: Network	0.0455
	(0.0725)
Self: Impure Altruism	-0.0274*
	(0.0141)
Self: Social Connection	0.0423
	(0.0416)
Self: Skills	-0.0354
	(0.0258)
Self: Career	-0.0146
	(0.0501)
Self: Time	0.0051
	(0.0276)
Service: Transport	-0.0969***

	(0.0149)
Community Response	0.1133***
	(0.0158)
Check In and Chat	0.0463***
	(0.0173)
Volunteered Before: No	*Reference Category*
Yes	0.0101
	(0.0170)
Volunteered Elswhere: No	*Reference Category*
Yes, One Other Group	0.0093
	(0.0172)
Yes, More Than One Other Group	0.0194
	(0.0210)
Fidelity	-0.0000*
	(0.0000)
Regional Covid-19 Controls	
New Covid-19 Hospital Admissions	-0.0014
	(0.0027)
Cumulative Covid-19 Hospital Admissions	0.0002
	(0.0004)
Current Covid-19 Hospital Cases	0.0002
	(0.0005)
Occupied Medical Ventilation Beds	0.0032
	(0.0039)
New Covid-19 Cases	0.0004
	(0.0008)
Cumulative Covid-19 Cases	0.0000
	(0.0001)
New Covid-19 Deaths	0.0033
	(0.0050)
Cumulative Covid-19 Deaths	0.0000
	(0.0002)
Region Fixed Effects	Yes
Day Fixed Effects	Yes
Constant	Yes
Number of Treated	2,788
Number of Controlled	2,788
Number of Observations	5,576
R Squared	0.0306

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: NHSVR Survey Data, July 2020; own calculations.

Table A3c: Service Prediction

	Transport	Community Response	Check In and Chat
	(1)	(2)	(3)
Individual Controls			
Age: 16 to 24	*Reference Category*	*Reference Category*	*Reference Category*
25 to 34	0.0146	-0.0267	0.0126
	(0.0618)	(0.0666)	(0.0659)
35 to 44	0.0175	0.0693	0.0002
	(0.0598)	(0.0636)	(0.0638)
45 to 54	0.0057	0.0708	-0.0459
	(0.0580)	(0.0623)	(0.0620)
55 to 64	0.0047	0.0378	-0.0135
	(0.0579)	(0.0623)	(0.0618)
65 to 74	-0.0373	-0.1182*	0.0750
	(0.0592)	(0.0639)	(0.0634)
75 to 84	-0.1925***	-0.3110***	0.2377***
	(0.0672)	(0.0789)	(0.0750)
85 or Over	-0.3048***	-0.5063***	0.4520***
	(0.0836)	(0.1190)	(0.0990)
Prefer Not to Say	-0.1369	-0.0763	0.0647
	(0.0934)	(0.1323)	(0.1294)
Gender: Male	*Reference Category*	*Reference Category*	*Reference Category*
Female	-0.2180***	-0.1884***	0.2814***
	(0.0127)	(0.0112)	(0.0129)
Other	-0.3262***	-0.5605***	0.4943***

	(0.0567)	(0.0892)	(0.1694)
Prefer Not to Say	-0.1801*	-0.1577	0.1195
	(0.0959)	(0.1043)	(0.1159)
Ethnicity: Asian / Asian British - Bangladeshi	*Reference Category*	*Reference Category*	*Reference Category*
Asian / Asian British - Chinese	-0.0147	-0.0066	-0.1676
	(0.1951)	(0.1613)	(0.1675)
Asian / Asian British - Indian	0.0349	0.1335	0.0203
	(0.1895)	(0.1341)	(0.1368)
Asian / Asian British - Pakistani	0.0468	-0.0058	0.0384
	(0.1820)	(0.1362)	(0.1379)
Asian / Asian British - Other	-0.1247	-0.0614	-0.0392
	(0.1823)	(0.1637)	(0.1539)
Black / African / Caribbean / Black British - African	-0.1928	-0.0838	-0.0633
	(0.1820)	(0.1439)	(0.1407)
Black / African / Caribbean / Black British - Caribbean	0.1232	-0.0167	-0.0361
	(0.2049)	(0.1625)	(0.1683)
Black / African / Caribbean / Black British - Other	0.0632	0.1733	-0.3262
	(0.2410)	(0.2256)	(0.2368)
Mixed / Multiple Ethnic Groups - White and Asian	0.0345	0.0018	-0.1691
	(0.1997)	(0.1555)	(0.1576)
Mixed / Multiple Ethnic Groups - White and Black African	-0.3406*	-0.3117	0.3995***
	(0.1829)	(0.2505)	(0.1337)
Mixed / Multiple Ethnic Groups - White and Black Caribbean	0.2362	0.0885	0.0166
	(0.2401)	(0.2037)	(0.2006)
Mixed / Multiple Ethnic Groups - Other	-0.1334	0.0598	-0.3659**
	(0.1872)	(0.1655)	(0.1714)
White - British / English / Northern Irish / Scottish / Welsh	0.0121	0.0074	-0.0798
	(0.1776)	(0.1329)	(0.1322)

White - Gypsy or Irish Traveller	-0.1762	-0.1664	0.2315
	(0.2065)	(0.2136)	(0.1556)
White - Irish	-0.0136	-0.0001	-0.1062
	(0.1826)	(0.1392)	(0.1388)
White - Other	0.0041	0.0044	-0.1081
	(0.1784)	(0.1339)	(0.1336)
Other Ethnic Group - Arab	-0.0521	-0.1887	-0.0551
	(0.1980)	(0.1655)	(0.1702)
Other Ethnic Group - Other	0.0572	0.0168	-0.0979
	(0.1885)	(0.1449)	(0.1451)
Religion: No Religion	*Reference Category*	*Reference Category*	*Reference Category*
Buddhist	-0.0721	-0.1033*	0.0780
	(0.0546)	(0.0626)	(0.0646)
Christian	-0.0294**	-0.0260**	0.0497***
	(0.0123)	(0.0116)	(0.0128)
Hindu	-0.1654**	-0.2758***	-0.0168
	(0.0794)	(0.0774)	(0.0780)
Jewish	-0.1474***	-0.1205**	0.0380
	(0.0441)	(0.0541)	(0.0542)
Muslim	-0.0155	-0.1042	-0.0198
	(0.0791)	(0.0809)	(0.0736)
Sikh	-0.2145**	-0.3402***	-0.0183
	(0.0931)	(0.1114)	(0.1049)
Other	-0.0509	-0.0437	0.0344
	(0.0429)	(0.0414)	(0.0443)
Prefer Not to Say	0.0123	-0.0458	0.0786**
	(0.0388)	(0.0388)	(0.0382)
Physical or Mental Health Condition: No	*Reference Category*	*Reference Category*	*Reference Category*

Yes	-0.0244*	-0.0984***	0.0590***
	(0.0134)	(0.0141)	(0.0138)
Don't Know	-0.0995*	-0.0123	-0.0931
	(0.0554)	(0.0580)	(0.0587)
Prefer Not to Say	-0.0404	-0.0439	-0.0300
	(0.0416)	(0.0431)	(0.0449)
Self-Isolating: No	*Reference Category*	*Reference Category*	*Reference Category*
Yes	-0.1726***	-0.3392***	0.1952***
	(0.0155)	(0.0210)	(0.0180)
Don't Know	-0.0496	-0.1420*	0.0185
	(0.0665)	(0.0844)	(0.0751)
Employment: Full-Time Employed	*Reference Category*	*Reference Category*	*Reference Category*
Part-Time Employed	-0.0291	-0.0136	-0.0121
	(0.0186)	(0.0171)	(0.0192)
Furloughed	-0.0461*	-0.0432*	0.0249
	(0.0250)	(0.0235)	(0.0260)
In Education	-0.0533	-0.0218	0.0290
	(0.0623)	(0.0653)	(0.0610)
Unemployed	-0.0263	-0.0645**	-0.0047
	(0.0280)	(0.0265)	(0.0288)
Disabled	-0.0777*	-0.1532***	0.0370
	(0.0398)	(0.0449)	(0.0423)
Retired	-0.0468**	-0.0638***	-0.0005
	(0.0185)	(0.0174)	(0.0192)
Looking After Family	-0.0228	-0.0707**	0.0600**
	(0.0257)	(0.0282)	(0.0265)

Doing Something Else	-0.0093	-0.0709***	0.0428
	(0.0265)	(0.0261)	(0.0272)
Motivation: Social: Pure Altruism	*0.0286*	*0.1334****	*-0.0652**
	(0.0396)	*(0.0419)*	*(0.0353)*
Social: Social Norm	0.0025	0.0515**	-0.0208
	(0.0234)	(0.0209)	(0.0243)
Social: Reputation	0.0113	0.0165	0.0361
	(0.0242)	(0.0232)	(0.0247)
Social: Network	-0.0255	-0.0091	0.1112**
	(0.0545)	(0.0499)	(0.0566)
Self: Impure Altruism	-0.0017	-0.0152	0.1108***
	(0.0121)	(0.0117)	(0.0128)
Self: Social Connection	0.0703**	0.1392***	-0.0668**
	(0.0322)	(0.0267)	(0.0333)
Self: Skills	0.0079	-0.1142***	0.1119***
	(0.0171)	(0.0177)	(0.0166)
Self: Career	0.0449	0.0416	0.0004
	(0.0311)	(0.0293)	(0.0305)
Self: Time	0.0122	0.0253	-0.0531**
	(0.0222)	(0.0201)	(0.0229)
Volunteered Before: No	*Reference Category*	*Reference Category*	*Reference Category*
Yes	0.0047	-0.0151	0.0016
	(0.0141)	(0.0135)	(0.0145)
Volunteered Elswhere: No	*Reference Category*	*Reference Category*	*Reference Category*
Yes, One Other Group	0.0641***	0.0971***	-0.0372**
	(0.0144)	(0.0134)	(0.0149)
Yes, More Than One Other Group	0.0542***	0.1152***	-0.0210

	(0.0170)	(0.0156)	(0.0175)
Fidelity	0.0000	-0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)
Regional Covid-19 Controls			
New Covid-19 Hospital Admissions	-0.0024	0.0029	-0.0018
	(0.0020)	(0.0019)	(0.0021)
Cumulative Covid-19 Hospital Admissions	0.0003	0.0007**	-0.0005
	(0.0003)	(0.0003)	(0.0003)
Current Covid-19 Hospital Cases	-0.0000	-0.0001	-0.0002
	(0.0003)	(0.0003)	(0.0004)
Occupied Medical Ventilation Beds	0.0008	0.0037	-0.0041
	(0.0028)	(0.0028)	(0.0030)
New Covid-19 Cases	-0.0008	-0.0011*	0.0007
	(0.0006)	(0.0006)	(0.0006)
Cumulative Covid-19 Cases	-0.0001	-0.0001*	0.0000
	(0.0000)	(0.0000)	(0.0000)
New Covid-19 Deaths	0.0051	0.0072*	-0.0079*
	(0.0040)	(0.0039)	(0.0041)
Cumulative Covid-19 Deaths	-0.0000	-0.0001	0.0000
	(0.0001)	(0.0001)	(0.0001)
Region Fixed Effects	Yes	Yes	Yes
Day Fixed Effects	Yes	Yes	Yes
Constant	Yes	Yes	Yes
Number of Treated	1,923	1,923	1,923
Number of Controlled	4,649	4,649	4,649
Number of Observations	6,572	6,572	6,572

R Squared	0.0946	0.1857	0.1551

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: NHSVR Survey Data, July 2020; own calculations.

Table A4: Additional Controls

	Life Satisfaction (1)	Worthwhileness (2)	Belongingness (3)	Connectedness (4)
Panel A: Also Controlling for Postcodes				
$Treatment_i$	0.1660**	0.1898**	0.0534***	0.0590***
(Volunteered Vs. Not Yet Given Task)	(0.0846)	(0.0853)	(0.0202)	(0.0220)
Number of Treated	2,812	2,812	2,812	2,812
Number of Controlled	790	790	790	790
Number of Observations	3,602	3,602	3,602	3,602
R Squared	0.1765	0.1609	0.1077	0.1072
Panel B: Also Controlling for Waiting Time				
$Treatment_i$	0.1755***	0.1874***	0.0393***	0.0665***
(Volunteered Vs. Not Yet Given Task)	(0.0510)	(0.0495)	(0.0118)	(0.0126)
Number of Treated	6,375	6,375	6,375	6,375
Number of Controlled	2,788	2,788	2,788	2,788
Number of Observations	9,163	9,163	9,163	9,163
R Squared	0.1195	0.1072	0.0583	0.0458
Individual Controls	Yes	Yes	Yes	Yes
Regional Covid-19 Controls	Yes	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes
Day Fixed Effects	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: NHSVR Survey Data, July 2020; RVS/GoodSAM Admin Data, April to July 2020; own calculations.

Table A5: Treatment Effects Persistence

	Life Satisfaction			Worthwhileness			Belonging			Connectedness		
	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)	(4a)	(4b)	(4c)
$Treatment_i$ (June 1, 2020 - Survey)	0.1729**			0.1596**			0.0652***			0.0738***		
(Volunteered Vs. Not Yet Given Task)	(0.0768)			(0.0758)			(0.0175)			(0.0194)		
$Treatment_i$ (May 1 - May 31, 2020)		0.2783***			0.3128***			0.0324*			0.1037***	
(Volunteered Vs. Not Yet Given Task)		(0.0803)			(0.0777)			(0.0186)			(0.0202)	
$Treatment_i$ (April 1 - April 30, 2020)			0.1547*			0.1656*			0.0556***			0.1074***
(Volunteered Vs. Not Yet Given Task)			(0.0915)			(0.0896)			(0.0211)			(0.0231)
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regional Covid-19 Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Day Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Treated (June 1, 2020 - Survey)	1,129	971	711	1,129	971	711	1,129	971	711	1,129	971	711
Number of Controlled	2,788	2,788	2,788	2,788	2,788	2,788	2,788	2,788	2,788	2,788	2,788	2,788
Number of Observations	3,917	3,759	3,499	3,917	3,759	3,499	3,917	3,759	3,499	3,917	3,759	3,499
R Squared	0.1324	0.1322	0.1349	0.1205	0.1124	0.1218	0.0896	0.0822	0.0815	0.0603	0.0657	0.0611

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: NHSVR Survey Data, July 2020; RVS/GoodSAM Admin Data, April to July 2020; own calculations.

Table A6: Understanding Society Covid-19 Wave (USC19) vs NHSVR Survey Data

Samples	USC19-All	USC19-Volunteer	USC19-Non-Volunteer	NHSVR-Control	NHSVR-Treatment	All-USC19 vs All-NHSVR	Volunteer-USC19 vs All-NHSVR	Volunteer-USC19 vs Treatment-NHSVR	Non-volunteer-USC19 vs Treatment-NHSVR	Volunteer-USC19 vs Control-NHSVR	Non-volunteer-USC19 vs Control-NHSVR
Individual Controls	Mean	Mean	Mean	Mean	Mean	NDs	NDs	NDs	NDs	NDs	NDs
Age: 16 to 24	NA	NA	NA	0.010	0.009						
25 to 34	0.064	0.044	0.066	0.038	0.039	-0.081	-0.019	-0.017	-0.085	0.021	-0.089
35 to 44	0.093	0.048	0.098	0.071	0.096	-0.012	0.113	0.125	-0.006	-0.069	-0.069
45 to 54	0.145	0.112	0.147	0.204	0.235	0.148	0.218	0.210	0.160	-0.181	0.107
55 to 64	0.196	0.198	0.195	0.422	0.402	0.336	0.332	0.264	0.328	-0.354	0.358
65 to 74	0.219	0.252	0.216	0.231	0.202	-0.014	-0.070	-0.075	-0.026	0.035	0.025
75 to 84	0.196	0.258	0.190	0.015	0.013	-0.440	-0.539	-0.470	-0.433	0.533	-0.424
85 or Over	0.077	0.083	0.077	0.000	0.001	-0.286	-0.299	-0.286	-0.285	0.301	-0.288
Prefer Not to Say	0.010	0.005	0.010	0.007	0.003	-0.045	-0.004	-0.016	-0.059	-0.019	-0.025
Gender: Male	0.414	0.428	0.413	0.429	0.331	-0.078	-0.098	-0.112	-0.121	-0.001	0.023
Female	0.586	0.572	0.587	0.560	0.666	0.069	0.089	0.084	0.115	0.017	-0.039
Ethnicity: Asian / Asian British - Bangladeshi	0.008	0.009	0.009	0.002	0.002	-0.061	-0.069	-0.071	-0.075	0.064	-0.067
Asian / Asian British - Chinese	0.005	0.006	0.005	0.002	0.004	-0.017	-0.028	-0.021	-0.019	0.045	-0.042
Asian / Asian British - Indian	0.028	0.028	0.034	0.010	0.020	-0.056	-0.055	-0.040	-0.062	0.094	-0.115
Asian / Asian British - Pakistani	0.017	0.008	0.021	0.003	0.005	-0.085	-0.031	-0.025	-0.098	0.046	-0.115
Asian / Asian British - Other	0.007	0.008	0.007	0.003	0.004	-0.032	-0.043	-0.039	-0.033	0.050	-0.044
Black / African / Caribbean / Black British - African	0.010	0.011	0.011	0.003	0.008	-0.025	-0.036	-0.022	-0.019	0.071	-0.068
Black / African / Caribbean / Black British - Caribbean	0.011	0.006	0.013	0.003	0.003	-0.065	-0.035	-0.032	-0.078	0.042	-0.087
Black / African / Caribbean / Black British - Other	0.001	0.001	0.001	0.001	0.001	-0.001	0.007	0.011	0.002	0.003	-0.011
Mixed / Multiple Ethnic Groups - White and Asian	0.005	0.007	0.005	0.002	0.004	-0.012	-0.035	-0.027	-0.004	0.058	-0.037

Mixed / Multiple Ethnic Groups - White and Black African	NA	NA	NA	0.001	0.001						
Mixed / Multiple Ethnic Groups - White and Black Caribbean	0.006	0.003	0.008	0.001	0.001	-0.060	-0.033	-0.029	-0.069	0.040	-0.078
Mixed / Multiple Ethnic Groups - Other	0.003	0.005	0.004	0.003	0.003	-0.011	-0.026	-0.025	-0.016	0.027	-0.018
White - British / English / Northern Irish / Scottish / Welsh	0.850	0.852	0.837	0.886	0.847	0.017	0.013	-0.004	0.019	-0.072	0.101
White - Gypsy or Irish Traveller	NA	NA	NA	0.001	0.001						
White - Irish	0.015	0.012	0.007	0.013	0.015	-0.005	0.013	0.015	0.053	-0.007	0.046
White - Other	0.030	0.036	0.032	0.058	0.074	0.129	0.104	0.113	0.134	-0.073	0.090
Other Ethnic Group - Arab	0.002	0.002	0.002	0.000	0.002	0.000	0.000	0.009	0.003	0.027	-0.033
Other Ethnic Group - Other	0.003	0.005	0.003	0.009	0.006	0.037	0.020	0.012	0.029	-0.035	0.051
Physical or Mental Health Condition: No	0.488	0.461	0.489	0.768	0.737	0.390	0.432	0.252	0.373	-0.470	0.427
Yes	0.512	0.539	0.511	0.201	0.238	-0.437	-0.479	-0.341	-0.416	0.528	-0.484
Self-Isolating: No	0.887	0.852	0.880	0.939	0.918	0.092	0.163	0.050	0.091	-0.202	0.147
Yes	0.111	0.148	0.120	0.056	0.077	-0.098	-0.175	-0.150	-0.102	0.214	-0.160
Don't Know	0.003	0.000	0.000	0.004	0.005	0.023	0.067	0.067	0.067	-0.066	0.066
Employed	0.498	0.533	0.489	0.413	0.411	-0.457	-0.512	-0.126	-0.122	0.169	-0.309
Furloughed	0.025	0.014	0.026	0.060	0.084	0.167	0.214	0.223	0.181	0.093	-0.157
Regions: East of England	0.120	0.108	0.122	0.110	0.096	-0.042	-0.016	-0.026	-0.058	-0.004	-0.027
London	0.122	0.142	0.118	0.081	0.104	-0.056	-0.096	-0.075	-0.031	0.137	-0.088
Midlands	0.200	0.178	0.204	0.157	0.173	-0.058	-0.017	-0.009	-0.056	0.039	-0.086
North East and Yorkshire	0.146	0.137	0.147	0.102	0.134	-0.044	-0.026	-0.006	-0.027	0.077	-0.098
North West	0.120	0.112	0.121	0.120	0.129	0.014	0.031	0.033	0.015	-0.017	-0.003
South East	0.175	0.195	0.171	0.277	0.238	0.126	0.090	0.066	0.117	-0.138	0.181
South West	0.116	0.128	0.116	0.153	0.126	0.036	0.011	-0.004	0.022	-0.051	0.078
N	10,892	1,264	9,628	2788	6246						

Notes: NDs are normalised differences, which are calculated as $\Delta x = (\bar{x}_t - \bar{x}_c) / \sqrt{(\sigma_t^2 + \sigma_c^2)}$, where $\bar{x}_t$ and $\bar{x}_c$ is the sample mean of the covariate for the treatment and control group, respectively. σ^2 denotes the respective variance. As a rule of thumb, a normalised difference greater than 0.25 indicates a non-balanced covariate (Imbens and Wooldridge, 2009).
Sources: NHSVR Survey Data, July 2020; Understanding Society Covid-19 Wave, July 2020; own calculations.

Table A7: UCL Covid-19 Social Study (UCL19) vs NHSVR Survey Data

Samples	UCL19-All	UCL19-Volunteer	UCL19-Non-volunteer	All-NHSVR	Treatment-NHSVR	Control-NHSVR	All-UCL19 vs All-NHSVR	Volunteer-UCL19 vs All-NHSVR	Volunteer-UCL19 vs Treatment-NHSVR	Non-volunteer-UCL19 vs Treatment-NHSVR	Volunteer-UCL19 vs Control-NHSVR
Individual Controls	Mean	Mean	Mean	Mean	Mean	Mean	NDs	NDs	NDs	NDs	NDs
Age: 16 to 24	0.022	0.018	0.023	0.009	0.009	0.010	-0.069	-0.054	-0.054	-0.078	-0.045
25 to 34	0.103	0.086	0.109	0.039	0.039	0.038	-0.177	-0.137	-0.137	-0.190	-0.140
35 to 44	0.167	0.147	0.174	0.088	0.096	0.071	-0.168	-0.113	-0.112	-0.163	-0.173
45 to 54	0.219	0.215	0.221	0.226	0.235	0.204	0.011	0.035	0.035	0.024	-0.018
55 to 64	0.249	0.266	0.243	0.408	0.402	0.422	0.243	0.206	0.206	0.244	0.236
65 to 74	0.193	0.217	0.184	0.211	0.202	0.231	0.032	-0.027	-0.027	0.032	0.024
75 to 84	0.044	0.048	0.043	0.014	0.013	0.015	-0.128	-0.142	-0.143	-0.127	-0.132
85 or Over	0.003	0.003	0.003	0.000	0.001	0.000	-0.050	-0.046	-0.045	-0.046	-0.057
Gender: Male	0.240	0.242	0.239	0.361	0.331	0.429	0.188	0.138	0.140	0.144	0.287
Female	0.756	0.754	0.757	0.633	0.666	0.560	-0.191	-0.137	-0.138	-0.144	-0.296
Ethnicity: Asian / Asian British - Indian/Pakistani/Bangladeshi Other	0.013	0.014	0.013	0.026	0.031	0.018	0.067	0.086	0.081	0.086	0.026
Black/Black British - Caribbean, African, Other	0.006	0.006	0.006	0.011	0.013	0.006	0.035	0.054	0.050	0.051	-0.001
Mixed Race - White and Black / Black-British	0.004	0.004	0.004	0.002	0.002	0.002	-0.033	-0.030	-0.030	-0.032	-0.034
Mixed Rcae - other	0.011	0.011	0.011	0.006	0.007	0.005	-0.039	-0.035	-0.035	-0.033	-0.051
White - British / Irish / Other	0.952	0.951	0.952	0.943	0.935	0.957	-0.028	-0.050	-0.048	-0.053	0.021
Chinese / Chinese British	0.003	0.003	0.004	0.003	0.003	0.002	-0.006	0.002	0.002	0.000	-0.017
Middle eastern / Middle eastern British	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.008	0.008	0.008	-0.012
Other ethnic group	0.005	0.006	0.005	0.008	0.007	0.009	0.022	0.014	0.014	0.018	0.027

Religion: No Religion	0.477	0.428	0.482	0.359	0.339	0.393	-0.171	-0.129	-0.129	-0.208	-0.050
Buddhist	0.008	0.007	0.008	0.009	0.008	0.010	0.009	0.007	0.007	0.004	0.020
Christian	0.452	0.481	0.449	0.548	0.572	0.508	0.137	0.129	0.129	0.175	0.037
Hindu	0.002	0.002	0.002	0.007	0.010	0.003	0.059	0.080	0.071	0.077	0.008
Jewish	0.012	0.021	0.011	0.010	0.011	0.008	-0.017	-0.060	-0.059	-0.004	-0.077
Muslim	0.004	0.004	0.004	0.011	0.011	0.011	0.055	0.059	0.058	0.056	0.054
Sikh	0.001	0.001	0.001	0.003	0.004	0.002	0.036	0.040	0.037	0.045	0.012
Other	0.031	0.040	0.030	0.018	0.017	0.019	-0.060	-0.098	-0.098	-0.060	-0.089
Prefer Not to Say	0.013	0.015	0.012	0.034	0.027	0.047	0.102	0.058	0.063	0.075	0.132
Employment: Full-Time Employed	0.399	0.357	0.414	0.253	0.258	0.245	-0.223	-0.154	-0.153	-0.237	-0.174
Part-Time Employed	0.172	0.174	0.171	0.155	0.150	0.164	-0.033	-0.047	-0.047	-0.041	-0.020
In Education	0.030	0.027	0.031	0.009	0.010	0.008	-0.107	-0.094	-0.093	-0.108	-0.103
Unemployed	0.022	0.023	0.022	0.049	0.050	0.046	0.101	0.103	0.102	0.106	0.090
Disabled	0.050	0.048	0.051	0.014	0.015	0.010	-0.149	-0.134	-0.132	-0.142	-0.159
Retired	0.287	0.330	0.272	0.335	0.324	0.354	0.073	-0.009	-0.009	0.080	0.037
Looking After Family	0.039	0.041	0.039	0.048	0.052	0.042	0.031	0.038	0.037	0.045	0.006
Region: East of England	0.092	0.105	0.090	0.101	0.096	0.110	0.024	-0.019	-0.019	0.015	0.012
London	0.217	0.224	0.216	0.098	0.104	0.081	-0.234	-0.234	-0.231	-0.218	-0.287
Midlands	0.133	0.121	0.134	0.169	0.173	0.157	0.072	0.104	0.104	0.076	0.073
North East and Yorkshire	0.103	0.101	0.103	0.125	0.134	0.102	0.049	0.073	0.072	0.068	0.001
North West	0.080	0.074	0.081	0.127	0.129	0.120	0.107	0.128	0.127	0.109	0.109
South East	0.222	0.227	0.221	0.248	0.238	0.277	0.043	0.018	0.019	0.028	0.082
South West	0.154	0.148	0.155	0.133	0.126	0.153	-0.042	-0.044	-0.045	-0.059	0.011
N	667612	176576	491036	9034	6246	2788					

Notes: NDs are normalised differences, which are calculated as $\Delta x = (\bar{x}_t - \bar{x}_c) / \sqrt{(\sigma_t^2 + \sigma_c^2)}$, where $\bar{x}_t$ and $\bar{x}_c$ is the sample mean of the covariate for the treatment and control group, respectively. σ^2 denotes the respective variance. As a rule of thumb, a normalised difference greater than 0.25

indicates a non-balanced covariate (Imbens and Wooldridge, 2009).
Sources: NHSVR Survey Data, July 2020; UCL Covid-19 Social Study, July 2020; own calculations.

Table A8: Life Satisfaction of Volunteers and Non-Volunteers in Different Datasets

Dataset		All	Volunteers	Non-Volunteers	Mean Difference Volunteers - Non-Volunteers
NHSVR Survey Data					
	Mean	7.2228	7.2864	7.1151	0.1713***
	σ	2.0803	2.0579	2.1146	
	N	10,578	6,673	3,893	
USC19					
	Mean	7.8959	8.0995	7.8696	0.2299***
	σ	2.4311	2.4074	2.4329	
	N	10,892	1,264	9,628	
UCL19					
	Mean	6.0679	6.2272	6.0116	0.2156***
	σ	2.2937	2.2786	2.2964	
	N	664,597	173,580	491,017	

**** p<0.01, ** p<0.05, * p<0.1*

Notes: USC19: Understanding Society Covid-19 Wave. UCL19: UCL Covid-19 Social Study. The samples are raw samples. In the NHSVR sample, volunteers are those who signed up to the programme and go to volunteer at any point in time, whereas non-volunteers are those who signed up to the programme but did not get to volunteer. In the NHSVR and UCL19 samples, the same question on life satisfaction is used, i.e. 'Overall, how satisfied are you with your life nowadays?', with answers from 0 ('not at all') to 10 ('completely'). In the USC19 sample, a slightly different question is used, i.e. 'Here are some questions about how you feel about your life. Please choose the number which you feel best describes how

dissatisfied or satisfied you are with the following aspects of your current situation. Your life overall.', with answers from 1 ('Completely dissatisfied') to 7 ('Completely satisfied'). For comparability, the latter question has been rescaled to a 0-to-10 scale.
Sources: NHSVR Survey Data, July 2020; Understanding Society Covid-19 Wave, July 2020; UCL Covid-19 Social Study, July 2020; own calculations.

Web Appendix

W1. Additional Analyses

Heterogeneous Treatment Effects by Motivation for Joining

Our survey asked volunteers about their motivations to join the NHSVR programme. Notwithstanding issues of social desirability, attitude expression, and imperfect recall, we cautiously exploit volunteers' self-reports to shed light on heterogeneous treatment effects by motivation to join.

Volunteers could report multiple motivations at the same time. We group them into the following motivational categories:

- *Social: Pure Altruism* refers to whether a volunteer reports that they were responding to a national crisis, wanted to support the NHS, wanted to make a difference, or wanted to help their local community.
- *Social: Social Norm* refers to whether a volunteer reports to have thought that joining was expected of them.
- *Social: Social Reputation* refers to whether a volunteer reports to enjoy telling their friends or family about their volunteering.
- *Social: Social Network* refers to whether a volunteer reports that someone asked them to give help.
- *Self: Impure Altruism* refers to whether a volunteer reports to enjoy helping other people.
- *Self: Social Connection* refers to whether a volunteer reports to have wanted to meet new people or make new friends.

- *Self: Skills* refers to whether a volunteer reports to have wanted to gain or use skills and experience.
- *Self: Career* refers to whether a volunteer reported to have an interest in pursuing a career in healthcare or the NHS.
- *Self: Time* refers to whether a volunteer reported to have been furloughed and hence to have time to volunteer.

To look at heterogeneous treatment effects by motivation to join, we interact our treatment dummy from Table 2 in the manuscript with each motivational category. Table W1 below shows our findings, focusing, for ease of exposition, on the interactions and suppressing the levels.

We do not find strong evidence for heterogeneous treatment effects by motivation to join, possibly because motivations were already quite homogeneously distributed amongst individuals who selected into the NHSVR programme, with little differences between those who volunteered at any point in time (our treatment group) and those who did not get to volunteer because they had not been given a task yet (our main control group).

If anything, we find some evidence that volunteers who report to be responding to social expectations or norms, or who report to have joined simply because they enjoy helping other people, to benefit more in terms of overall life satisfaction and feelings of worthwhileness. Interestingly, volunteers who report to have joined because of personal reputation generate the largest life satisfaction benefits, yet no benefits in terms of worthwhileness, possibly pointing towards the importance of relative social comparisons which are more likely to be picked up in hedonic (i.e. life satisfaction) rather than eudemonic measures (i.e. feelings of worthwhileness in life) of subjective wellbeing.

Table W1: Heterogeneous Treatment Effects By Motivation

$Treatment_i$ *(Volunteered Vs. Not Yet Given Task)*	Life Satisfaction (1)	Worthwhileness (2)	Belongingness (3)	Connectedness (4)
x Social: Pure Altruism	0.2954	0.2375	-0.0238	0.0032
	(0.3455)	(0.3134)	(0.0742)	(0.0749)
x Social: Social Norm	0.3459*	0.3545*	-0.0118	-0.0523
	(0.1935)	(0.1895)	(0.0418)	(0.0467)
x Social: Reputation	0.5735*	0.3972	0.0503	-0.0947
	(0.3403)	(0.3363)	(0.0676)	(0.0716)
x Social: Network	-0.6664	-0.2700	-0.0184	-0.0298
	(0.4553)	(0.5562)	(0.0986)	(0.1127)
x Self: Impure Altruism	0.1659*	0.1617*	0.0135	0.0160
	(0.0945)	(0.0915)	(0.0221)	(0.0236)
x Self: Social Connection	0.0922	0.0631	-0.0405	0.0182
	(0.2950)	(0.2912)	(0.0660)	(0.0680)
x Self: Skills	-0.1001	0.0485	-0.0554	0.0083
	(0.1575)	(0.1599)	(0.0357)	(0.0391)
x Self: Career	0.4896	0.2658	-0.0057	0.0100
	(0.3472)	(0.3590)	(0.0721)	(0.0747)
x Self: Time	0.0436	-0.0108	-0.0194	0.0072
	(0.1572)	(0.1528)	(0.0370)	(0.0382)
Individual Controls	Yes	Yes	Yes	Yes
Regional Covid-19 Controls	Yes	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes
Day Fixed Effects	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes

Number of Treated	6,375	6,375	6,375	6,375
Number of Controlled	2,788	2,788	2,788	2,788
Number of Observations	9,163	9,163	9,163	9,163
R Squared	0.1196	0.1075	0.0549	0.0426

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Sources: NHSVR Survey Data, July 2020; own calculations.

W2. Materials

Link to Materials