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## Who behaves charitably? Evidence from a global study

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### ABSTRACT

This paper adds to the literature on charitable behaviour by analysing the correlates of three types of such behaviour (donating money, volunteering time, and helping a stranger) in a global sample of 134 countries and 388,602 individuals. We compare the differences in the factors associated with multiple measures of charitable behaviour, using a wide range of individual- and country-level variables. We find important differences across global regions and levels of economic development in these factors. Our findings are relevant for NGOs and charities, in particular in designing funding campaigns.

### KEYWORDS

Charitable behaviour; charitable donations; volunteering; helping strangers; global philanthropy

### JEL CLASSIFICATION

D64; L31; H24

## I. Introduction

According to the World Giving Index, 35% of people worldwide donated money to charity, 23% volunteered time and 62% helped a stranger in 2021 (Charities Aid Foundation 2022). There is significant variation in these behaviours across countries and cultures. For example, 84% of people donated money in Indonesia, whereas only 18% donated in Japan. A significant literature exists which examines the correlates of donating money and volunteering time, using both individual-level and country-level data. For example, Mainardes et al.'s (2016) review discusses 57 individual characteristics that are correlated with donating to charity. Common findings in this literature include that people who are older, more educated and have more income are more likely to donate and to volunteer. There are fewer studies about what types of people are more likely to help strangers and what country-specific factors are correlated with helping strangers.

In this paper we estimate the correlates of charitable behaviour (donating money, volunteering and helping a stranger) including many individual- and country-level characteristics in a global sample of 134 countries using data from the Gallup World Poll (GWP), which is the dataset used to construct

the World Giving Index (WGI). No previous study has included as many variables for as many countries. This is our primary contribution to the literature. Having data for so many countries means we can analyse whether there are important differences for countries with different levels of economic development, and whether there are any variations across regions (our proxy for cultures). We find some interesting differences. For example, women are more likely to donate than men in high-income countries, but there are no statistically significant gender differences for countries with lower incomes per capita. We also make a methodological contribution aimed at quantifying the importance of different factors. Specifically, we use Shapley values to determine which categories of explanatory variables (country factors, income factors, demographic factors, well-being factors and socio-economic factors) are most important in explaining charitable behaviour.

The remainder of the paper is structured as follows. The next section briefly reviews the literature. Section III discusses the data set construction and the empirical methods. Section IV presents and discusses our results; section V explores heterogeneity in the results across economic development and global regions. Section VI briefly concludes.

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## II. Literature review

A large number of existing studies analyse the correlates of donating money and/or volunteering time. We first analyse the studies that use individual-level data, then those that use country-level data, and finally those that use both levels of data.

Although most studies using individual-level data focus on donating or volunteering, some studies examine both (e.g. Glanville, Paxton, and Wang 2016; Jones 2006; Wiepking, Einolf, and Yang 2023). Some studies focus on the extensive margin (whether or not people donate or volunteer), others on the intensive margin (how much they donate or volunteer) and others on both (e.g. Jones 2006; Mesch et al. 2011). Correlates of both donating and volunteering in studies analysing both include age (e.g. Glanville, Paxton, and Wang 2016; Jones 2006), education (e.g. Jones 2006; Wiepking, Einolf, and Yang 2023), income (e.g. Jones 2006; Wiepking, Einolf, and Yang 2023), having children (e.g. Glanville, Paxton, and Wang 2016; Jones 2006), being married (e.g. Glanville, Paxton, and Wang 2016), social capital (e.g. Glanville, Paxton, and Wang 2016; Jones 2006; Wiepking, Einolf, and Yang 2023) and religiosity (e.g. Glanville, Paxton, and Wang 2016).

Other variables which are positively correlated with donating include living in a rural area (Guy and Patton 1989) happiness (Dunn, Akinin, and Norton 2008), being married (Wiepking and Maas 2009), having children (Bekkers and Wiepking 2007) and religiosity (Bekkers and Wiepking 2011). Appendix A contains a longer list of variables found to be correlated with donating. Variables that are positively correlated with volunteering include social capital (e.g. Forbes and Zampelli 2012), religiosity (e.g. Forbes and Zampelli 2012), health (e.g. Enjolras 2021), being white (e.g. Paarlberg et al. 2022), living in a rural area (e.g. Paarlberg et al. 2022) and being unemployed (e.g. Rotolo and Wilson 2012). Much of this research using individual-level data is conducted in what Henrich (2020) terms WEIRD (Western, Educated, Industrialised, Rich and Democratic) countries, but some is conducted in non-WEIRD countries. For example, Chapman et al. (2021) in

a meta-study find the relationship between trust and giving is weaker in Western countries than in non-Western countries.

There are also studies which use country-level data to analyse why people are more likely to donate to charity or volunteer, in some countries rather than others. For example, Knowles (2007) finds donations to international development charities are higher in less egalitarian countries and countries where generalized trust is higher. Einolf (2017) finds, using GWP data, that a number of variables are significant when analysing pairwise correlations with donating, but in a multivariate regression, the only statistically significant variables for the global sample are that fewer people donate in former communist countries and more people donate in linguistically diverse countries. For non-Western countries, giving is positively correlated with the percent of the population who are Buddhist. Salahodjaev et al. (2022) find a positive correlation across countries between life satisfaction and philanthropy (as measured by the average of the three components of the WGI). Schröder and Neumayr (2021) conduct a systematic review of 70 studies analysing the relationship between inequality and charitable donations and volunteering and/or membership of a not-for-profit organization, where inequality is measured at the level of countries, federal states, municipalities or urban areas. They conclude that the majority of studies find a negative relationship between inequality and donating, while evidence on inequality and volunteering is more mixed.

There are also studies which, as we do, make use of both individual- and country-level data. The results from these studies on individual-level variables were included in our discussion above.<sup>1</sup> We focus here on the results from these studies for country-level variables. Looking first at studies on donating, Wiepking et al. (2021) estimate the correlation between institutional context and donations by combining individual- and country-level data for a sample of 19 countries and find that giving is higher in countries with a stronger institutional context for philanthropy. They do not, however, report results for factors at the individual level. At

<sup>1</sup>There are also studies that include both individual-level data and data at the level of U.S. counties (Paarlberg et al. 2022) or states (Rotolo and Wilson 2012), or European regions (Glanville, Paxton, and Wang 2016). The results from these studies for individual-level variables have been included in our discussion of individual-level results.

the country level, Enjolras (2021) find that inequality is negatively correlated with volunteering, while democracy and social trust are positively correlated with volunteering.

So far, the focus of our literature review has been on studies analysing the correlates of donating money and volunteering. We now turn to studies on helping strangers. The wording of the GWP question on volunteering asks: *'Have you done any of the following in the past month: How about helped a stranger or someone you didn't know who needed help?'* This is a rather broad question, and it is possible that some people taking the survey may interpret it to also include donating and volunteering, as such behaviours often result in strangers being helped. In reviewing the literature on helping strangers we limit our focus to studies using survey data like the GWP question. Glanville et al. (2016) analyse informal helping (as well as donating and volunteering), but informal helping is different to helping a stranger. As they note, informal helping is likely to be directed towards known others. One study which analyses the correlates of helping strangers is Bennet and Einolf (2017) who use both individual- and country-level data from the GWP, to estimate the correlation between religiosity and helping strangers. At the individual level they find that religious membership is correlated with helping a stranger, and at the country level religious diversity and the overall religiosity of the country are positively correlated with helping strangers. Other individual-level variables found to be positively correlated with helping strangers include age (at a diminishing rate), education, being single, separated or divorced and income.

To summarize, there is an extensive literature on the correlates of donating money and volunteering, but less on helping strangers. The literature on donating and volunteering includes studies using individual-level data, country-level data or both. Within this literature, there are a large number of variables found to be correlated with donating and volunteering, and typically variables that are correlated with donating are also correlated (with the

same sign) with volunteering. We add to this literature by analysing individual and country-level data for a wider range of variables and a larger number of countries than has been done before in a single study.

### III. Data and methods

#### Data set

The GWP is representative of ~99% of the global adult population. Using nationally representative samples of randomly selected households (Kish grid method; Gallup 2017), it surveys about 1,000 adults (aged  $\geq 15$  years) in each of 150 countries.<sup>2</sup> Interviews are conducted via telephone in countries with at least 80% telephone coverage and face-to-face elsewhere. We use the 2014–2017 waves ( $N = 388,602$ ).

Our dependent variables are all measured at the individual level. Following WGI, we construct a series of dummy variables equal to one if in the last month individuals *'donated money to a charity'*, *'volunteered your time to an organization'*, or *'helped a stranger or someone they didn't know who needed help'*. Note that the definition of 'helping' here is rather broad, including any action survey respondents think constitutes help. For all dependent variables our data are for the extensive margin (i.e. whether people donated, rather than how much). We acknowledge that the data being self-reported and measured at the extensive margin are potential limitations of the GWP data, but there are no alternative datasets with data measured for a large number of countries.<sup>3</sup> Rooney et al. (2004) find that surveys with longer modules of questions about giving are likely to increase both the probability of donating and the amount of donations, relative to shorter modules of questions.<sup>4</sup> Bekkers and Wiepking (2006) show that the predictors of the extensive and intensive margin are different, and that shorter survey modules lead to an

<sup>2</sup>Samples are larger for some countries: 3,000 (5,000) individuals were interviewed in India (China) in 2014. Table B1 provides the list of all countries in the sample.

<sup>3</sup>Wiepking et al. (2021) use the data set of Wiepking and Handy (2016) that provide individual-level data on the intensive margin of donations, but only for 19 countries.

<sup>4</sup>The only questions in the GWP about giving are the three questions about donating, volunteering and helping a stranger.

overestimation of the effects of predictor variables on the extensive margin, but an underestimation of the effects on the amount donated. Given this so we do not interpret our findings regarding the extensive margin as being informative about the intensive margin.

Our regressions control for 36 confounders, selected following Mainardes et al. (2016), grouped into five categories, of which all but the first are measured at the individual level: country (e.g. GDP, unemployment), income, demographic (e.g. age and female), well-being (e.g. subjective well-being, health), and socioeconomic (e.g. have children, rural) factors. We use Lasso techniques to provide robustness to concerns about variable selection and multicollinearity. Appendix A provides information on which of our variables were included in Mainardes et al.'s (2016) review of the charitable giving literature and on the expected sign of each of our explanatory variables.

### Country factors

We use two macroeconomic control variables. First, our measure of national income per capita is taken from the World Bank's GDP per capita in 2011 international Dollar (PPP) series. Second, the series for unemployment is taken from the modelled ILO estimate for total unemployment from the total labour force. Income inequality at the country-year level is computed by the standard deviation of respondents' income.

Temperature anomalies are constructed as follows. We use data for mean temperature for each country-year from the CCKP World Bank ERA5 reanalysis. We then fit a linear trend to the annual (1950–2020) data and use the residuals from this regression as our measure of temperature anomalies (or shocks). The number of disasters and the total number of deaths by country and year are constructed from the EM-Dat database. An event is classified as a disaster if at least one of the following criteria apply: (i) 10 or more people dead, (ii) 100 or more people affected, (iii) state of emergency declared, or (iv) call for international help. Fractionalization measures ethno-linguistic fractionalization. We capture colonial history with a dummy variable

which is one if the country has been colonized and zero otherwise.

### Income factors

Our measure of income is the logarithm of annual household income per capita. Initially, income is reported in local currency units. It is then converted into international Dollars by using the World Bank's PPP private consumption conversion factor. If respondents have difficulties answering the question, a set range of incomes are shown, and respondents are asked in which category they fall. Further, Gallup uses multiple imputations to construct the final variable to deal with missing observations.

We also control for employment status. This is a four-level categorical variable: unemployed, out-of-workforce, self-employed, and employed (full-time or part-time).

### Demographic factors

We control for the usual demographic factors such as age (in years) and gender (male-female dummy). Furthermore, we include a three-level categorical educational-achievement variable (elementary, secondary, post-secondary education) and a three-level marital-status variable (single, married or with partner, and separated, widowed, or divorced).

### Well-being factors

We measure subjective well-being via the response to the question: *'Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?'* The answer is given on a 0–10 Cantril ladder. Additionally, we measure daily experiences for sadness, stress, and smiling. These are all dummy variables. For the former two, we use the response to the following question: *'Did you experience the following feelings during a lot of the day yesterday? How about (i) sadness or (ii) stress'*. For smiling, we use the response to the question: *'Did you smile or laugh a lot yesterday?'* All three variables are dummy variables which take the value of one if the response was 'yes' and zero if the response was 'no'.



We measure institutional trust (sometimes called vertical trust) as an index (on the 0–4 interval) constructed as the sum of the four responses to the following question: ‘*Do you have confidence in each of the following, or not?*’. The four institutions are: (i) local police, (ii) judicial system, (iii) national government, and (iv) honesty of elections and the answer is either ‘yes’ or ‘no’. Our measure of horizontal trust is the response to the question: ‘*If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?*’, which again has a yes/no response.

The health status of respondents is measured by the response to the question: ‘*Do you have any health problems that prevent you from doing any of the things people your age normally can do?*’. Finally, respondents’ feeling of safety is measured by the response to the question: ‘*Do you feel safe walking alone at night in the city or area where you live?*’. Both questions have a yes/no response which is converted into the dummy variables.

### Socio-economic factors

Additional socio-economic factors we control for are household characteristics (number of adults and a child dummy variable) and whether the respondent has been born in the country (native). Furthermore, religiosity is the response to the question: ‘*Is religion an important part of your daily life?*’, with a yes/no response. Internet access is measured by the yes/no response to the question: ‘*Do you have access to the internet in any way, whether on a mobile phone, a computer, or some other device?*’. The location at which respondents live is captured by a dummy variable ‘rural’ which is one if the respondent lives in a ‘rural or farm’ and ‘small town or village’ area and zero if she lives in a large city or suburbs.

Finally, we measure individual-level food insecurity using the FAO’s FIES (Food Insecurity Experience Scale) module. FIES is constructed from eight questions which elicit the adequacy of access to food over the last year. Individual responses are combined to a raw score. Item response theory (Rasch model) is then applied to create thresholds which are comparable across countries. We use a dummy variable which is one if the individual is food insecure and zero otherwise.

Our analysis includes the individual-level and country-level characteristics discussed above. What

we do not have data on is meso-level variables. As noted by Barman (2017) the literature on meso-level variables focuses on the fact that potential donors (the suppliers of donations) do not exist in isolation, their interactions with fund-raisers (the demanders of donations) are important. A key variable in this literature is solicitation; that is whether people are asked to donate, how they are asked, and by whom they are asked. Solicitation of donations is one of the eight key drivers of giving identified in Bekkers and Wiepking’s, 2011 literature review and Andreoni (2006) refers to the iron law that people are more likely to give, and will donate more, when they are asked. Other studies showing the importance of the method of solicitation include Fielding and Knowles (2015), Meer and Rosen (2011) and Andreoni et al. (2017). Related to solicitation is the amount of recognition donors receive for a donation; donations being public has been found to increase donations, especially among those with a high need for social approval (e.g. Denis, Pecheux, and Decop 2020). Lack of data on the demand side of charitable giving is a potential omitted variable in our analysis. To the extent that meso variables vary across countries, this will be controlled for by the country-specific fixed effects.

### Estimation strategy

We estimate the conditional mean of charitable behaviour of individual  $i$  in country  $j$  in year  $t$ :

$$\begin{aligned} \text{CharitableBehavior}_{i,j,t} = & \alpha + \beta Z_{j,t} + \theta X_{i,j,t} + \mu_j \\ & + \mu_t + \varepsilon_{i,j,t}, \end{aligned} \quad (1)$$

where  $Z_{j,t}$  includes country-level controls and  $X_{i,j,t}$  contains individual-level controls. Year fixed effects,  $\mu_t$ , control for survey context effects and country fixed effects,  $\mu_j$ , control for individual observable characteristics that are constant over time (policies or cultural differences). Standard errors are clustered at the country level. We also compute Shapley values, which quantify the relative importance of (a group) of variable(s) in explaining goodness of fit. This allows us to quantify the relative impact a variable or a group of variables has on charitable behaviour.

## IV. Results

### Descriptive results

Table 1 presents the descriptive statistics. On average, 30% of respondents donated money to charity, 21.4% volunteered time and 50.3% helped a stranger. The average for the World Giving Index is  $1.018 \pm 0.961$  on a 0–3 scale.

The average respondent is  $39.29 \pm 17.45$  years old, and most respondents are female (50.2%), have secondary education (48.7%), and are married (56.9%). Average well-being is  $5.351 \pm 2.438$ , which is close to the midpoint of the 11-point Likert scale, and 34.4% of respondents have experienced stress, while 72.8% smiled and 24.2% experienced sadness in the previous day. The majority of respondents has confidence in friends and family (80.2%), 61.3% feel safe, 25.2% have health problems, and institutional trust has a mean of  $2.166 \pm 1.478$  on a 0–4 scale. Respondents live with  $3.310 \pm 1.908$  adults in a house, 56.2% have children, 95.8% are non-immigrants, and 62.4% live in rural areas. About half of households have internet access (54.9%), 72.8% consider themselves to be religious, and 30.3% of households are classified as food insecure. Average log household income is  $9.454 \pm 2.241$  and 40.3% are employed. On average, countries experience  $2.409 \pm 3.718$  disasters in 2014–2017, which led to  $139.127 \pm 589.474$  deaths. Most countries have a colonial history (73.1%), and the average fractionalization rate is 44.3%.

The statistics presented above may hide significant variation. Table 2 presents the statistics of charitable behaviour by World Bank development group and mean tests. People in high-income countries are more likely to donate money ( $p < .001$ ) and to volunteer ( $p < .001$ ), relative to people in low- and middle-income countries. However, people in low-income countries are more likely to help strangers ( $p < .001$ ). These results suggest important heterogeneity, which we explore further in section V.

### Main results

Table 3 presents our regression results for the World Giving Index and its three underlying variables. The following patterns emerge.

Country-level factors such as the state of the economy, natural disasters, or colonial history do not significantly affect charitable behaviour. Our findings on disasters differ to those of Denis et al. (2018) who find donations in Belgium are higher in years where there are significant natural disasters overseas. Note though our disaster variable focuses on whether donations are higher in the country where the disaster occurs. In the country where the disaster happened, those affected by the disaster might be less able to donate than prior to the disaster. We might have expected that people in the country where the disaster happened would be more likely to volunteer or help a stranger. Note, however, that the dependent variables are whether people have donated, volunteered or helped a stranger in the previous month, whereas our data on disasters are for whether a disaster has occurred that year. If a disaster occurred in January, but participants in the GWP were interviewed in December, we would only expect a significant correlation between disasters and charitable behaviour if the effect of the disaster on behaviour was persistent. Einolf (2017) find that income per capita is positively correlated with giving to charity, but we find national income per capita is insignificant when we control for individual income. Schröder and Neumayr's (2021) review finds that inequality is often found to be negatively correlated with donating, but we find no significant correlation between inequality and any of our charitable behaviour measures.

Of interest is whether variables that are correlated with one of the components of the WGI are correlated with the other components. With respect to country factors we find some interesting differences. Income per capita is significantly negatively correlated with volunteering, but is not significantly correlated with any of the other dependent variables. This result regarding income differs to that of Denis et al. (2018) for municipality data in Belgium who find that having a higher share of incomes between 5,000 and 10,000 euros has a positive correlation with giving, as does having a higher share of incomes between 50,000 and 55,000 euros. However, having a higher share of incomes between 60,000 and 65,000 euros is correlated with having lower giving. Unemployment is significantly negatively correlated with donating and volunteering but is not significantly correlated

**Table 1.** Descriptive statistics.

Variable	Obs.	Mean	Std. dev.	Min	Max	Data
<b>Country Factors</b>						
Log(GDP)	376,002	9.182	1.130	6.666	11.450	Continuous
Log(Unemployment)	378,644	1.733	0.780	−1.255	3.320	Continuous
Income Inequality	388,602	1.533	0.782	0.167	4.262	Continuous
Temperature Anomalies	379,801	0.101	0.295	−1.095	1.031	Continuous
Disaster (Number)	388,602	2.409	3.718	0	29	Continuous
Disaster (Deaths)	388,602	139.127	589.474	0	9,034	Continuous
Colonial History	388,602	0.731	0.443	0	1	Dummy
Fractionalisation	363,901	0.443	0.254	0.002	0.930	Continuous
<b>Charitable Behaviour</b>						
World Giving Index	382,231	1.018	0.961	0	3	Continuous
Donated	386,863	0.300	0.458	0	1	Dummy
Volunteered	386,882	0.214	0.410	0	1	Dummy
Helped	385,642	0.503	0.500	0	1	Dummy
<b>Income Factors</b>						
IHS Income	388,602	9.454	2.241	0	16.779	Continuous
Employment						Categorical
Out-of-Workforce	388,602	0.365		0	1	
Self-employed	388,602	0.148		0	1	
Employed (Full- and part-time)	388,602	0.403		0	1	
Unemployed	388,602	0.084		0	1	
<b>Demographic Factors</b>						
Age	388,602	39.290	17.450	15	99	Continuous
Female	388,602	0.502	0.500	0	1	Dummy
Education						Categorical
Elementary	388,602	0.390		0	1	
Secondary	388,602	0.487		0	1	
Post-Secondary	388,602	0.123		0	1	
Marital Status						Categorical
Single	388,602	0.325		0	1	
Married	388,602	0.569		0	1	
Separated, Divorced, Widowed	388,602	0.106		0	1	
<b>Well-Being Factors</b>						
SWB	384,297	5.351	2.438	0	10	Continuous
Experienced Stress	385,953	0.344	0.475	0	1	Dummy
Smiled	383,154	0.728	0.445	0	1	Dummy
Experienced Sadness	386,732	0.242	0.428	0	1	Dummy
Confidence	388,602	0.802	0.398	0	1	Dummy
Safe	381,724	0.613	0.487	0	1	Dummy
Trust Index	335,202	2.166	1.478	0	4	Continuous
Health Problems	387,385	0.252	0.434	0	1	Dummy
<b>Socio-Economic Factors</b>						
Adults	388,602	3.310	1.908	1	96	Continuous
Children	388,602	0.562	0.496	0	1	Dummy
Native	388,602	0.958	0.200	0	1	Dummy
Rural	388,602	0.624	0.484	0	1	Dummy
Religiosity	388,602	0.728	0.445	0	1	Dummy
Internet	261,389	0.549	0.498	0	1	Dummy
Food Insecurity	388,602	0.303	0.460	0	1	Dummy

Survey weights applied.

**Table 2.** Charitable giving across development groups.

	Low	Middle	High	Wald $\chi^2$ Test	Dunn $\chi^2$ Test
Donated	0.192	0.277	0.408	10,844.03 ( $p=$ .000)	11,685.07 ( $p=$ .000)
Volunteered	0.217	0.206	0.227	193.76 ( $p=$ .000)	281.15 ( $p=$ .000)
Helped	0.540	0.502	0.482	581.65 ( $p=$ .000)	928.22 ( $p=$ .000)

Table presents group means and the results from a Wald  $\chi^2$ Test on equality of means across groups. Test assumes heterogeneous variances within the three groups and uses survey weights. We also present results from a Dunn  $\chi^2$ test which uses stochastic dominance among multiple pairwise comparisons after a Kruskal-Wallis test. Countries are grouped into three development groups by using annual gross national income (GNI) per capita and 2019 World Bank income thresholds: low-income ( $\leq$ \$995), middle-income ( $>$ \$996 and  $\leq$ \$12,055), and high-income ( $>$ \$12,056).

with helping a stranger or sending money. Temperature anomalies are weakly significantly positively correlated with sending money, but not with any of the other measures of charitable behaviour.

Deaths from disasters and colonial history are both significantly positively correlated with helping a stranger but are not significantly correlated with any of the other measures of charitable behaviour.



**Table 3.** Regression results.

	Donated	Volunteered	Helped	WGI
<b>Country Factors</b>				
Log(GDP)	−0.115 (0.205)	−0.423* (0.199)	−0.185 (0.246)	−0.779 (0.560)
Log(Unemployment)	−0.118* (0.055)	−0.103* (0.044)	−0.042 (0.064)	−0.249 (0.126)
Income Inequality	−0.0003 (0.007)	0.012 (0.008)	0.017 (0.010)	0.028 (0.021)
Temperature Anomalies	0.011 (0.010)	0.010 (0.011)	0.008 (0.013)	0.032 (0.027)
Log Disaster (Number)	0.012 (0.013)	0.010 (0.009)	−0.017 (0.017)	0.007 (0.032)
Log Disaster (Deaths)	−0.001 (0.004)	−0.005 (0.003)	0.009 (0.004)	0.002 (0.009)
Colonial History	0.465 (0.438)	1.038* (0.411)	0.160 (0.166)	2.111 (1.186)
Fractionalisation	−1.259 (1.059)	−2.448* (1.017)	−0.042 (0.441)	−4.824 (2.886)
<b>Income Factors</b>				
IHS Income	−0.023*** (0.003)	−0.008** (0.002)	−0.009** (0.003)	−0.040*** (0.006)
IHS Income Squared	0.003*** (0.0003)	0.001*** (0.000)	0.002*** (0.000)	0.006*** (0.001)
Self-employed	0.063*** (0.005)	0.049*** (0.004)	0.097*** (0.005)	0.209*** (0.011)
Employed	0.037*** (0.004)	0.048*** (0.005)	0.062*** (0.004)	0.147*** (0.010)
Unemployed	0.059*** (0.005)	0.079*** (0.006)	0.098*** (0.005)	0.235*** (0.012)
<b>Demographic Factors</b>				
Age	0.002** (0.001)	0.001* (0.000)	0.003*** (0.001)	0.006*** (0.001)
Age Squared	0.000 (0.000)	−0.000 (0.000)	−0.000*** (0.000)	−0.000** (0.000)
Female	0.007 (0.005)	−0.027*** (0.005)	−0.021*** (0.004)	−0.042*** (0.011)
Elementary Education	−0.089*** (0.007)	−0.070*** (0.006)	−0.068*** (0.005)	−0.227*** (0.014)
Secondary Education	−0.067*** (0.005)	−0.051*** (0.005)	−0.039*** (0.004)	−0.158*** (0.011)
Single	−0.0004 (0.005)	0.007 (0.005)	0.005 (0.005)	0.012 (0.012)
Married	0.016*** (0.004)	0.000 (0.003)	−0.008 (0.005)	0.007 (0.009)
<b>Well-Being Factors</b>				
Subjective Well-Being	0.008*** (0.001)	0.005*** (0.001)	0.006*** (0.001)	0.020*** (0.002)
Experienced Stress	0.013** (0.004)	0.006* (0.003)	0.037*** (0.004)	0.056*** (0.008)
Smiled	0.049*** (0.004)	0.037*** (0.004)	0.063*** (0.004)	0.148*** (0.009)
Experienced Sadness	0.021*** (0.004)	0.025*** (0.003)	0.030*** (0.004)	0.076*** (0.008)
Safe	0.014*** (0.003)	0.012*** (0.003)	0.016*** (0.004)	0.041*** (0.006)
Confidence	0.018*** (0.004)	0.009** (0.003)	0.035*** (0.006)	0.062*** (0.010)
Trust Index	0.009*** (0.002)	0.006*** (0.001)	−0.002 (0.002)	0.013*** (0.004)
Health Problems	0.015*** (0.004)	0.015*** (0.003)	0.023*** (0.004)	0.052*** (0.008)
<b>Socio-Economic Factors</b>				
Religiosity	0.066*** (0.007)	0.053*** (0.006)	0.058*** (0.007)	0.177*** (0.016)
Adults	−0.005*** (0.001)	0.001 (0.001)	−0.001 (0.001)	−0.005*** (0.002)
Children	−0.003 (0.003)	−0.003 (0.003)	0.002 (0.003)	−0.004 (0.007)
Internet	0.043*** (0.005)	0.037*** (0.004)	0.064*** (0.005)	0.145*** (0.011)
Native	0.010 (0.008)	0.010 (0.006)	−0.030*** (0.008)	−0.011 (0.016)

(Continued)

**Table 3.** (Continued).

	Donated	Volunteered	Helped	WGI
Rural	0.003 (0.004)	0.031*** (0.004)	−0.022*** (0.005)	0.012 (0.010)
Food Insecurity	−0.000 (0.006)	0.037*** (0.004)	0.053*** (0.005)	0.090*** (0.013)
Observations	194,774	194,719	193,997	193,124
R <sup>2</sup> adj	0.17	0.09	0.09	0.14

Constant not shown. All regressions (OLS) include country and year fixed effects. Results are robust to using logit. Clustered standard errors at the country level in parenthesis. Significance levels: \*:  $p < 0.05$ , \*\*:  $p < 0.01$ , \*\*\*:  $p < 0.001$ .

Fractionalization is significantly negatively correlated with volunteering but is not significantly correlated with any of the other measures of charitable behaviour.

Globally, individual-level income has a U-shaped effect on all our measures of charitable behaviour. Put differently, low- and high-income people are more likely to behave charitably. The largest effect of income is found on donating to charity. A positive correlation between income and the probability of donating has been found for UK data by Schlegelmilch et al. (1997). The existence of a U-shaped giving curve (where low-income and high-income people give a higher share of their income to charity relative to those in the middle of the distribution) has been identified in some developed countries (e.g. Clotfelter 1985 for US data). Consistent with this, we find a U-shaped relationship between global income and charitable behaviour for all our measures of charitable behaviour.

Subjective well-being, positive and negative experiences, vertical (in institutions) and horizontal (in friends and family) trust, feeling safe, and health problems are all positively associated with each of our measures of charitable behaviour. These findings align with existing literature, such as Dunn et al.'s (2008) causal finding that donating increases happiness and Evers and Gesthuizen's (2011) finding that social trust is positively correlated with donating.

Socio-economic factors are similarly important. We find a positive correlation between the extent of religiosity and each of the three measures of charitable behaviour. This is consistent with Bennett and Einolf (2017) who, analysing the GWP data, find religious people are more likely to report having helped a stranger and with Glanville et al. (2016) who found people with higher levels of religiosity are more likely

to donate and volunteer. Internet access is negatively associated with charitable behaviour, with the largest effect on sending financial help and helping a stranger. The results for internet access could be related to the observation that internet users are generally younger and are – as shown here – less likely to donate (Bennett 2009).

Interestingly, living in a rural area is significantly positively correlated with volunteering, but significantly negatively correlated with helping strangers. One possible explanation is that in rural areas people tend to know everyone, so there are no strangers to help. Another possibility is that people in rural areas might be more right-oriented politically, and such people could be less likely to help strangers.<sup>5</sup> Food insecurity is significantly positively correlated with volunteering and helping a stranger.

Finally, we consider demographic factors. Women are less likely to be charitable overall (except for donating money, where gender has no significant effect). In results available upon request, substantial heterogeneity exists across development groups. The largest differences across development groups are for volunteering. We find that women are more likely to be charitable in high-income countries (except for volunteering) and less likely in low- and middle-income countries. Existing research on the correlation between gender and charitable donations tends to be conducted in high-income countries. There are studies which find women are more generous than men at donating to charity (e.g. Bilén, Dreber, and Johannesson 2021; Eckel and Grossman 1998; Mesch et al. 2011; Shelley and Polonsky 2001); there are also studies that do not find a significant gender difference (e.g. Croson, Handy, and Shang 2010; Etang, Fielding, and Knowles 2012; Fielding, Knowles, and Robertson 2018). Our results are in line with this first group of studies, when we focus

<sup>5</sup>We thank an anonymous referee for this suggested explanation.

on our results for high-income countries. Consistent with previous studies on donating and volunteering, higher education (e.g. Jones 2006; Wiepking, Einolf, and Yang 2023) and age (e.g. Glanville, Paxton, and Wang 2016; Jones 2006; Shelley and Polonsky 2001) are positively associated with charitable behaviour. The effect of age is linear except for helping a stranger, where we find an inverted-U shaped relationship, indicating that younger and older people are less likely to help a stranger.

Having identified the significant factors affecting various types of charitable giving, a natural question is which variables matter most in explaining each behaviour? To answer this question, Figure 1 presents the Shapley value for each group of variables (Table B2 in the appendix shows the corresponding values).

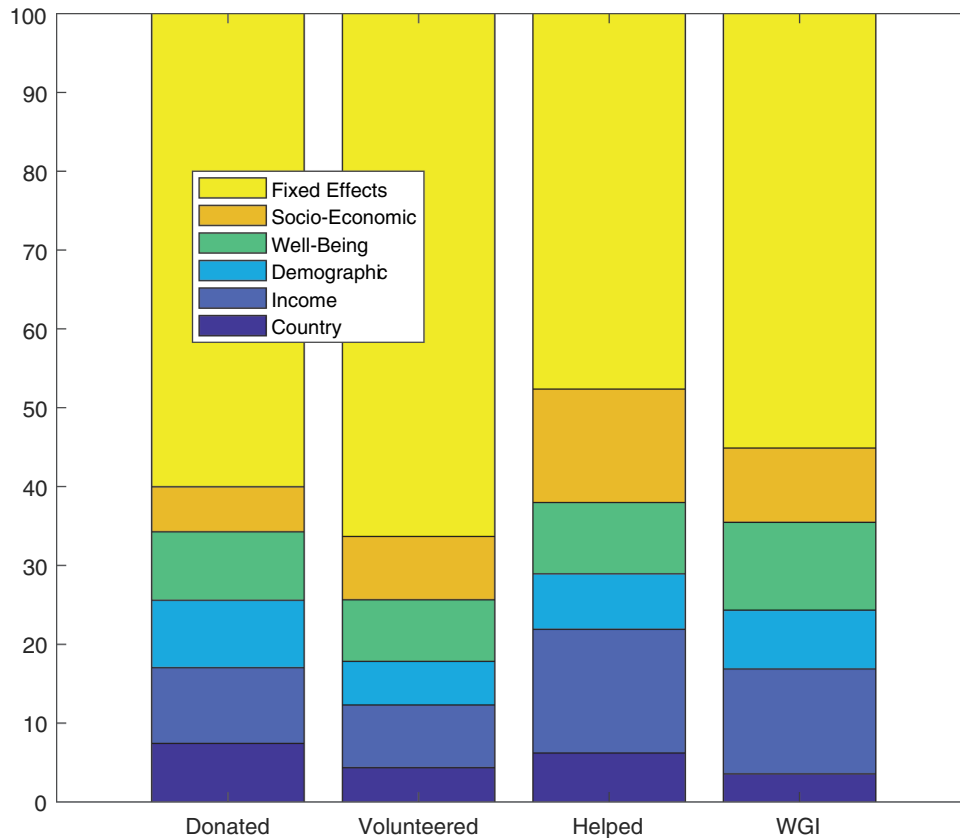
For all variables except helping a stranger, the country- and year-fixed effects explain the largest share of the variation. This indicates that country-specific factors such as culture and government policies are a major factor in explaining charitable giving. Income factors are the most important

group of correlates across all types of charitable behaviour. Interestingly, well-being factors are the second most important group. Socio-economic factors are equally important, except for donating money. Demographic factors play a minor role, as do country-level factors.

Overall, our results show that income, well-being, gender, and religiosity are the factors associated with all types of charitable giving, but they affect each variable to a different degree. Finally, the results presented in this section are confirmed by a Lasso analysis, in which we allow the algorithm to choose which variables to include in the regression (see section B.1 in the appendix for the selected variables).

## V. Heterogeneity

The pooled results presented in the previous section hide substantial and important heterogeneity across development groups and global regions (our proxy for culture).



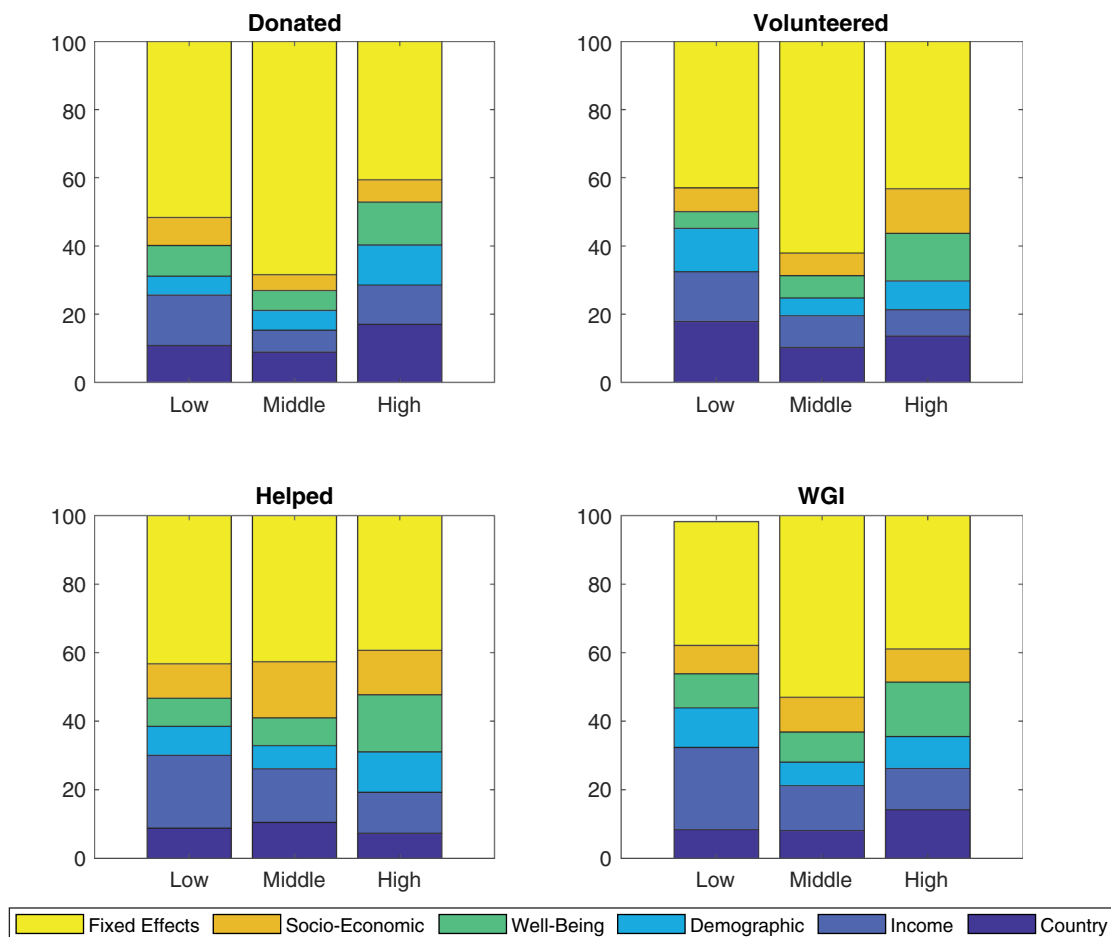
**Figure 1.** Shapley Values. Figure shows Shapley values for each charitable variable. Table B.2 presents the corresponding values.

### World bank development groups

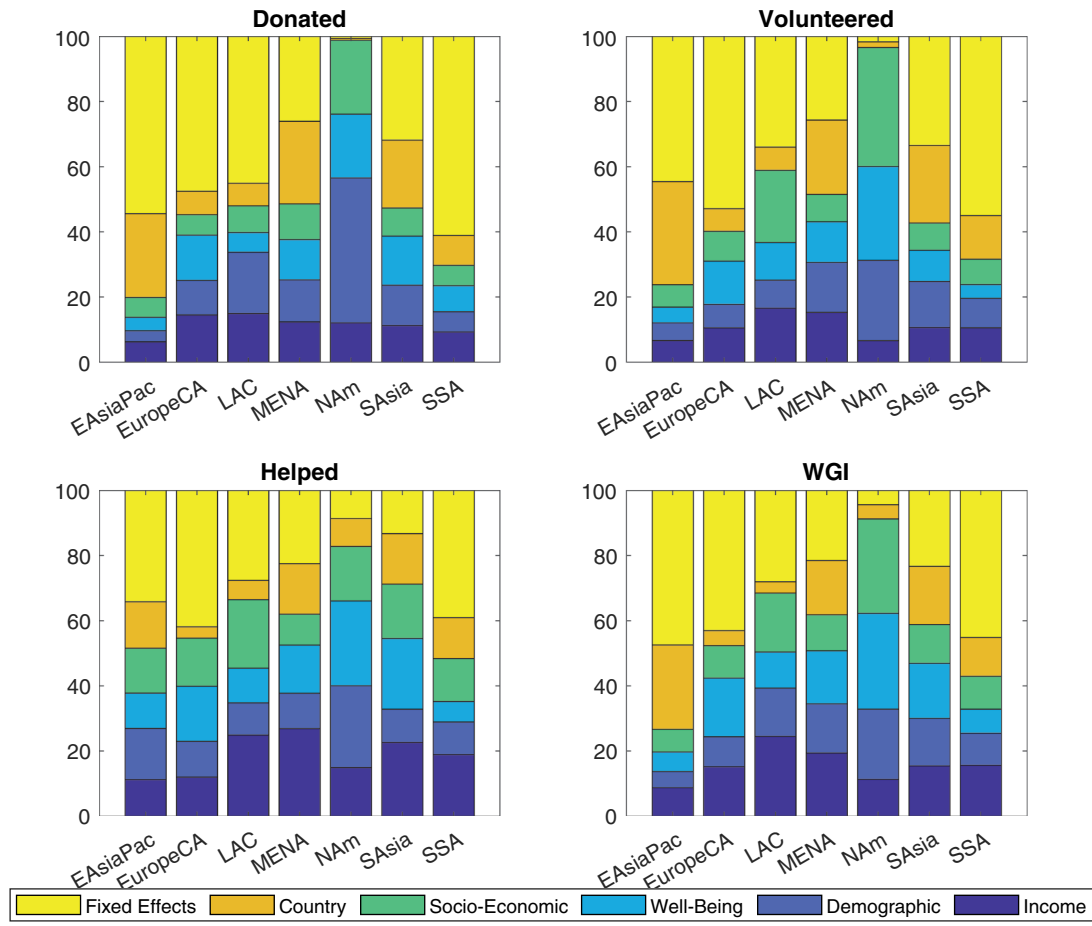
Figure 2 (Table B3 shows the corresponding values) presents the results of our Shapley decomposition by World Bank development groups. The patterns for donating and volunteering are similar (notably the fixed effects are more important in middle-income countries), but different to those for helping a stranger (where the importance of fixed effects is similar for countries at all levels of development).

For donating money to charity (top left panel), we find that country factors are the most important. This is followed by income and well-being factors, while demographic and socio-demographic factors are least important. In high-income countries, income is only fourth most important, while it is most important in low-income countries. The opposite is true for well-being. This suggests that donating money in high-

income countries is closely linked to well-being considerations, whereas in low-income countries it is primarily influenced by income (potentially due to liquidity constraints). Volunteering (top right panel) shows the same pattern: country- and income-factors dominate, but income matters most in low- and middle-income countries. Well-being is the key factor for volunteering in high-income countries. Helping a stranger (bottom left panel) is mostly affected by income and socio-economic factors. As for donating and volunteering, well-being factors are the most important group of factors in high-income countries but are least important in low- and middle-income countries. Overall, in low- and middle-income countries, income affects donating, volunteering, and helping strangers the most, while in high-income countries well-being dominates. The results for the WGI are shown in the bottom right panel.



**Figure 2.** Shapley values by World Bank development group. Development groups using 2019 World Bank income thresholds (annual GNI per capita): low-income ( $\leq \$995$ ), middle-income ( $> \$996$  and  $\leq \$12,055$ ), and high-income ( $> \$12,056$ ).



**Figure 3.** Shapley values by region. Shapley values for each of the seven World Bank regions: East Asia & Pacific (EAsiaPac), Europe & Central Asia (EuropeCA), Latin America & the Caribbean (LAC), Middle East & North Africa (MENA), North America (NAm), South Asia (SAsia), Sub-Saharan Africa (SSA).

### Regions

Heterogeneity is even larger at the regional level (Figure 3, World Bank region classification system used), which, to us, suggests the importance of cultural and institutional differences. Donating money to charity (top left panel in Figure 3) is affected equally importantly by income factors across regions. Well-being factors are important in North America, Europe and Central Asia, MENA countries, and South Asia. Demographic factors dominate in North America and Latin America and the Caribbean countries. Country-level factors are most important in MENA and East Asia and the Pacific.

This pattern of relative importance is similar for the other charitable behaviours: volunteering (top right panel) and helping strangers (bottom left panel). The notable differences are that demographic factors are much less important, especially in North America.

The reduced impact of demographic factors is countered by an increase in the impact of socio-economic factors. For helping a stranger, income and well-being factors are more important and demographic factors are least important. The results for the WGI are shown in the bottom right panel.

### VI. Conclusion

We add to the charitable behaviour literature by analysing the correlates of three types of charitable behaviour using a large data set containing many countries and individuals. Subject to the caveat our data are for the extensive margin only, we confirm a number of findings from the existing literature with the following variables all being positively correlated with charitable behaviour: education, age, marriage, religiosity, happiness and trust. For income, we find a U-shaped



relationship with low- and high-income people being more likely to donate than those in the middle of the distribution. Whereas most existing studies find a negative correlation between inequality and donating, we find no significant correlation. New findings include that the food insecure are more likely to volunteer and help a stranger.

Based on the Shapley values, we find some differences between the correlates of helping a stranger and the correlates of volunteering and donating. The fixed effects are less important, and socio-economic factors more important, for helping a stranger than for donating or volunteering. We also find substantial differences between high-income countries on the one hand and low- and middle-income countries on the other hand, and substantial heterogeneity at the regional level. For example, women are more likely to donate than men in high-income countries, but not in middle-income or low-income countries.

Several limitations of our study need to be highlighted. As we lack strong exogenous instruments or experimental data, our findings must be interpreted with caution, and causation should not be assumed. Furthermore, while we include a wide range of factors, omitted variables are almost certainly a concern. In addition, the availability of panel data would greatly enhance the ability to estimate the dynamic effect of various factors on charitable behaviour. Finally, as noted earlier, an additional limitation of the data we use is that our dependent variables are measured at the extensive margin. Charities are typically interested in how to maximize total donations and total volunteer hours, rather than maximize the number of donors or volunteers. A larger pool of low-value donors or volunteers, compared to a smaller group of high-value donors or volunteers, imposes much higher costs on the recipient charity, because all donors and volunteers need supporting, managing and stewarding. On the other hand, low-value donors and volunteers do sometimes become high value donors and volunteers. People being helped by a stranger are likely most interested in the total amount of help they receive, rather than the number of people who help them. The policy implications discussed in the next paragraph should be interpreted with these caveats in mind.

Our results have implications for policy-makers, NGOs, and charities. Regarding charitable giving, charities should concentrate their fundraising efforts towards individuals who are most likely to contribute based on their characteristics, although it is crucial to note that there are significant differences amongst World Bank development groups. For example, women are only more likely to donate to charity than men in high-income countries. Increased knowledge of the factors that influence charitable behaviour should aid in the development of communication and fundraising initiatives. Our findings should prove useful for tailoring campaigns, particularly for international organizations. Furthermore, our findings should inspire greater research into the factors that influence various forms of charitable behaviour and cultural differences in giving.

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### Data availability statement

The authors do not have permission to share the data.

### Finding

The findings and conclusions in the paper are those of the authors and do not necessarily represent the views of the National Marine Fisheries Service, NOAA.

### References

- Acemoglu, D. S. Johnson, and J. A. Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." *The American Economic Review* 91 (5): 1369–1401.
- Anderson, C. A. and B. J. Bushman. 2002. "Human Aggression." *Annual Review of Psychology* 53: 27–51.

- Andreoni, J. 2006. "Philanthropy." In *Handbook of the Economics of Giving, Altruism, and Reciprocity, Vol 2: Applications, North Holland, Chapter 18*, edited by J. C. Kolm and M. Ythier, 1201–1269.
- Andreoni, J., J. M. Rao, and H. Trachtman. 2017. "Avoiding the Ask: A Field Experiment on Altruism, Empathy, and Charitable Giving." *Journal of Political Economy* 125 (3): 625–653. <https://doi.org/10.1086/691703>.
- Apinunmahakul, A. and R. A. Devlin. 2008. "Social Networks and Private Philanthropy." *Journal of Public Economics* 92 (1–2): 309–328.
- Barman, E. 2017. "The Social Bases of Philanthropy." *Annual Review of Sociology* 43 (1): 271–290. <https://doi.org/10.1146/annurev-soc-060116-053524>.
- Bekkers, R., and P. Wiepking. 2006. "To Give or Not to Give, That is the Question: How Methodology is Destiny in Dutch Giving Data." *Nonprofit and Voluntary Sector Quarterly* 35 (3): 533–540. <https://doi.org/10.1177/0899764006288286>.
- Bekkers, R., and P. Wiepking. 2007. Understanding Philanthropy: A Review of 50 Years of Theories and Research. In 35<sup>th</sup> Annual Conference of the Association for Research on Nonprofit and Voluntary Action, Chicago.
- Bekkers, R., and P. Wiepking. 2011. "A Literature Review of Empirical Studies of Philanthropy: Eight Mechanisms That Drive Charitable Giving." *Nonprofit and Voluntary Sector Quarterly* 40 (5): 924–973. <https://doi.org/10.1177/0899764010380927>.
- Bennett, R. 2009. "Impulsive Donation Decisions During Online Browsing of Charity Websites." *Journal of Consumer Behaviour* 8 (2–3): 116–134. <https://doi.org/10.1002/cb.277>.
- Bennett, M. R., and C. J. Einolf. 2017. "Religion, Altruism, and Helping Strangers: A Multilevel Analysis of 126 Countries." *Journal for the Scientific Study of Religion* 56 (2): 323–341. <https://doi.org/10.1111/jssr.12328>.
- Bilén, D., A. Dreber, and M. Johannesson. 2021. "Are Women More Generous Than Men? A Meta-Analysis." *Journal of the Economic Science Association* 7 (1): 1–18. <https://doi.org/10.1007/s40881-021-00105-9>.
- Cadenas, P. M. (2020). Demobilized Poor, Reduced Altruism, or None? A Test of the Literature on the Effects of Ethnic Diversity on Preferences for Redistribution (Doctoral dissertation, Central European University).
- Chapman, C. M., M. J. Hornsey, and N. Gillespie. 2021. "To What Extent is Trust a Prerequisite for Charitable Giving? A Systematic Review and Meta-Analysis." *Nonprofit and Voluntary Sector Quarterly* 50 (6): 1274–1303. <https://doi.org/10.1177/08997640211003250>.
- Charities Aid Foundation. 2022. *World Giving Index 2022. A Global View of Giving Trends*. (Accessed February 28, 2023). [https://www.cafonline.org/docs/default-source/about-us-research/caf\\_world\\_giving\\_index\\_2022\\_210922-final.pdf](https://www.cafonline.org/docs/default-source/about-us-research/caf_world_giving_index_2022_210922-final.pdf).
- Clotfelter, C. T. 1985. *Federal Tax Policy and Charitable Giving*. Chicago: The University of Chicago Press.
- Croson, R. T. A., F. Handy, and J. Shang. 2010. "Gendered Giving: The Influence of Social Norms on the Donation Behavior of Men and Women." *International Journal of Nonprofit and Voluntary Sector Marketing* 15 (2): 199–213. <https://doi.org/10.1002/nvsm.385>.
- Denis, E., C. Pecheux, and A. Decop. 2018. "Segmenting the Belgian Charitable Sector: The Impact of Environmental Factors on Household Generosity." *International Journal of Nonprofit and Voluntary Sector Marketing* 23 (3): e1606. <https://doi.org/10.1002/nvsm.1606>.
- Denis, E., C. Pecheux, and A. Decop. 2020. "When Public Recognition Inhibits Prosocial Behavior: The Case of Charitable Giving." *Nonprofit and Voluntary Sector Quarterly* 49 (5): 951–968. <https://doi.org/10.1177/0899764020911203>.
- Dunn, E. W., L. B. Aknin, and M. I. Norton. 2008. "Spending Money on Others Promotes Happiness." *Science* 319 (5870): 1687–1688. <https://doi.org/10.1126/science.1150952>.
- Eckel, C. C., and P. J. Grossman. 1998. "Are Women Less Selfish Than Men? Evidence from Dictator Experiments." *Economic Journal* 108 (448): 726–735. <https://doi.org/10.1111/1468-0297.00311>.
- Einolf, C. J. 2017. "Cross-National Differences in Charitable Giving in the West and the World." *Voluntas: International Journal of Voluntary and Nonprofit Organizations* 28 (2): 472–491. <https://doi.org/10.1007/s11266-016-9758-4>.
- Enjolras, B. 2021. "Explaining the Varieties of Volunteering in Europe: A Capability Approach." *Voluntas: International Journal of Voluntary and Nonprofit Organizations* 32 (6): 1187–1212. <https://doi.org/10.1007/s11266-021-00347-5>.
- Etang, A., D. Fielding, and S. Knowles. 2012. "Giving to Africa and Perceptions of Poverty." *Journal of Economic Psychology* 33 (4): 819–832. <https://doi.org/10.1016/j.joep.2012.03.003>.
- Evers, A., and M. Gesthuizen. 2011. "The Impact of Generalized and Institutional Trust on Donating to Activist, Leisure, and Interest Organizations: Individual and Contextual Effects." *International Journal of Nonprofit and Voluntary Sector Marketing* 16 (4): 381–392. <https://doi.org/10.1002/nvsm.434>.
- Fielding, D., and S. Knowles. 2015. "Can You Spare Some Change for Charity? Experimental Evidence on Verbal Cues and Loose Change Effects in a Dictator Game." *Experimental Economics* 18 (4): 718–30.3. <https://doi.org/10.1007/s10683-014-9424-x>.
- Fielding, D., S. Knowles, and K. Robertson. 2018. "Alcohol, Generosity and Empathy." *Journal of Behavioural and Experimental Economics* 76:28–39. <https://doi.org/10.1016/j.socec.2018.07.005>.
- Forbes, K. F., and E. M. Zampelli. 2012. "Volunteerism: The Influences of Social, Religious, and Human Capital." *Nonprofit and Voluntary Sector Quarterly* 43 (2): 227–253. <https://doi.org/10.1177/0899764012458542>.
- Gallup. 2017. *Worldwide Research Methodology and Codebook*. Washington, DC: Gallup, Inc.

- Glanville, J. L., P. Paxton, and Y. Wang. 2016. "Social Capital and Generosity: A Multilevel Analysis." *Nonprofit and Voluntary Sector Quarterly* 45 (3): 526–547. <https://doi.org/10.1177/0899764015591366>.
- Guy, B. S., and W. E. Patton. 1989. "The Marketing of Altruistic Causes: Understanding Why People Help." *Journal of Consumer Marketing* 6 (1): 19–30. <https://doi.org/10.1108/eb024711>.
- Henrich, J. 2020. *The Weirdest People in the World: How the West Became Psychologically Peculiar and Particularly Prosperous*. New York: Farrar, Straus and Giroux.
- Herzog, P. S. and S. Yang. 2018. "Social Networks and Charitable Giving: Trusting, Doing, Asking, and Alter Primacy." *Nonprofit and Voluntary Sector Quarterly* 47 (2): 376–394.
- Jones, K. S. 2006. "Giving and Volunteering as Distinct Forms of Civic Engagement: The Role of Community Integration and Personal Resources in Formal Helping." *Nonprofit and Voluntary Sector Quarterly* 35 (2): 249–266. <https://doi.org/10.1177/0899764006287464>.
- Knowles, S. 2007. "Social capital, egalitarianism and foreign aid allocations." *Journal of International Development* 19 (3): 299–314. <https://doi.org/10.1002/jid.1327>.
- Lilley, M. and R. Slonim. (2016). Gender Differences in Altruism: Responses to a Natural Disaster. IZA Discussion Paper, No. 9657.
- Mainardes, E. W., R. Laurett, N. C. P. Degasperi, and S. V. Lasso. 2016. "What Motivates an Individual to Make Donations of Money And/Or Goods." *International Review on Public and Nonprofit Marketing* 13 (1): 81–99. <https://doi.org/10.1007/s12208-015-0145-4>.
- Meer, J., and H. S. Rosen. 2011. "The ABCs of Charitable Solicitation." *Journal of Public Economics* 95 (5–6): 363–371. <https://doi.org/10.1016/j.jpubeco.2010.07.009>.
- Mesch, D. J., M. S. Brown, Z. I. Moore, and A. D. Hayat. 2011. "Gender Differences in Charitable Giving." *International Journal of Nonprofit and Voluntary Sector Marketing* 16 (4): 342–355. <https://doi.org/10.1002/nvsm.432>.
- Osili, U. O. and D. Du. 2005. "Immigrant Assimilation and Charitable Giving." *New Directions for Philanthropic Fundraising* 2005 (48): 89–104.
- Paarlberg, L. E., R. Nesbit, S. Y. Choi, and R. Moss. 2022. "The rural/urban volunteering divide." *Voluntas: International Journal of Voluntary and Nonprofit Organizations* 33 (1): 107–120. <https://doi.org/10.1007/s11266-021-00401-2>.
- Rooney, P., K. Steinberg, and P. G. Schervish. 2004. "Methodology is Destiny: The Effect of Survey Prompts on Reported Levels of Giving and Volunteering." *Nonprofit and Voluntary Sector Quarterly* 33 (4): 628–654. <https://doi.org/10.1177/0899764004269312>.
- Rotolo, T., and J. Wilson. 2012. "State-Level Differences in Volunteerism in the United States: Research Based on Demographic, Institutional, and Cultural Macrolevel Theories." *Nonprofit and Voluntary Sector Quarterly* 41 (3): 452–473. <https://doi.org/10.1177/0899764011412383>.
- Salahodjaev, R., A. Isaeva, and D. Abdullayev. 2022. "Is Philanthropy Related to Life Satisfaction? Cross-Country Evidence." *International Sociology* 37 (3): 271–285. <https://doi.org/10.1177/02685809211045918>.
- Sargeant, A. and L. Woodliffe. 2007. "Gift Giving: An Interdisciplinary Review." *International Journal of Nonprofit and Voluntary Sector Marketing* 12 (4): 275–307.
- Schlegelmilch, B. B., A. Diamantopoulos, and A. Love. 1997. "Characteristics Affecting Charitable Donations: Empirical Evidence from Britain." *Journal of Marketing Practice: Applied Marketing Science* 3 (1): 14–28. <https://doi.org/10.1108/EUM0000000004318>.
- Schröder, J. M., and M. Neumayr. 2021. "How Socio-Economic Inequality Affects individuals' Civic Engagement: A Systematic Literature Review of Empirical Findings and Theoretical Explanations." *Socio-Economic Review* 21 (1): 1–30. <https://doi.org/10.1093/ser/mwab058>.
- Shelley, L., and M. J. Polonsky. 2001. "Do Charitable Causes Need to Segment Their Current Donor Base on Demographic Factors? An Australian Examination." *International Journal of Nonprofit and Voluntary Sector Marketing* 7 (1): 19–29. <https://doi.org/10.1002/nvsm.164>.
- Wiepking, P., C. J. Einolf, and Y. Yang. 2023. "The Gendered Pathways into Giving and Volunteering: Similar or Different Across Countries?" *Nonprofit and Voluntary Sector Quarterly* 52 (1): 5–28. <https://doi.org/10.1177/08997640211057408>.
- Wiepking, P., and F. Handy. 2016a. *Documentation Individual Philanthropy Database (IIPD). A Comparative Study of Global Giving*. Erasmus University Rotterdam.
- Wiepking, P., and F. Handy. 2016b. *Poten Documentation Individual International Philanthropy Database (IIPD). A Comparative Study of Global Giving*. Erasmus University Rotterdam.
- Wiepking, P., F. Handy, S. Park, M. Neumayr, R. Bekkers, B. Breeze, A. de Wit, et al. 2021. "Global Philanthropy: Does Institutional Context Matter for Charitable Giving?" *Nonprofit and Voluntary Sector Quarterly* 50 (4): 697–728. <https://doi.org/10.1177/0899764021989444>.
- Wiepking, P., and I. Maas. 2009. "Resources That Make You Generous: Effects of Social and Human Resources on Charitable Giving." *Social Forces* 87 (4): 1973–1995. <https://doi.org/10.1353/sof.0.0191>.

## Appendix A

### Expected Signs of Explanatory Variables

Variable	Included in Mainardes Review	Expected Sign	Reason for Expected Sign
<b>Country Factors</b>			
Log(GDP)	No	+	Einolf (2017) finds people are more likely to donate the higher is income per capita. Note, however, that whereas we also control for individual income, Einolf does not.
Log(Unemployment)	No	-	Employed individuals are more likely to donate than the unemployed (Bekkers and Wiepking 2007). Note, though that we have also controlled for employment at the individual level, which may be more likely to pick up this effect.
Income Inequality	No	+	Schröder and Neumayr's (2021) review finds that inequality is negatively correlated with donating.
Temperature Anomalies	No	-	Higher temperatures is linked to aggressive and anti-social behaviour (e.g. Anderson and Bushman, 2002). We, therefore, include temperature as it can affect behaviour.
Disaster (Number)	No	+	Lilley and Slonim (2016) find an increase in charitable behaviour (donating blood) following a natural disaster.
Disaster (Deaths)	No	+	Lilley and Slonim (2016) find an increase in charitable behaviour (donating blood) following a natural disaster.
Colonial History	No	?	Colonial history can impact the culture of a country (e.g. Acemoglu et al., 2001). Culture could be a driver of pro-social behaviours such as charitable giving.
Fractionalisation	No	-	Cadenas (2020) finds a negative, but statistically insignificant, correlation between ethnic diversity and preferences for redistribution. It is therefore possible there is a negative correlation between diversity and charitable behaviour.
<b>Income Factors</b>			
IHS Income	Yes	+	Higher income families tend to give higher values than the families with lower incomes (Bekkers and Wiepking 2007). Note though that there is also evidence of a U-shaped giving curve with those with low-incomes and high-incomes giving a higher share of income than those with medium incomes (e.g. Clotfelter 1985).
Employed (Full- and part-time)	Yes	+	Employed individuals are more likely to donate than the unemployed (Bekkers and Wiepking 2007).
Self-employed	No	+	<i>See above.</i>
<b>Demographic Factors</b>			
Age	Yes	+	Elderly individuals tend to donate more money than young people (Apinunmahakul and Devlin, 2008).
Female	Yes	+	Women tend to donate more than men (Eckel and Grossman 1998).
Education	Yes	+	Individuals with higher levels of education tend to make more generous donations (Wiepking and Handy 2016b).
Married	Yes	+	Married individuals tend to donate more than single individuals (Wiepking and Maas 2009).
<b>Well-Being Factors</b>			
SWB	No	+	Dunn et al. (2008) find a positive correlation between donating and happiness.
Experienced Stress	Yes (but called "Fear")	+	Individuals may be motivated to donate more when they are going through a situation that involves the feeling of fear (Sargeant and Woodliffe, 2007).
Smiled	No	+	Dunn et al. (2008) find a positive correlation between donating and happiness.
Experienced Sadness	No	-	Dunn et al. (2008) find a positive correlation between donating and happiness.
Confidence in Friends and Family	No	+	Used as a measure of horizontal trust (i.e. in other people). Evers and Gesthuizen (2011) and Herzog and Yang (2018) find a positive correlation between social trust and giving to charity.
Safe	Yes (but called "Fear")	+	Individuals may be motivated to donate more when they are going through a situation that involves the feeling of fear (Sargeant and Woodliffe, 2007).
Trust Index	No	+	This variable measures vertical (i.e. institutional) trust. Evers and Gesthuizen (2011) find a positive effect of institutional trust on donations.
Health Problems	No	+	Bennett and Einolf (2017) find a positive, but insignificant, correlation between having health problems and helping a stranger. Enjolras (2021) finds a positive correlation between health and volunteering.
<b>Socio-Economic Factors</b>			
Adults	No	?	Household size could affect charitable giving through impacts on time (more people in the household require more time for cooking, for example) or on collective decision making.
Children	Yes	+	The number of children influences the donation process; many individuals after having children are more sensitive to making donations to charity organizations (Bekkers and Wiepking 2007).
Native	No	?	Osili and Du (2005) find a negative, insignificant effect of migration status on charitable giving.
Rural	Yes	+	People living in small towns and rural areas tend to be more willing to help than residents of large cities (Guy and Patton 1989).
Religiosity	Yes	+	Individuals who practice a religion tend to be more involved in acts of donation (Bekkers and Wiepking 2011).
Internet	No	+	Access to the internet makes it more likely people will receive solicitations asking them to donate, and also makes it easier to donate (e.g. through online banking).
Food Insecurity	No	-	People who are food insecure are less likely to be able to afford to donate (but may be able to volunteer or help a stranger).

In the table above, column 4 reproduces column 3 of Table 1 in Mainardes et al. (2016). Any text in this column which is in italics has been added by us (including comments for variables not included in Mainardes et al. or additional comments for papers that are included in Mainardes et al.).

## References For Appendix (References not included in main reference list)

- Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The colonial origins of comparative development: An empirical investigation. *American Economic Review*, **91**(5), 1369-1401.
- Anderson, C. A. & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology*, **53**(1), 27-51.
- Apinunmahakul, A. & Devlin, R. (2008). Social networks and private philanthropy. *Journal of Public Economics*, **92**(1), 309-328.
- Bekkers, R. & Wiepking, P. (2011). Who gives? A literature review of predictors of charitable giving part one: Religion, education, age and socialisation. *Voluntary Sector Review*, **2**(3), 337-365.
- Cadenas, P. M. (2020). Demobilized Poor, Reduced Altruism, or None? A Test of the Literature on the Effects of Ethnic Diversity on Preferences for Redistribution. Thesis, Central European University.
- Herzog, P. S. & Yang, S. (2018). Social networks and charitable giving: Trusting, doing, asking, and alter primacy. *Nonprofit and Voluntary Sector Quarterly*, **47**(2), 376-394.
- Lilley, M. & Slonim, R. (2016). Gender differences in altruism: Responses to a natural disaster. IZA Discussion Paper No. 9657.
- Osili, U. O. & Du, D. (2005). Immigrant assimilation and charitable giving. *Philanthropic Fundraising*, 2005, 89-104.
- Sargeant, A. & Woodliffe, L. (2007). Gift giving: An interdisciplinary review. *International Journal of Voluntary Sector Marketing*, **12**(4), 275-307.
- Wiepking, P. (2010). Democrats support international relief and upper class donates to art? How opportunity, incentives and confidence affect donations to different charitable organizations. *Social Science Research*, **39**(6), 1073-1087.

## Appendix B

### B.1. Lasso Results

Lasso selects (income as fixed variable in selection):

#### Donated

Income, income squared, age, post-secondary education, single, married, children, confidence, safe, trust, religiosity, out-of-workforce, well-being, smile, internet.

#### Volunteered

Income, income squared, female, post-secondary education, children, trust, religiosity, unemployed, out-of-workforce, self-employed, smile

#### Helped

Income, income squared, female, post-secondary education, single, separated, children, religiosity, unemployed, out-of-workforce, income inequality, stress, smile, food insecurity, internet

#### WGI

Income, income squared, post-secondary education, confidence, safe, trust, religiosity, out-of-workforce, well-being, smile, internet



## B.2. Additional Tables

**Table B1.** List of countries.

Afghanistan	Chile	Guatemala	Luxembourg	Pakistan	Spain
Albania	Colombia	Guinea	Macedonia	Palestine	Sri Lanka
Argentina	Congo Brazzaville	Haiti	Madagascar	Panama	Sweden
Armenia	Congo Kinshasa	Honduras	Malawi	Paraguay	Switzerland
Australia	Costa Rica	Hong Kong	Malaysia	Peru	Taiwan
Austria	Cote d'Ivoire	Hungary	Mali	Philippines	Tajikistan
Azerbaijan	Croatia	India	Malta	Poland	Tanzania
Bangladesh	Cyprus	Indonesia	Mauritania	Portugal	Thailand
Belarus	Czech Republic	Iran	Mauritius	Puerto Rico	Togo
Belgium	Denmark	Iraq	Mexico	Romania	Tunisia
Belize	Dominican Republic	Ireland	Moldova	Russia	Turkey
Benin	Ecuador	Israel	Mongolia	Rwanda	Uganda
Bhutan	Egypt	Italy	Montenegro	Senegal	UK
Bolivia	El Salvador	Jamaica	Myanmar	Serbia	USA
Bosnia and Herzegovina	Estonia	Japan	Namibia	Sierra Leone	Uruguay
Botswana	Ethiopia	Kazakhstan	Nepal	Singapore	Venezuela
Brazil	Finland	Kenya	Netherlands	Slovakia	Zambia
Bulgaria	France	Kosovo	New Zealand	Slovenia	Zimbabwe
Burkina Faso	Gabon	Kyrgyzstan	Nicaragua	Somalia	
Cambodia	Georgia	Latvia	Niger	South Africa	
Cameroon	Germany	Lebanon	Nigeria	South Korea	
Canada	Ghana	Liberia	Northern Cyprus	South Sudan	
Chad	Greece	Lithuania	Norway	Spain	

**Table B2.** Shapley values (in percent).

Factors:	Donated	Volunteered	Helped	WGI
Country	7.43	4.47	6.21	3.57
Income	9.61	7.92	15.70	13.31
Demographic	8.55	5.55	7.02	7.45
Well-Being	8.68	7.81	9.05	11.15
Socio-Economic	5.70	8.03	14.39	9.41
Fixed Effects	60.03	66.31	47.63	55.11
Obs.	194,774	194,719	193,997	193,124

**Table B3.** Shapley values (in percent) by World Bank development group.

Factors:	Donated			Volunteered		
	Low	Middle	High	Low	Middle	High
Country	10.76	8.86	17.01	17.85	10.19	13.56
Income	14.82	6.44	11.51	14.60	9.33	7.73
Demographic	5.56	5.78	11.77	12.69	5.22	8.44
Well-Being	8.99	5.80	12.57	4.90	6.56	13.95
Socio-Economic	8.19	4.69	6.53	7.02	6.62	13.08
Fixed Effects	51.68	68.44	40.61	42.94	62.08	43.24
	Helped			WGI		
	Low	Middle	High	Low	Middle	High
Country	8.78	10.46	7.33	8.32	8.09	14.15
Income	21.25	15.66	11.95	24.01	13.10	12.09
Demographic	8.46	6.72	11.80	11.56	6.89	9.30
Well-Being	8.21	8.15	16.65	9.96	8.75	15.87
Socio-Economic	10.06	16.36	12.99	8.32	10.19	9.68
Fixed Effects	43.25	42.66	39.28	36.11	52.98	38.91

Countries are grouped into three development groups by using annual gross national income (GNI) per capita and 2019 World Bank income thresholds: low-income ( $\leq \$995$ ), middle-income ( $> \$996$  and  $\leq \$12,055$ ), and high-income ( $> \$12,056$ ).