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What is the public's social welfare function?

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Abstract

Optimal public policy requires a social welfare function defined over individual utilities. While there is substantial research on income-based social welfare functions, no published study has directly elicited public preferences over utility when measured by subjective wellbeing. Using a novel survey instrument with a representative UK sample ($N=2,068$), we estimate the public's social welfare function for life satisfaction. We find significant aversion to wellbeing inequality, with a median isoelastic parameter $\alpha=0.48$. This implies a social welfare function approximately equal to the sum of square roots of individual utilities. The median respondent values improving the wellbeing of the least satisfied by one unit roughly twice as much as improving the most satisfied by one unit. Our findings provide ethically grounded distributional weights for wellbeing policy evaluation and cost-benefit analysis.

Keywords: social welfare function; inequality aversion; wellbeing; life satisfaction; distributional weights
JEL codes: I31; D63; H43

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1 Introduction

We can only analyse optimal public policy if we have a social welfare function, defined over the vector of individual utilities (see, for example, [Atkinson and Stiglitz \(1980\)](#)). Yet, surprisingly, there has been almost no research on what the public believes the form of such social welfare function should be.¹

There has been research over a different social welfare function, defined over the vector of individual incomes. But incomes and ‘willingness to pay’ cannot reflect the impact on utility of being sick or sacked.² The solution is to measure utility itself. The most commonly used measure is life satisfaction, where the question is ‘Overall, how satisfied are you with your life these days?’ (0 to 10 where 0 = *Not at all*, 10 = *Completely satisfied*). Almost 90% of OECD governments now ask this question ([OECD \(2025\)](#), [OECD \(2024\)](#)). This measure is increasingly used as a policy goal. In Britain, for example, life satisfaction is the implicit policy objective under the Treasury’s Green Book, which sets out how all policy proposals are to be appraised ([HM Treasury \(2021\)](#), [HM Treasury \(2022\)](#)).³

But, whether social welfare is determined by the array of incomes or life satisfaction, a key issue is the form of the social welfare function, through which individual utilities are aggregated. How egalitarian should it be? In other words, how much weight should it give to improvements for those with low scores compared with those higher up the scale?

This is an ethical question, to which there is no scientific answer. But for political decision making, it is important to know what the public thinks. That is what this paper is about.

To estimate the shape of welfare function for wellbeing, we offered a representative sample of the UK population a series of hypothetical questions. Respondents were asked to evaluate how important it is, in their opinion, to improve by one unit the life satisfaction of individuals who currently score 2 or above on a 0–10 life satisfaction scale. To establish a benchmark, the importance of improving someone’s wellbeing from 2 to 3 was fixed at 100 units. We then used the reports to estimate the shape of the welfare function without imposing parametric assumptions. We also used them to estimate the parameter of an isoelastic welfare function.

¹The only exception is [Cooper et al. \(2026\)](#), who elicit wellbeing inequality aversion using gambles. We compare our approach with theirs below.

²Willingness to pay can be computed where there is evidence from revealed preference. But this requires observed choices. The other approach, stated preference, is subject to known problems such as scope insensitivity and the dependence of the estimates on the type of question asked [Kahneman et al. \(2000\)](#).

³Whether life satisfaction is the right measure of utility is contested (e.g. [Benjamin et al. 2014](#)). We adopt it because it is a validated measure used by national statistical offices and in policy.

Our analysis uses survey data collected via YouGov between 14 and 19 August 2025. The sample includes 2,068 respondents and is representative of the demographic profile of the UK adult population by age, gender, social grade, and ethnicity. We also collect respondent’s own levels of life satisfaction.

We find that the median respondent values an improvement in wellbeing from 2 to 3 as roughly twice as important as an improvement from 9 to 10. For some intermediate values, moving someone from 4 to 5 is judged about 60% more valuable than moving someone from 8 to 9.

With this data, we can also estimate an inequality aversion parameter α based on the social welfare function $(1-\alpha)^{-1} \sum_i U_i^{1-\alpha} k$, where U_i is individual cardinal utility and k is a constant. Using median values, the estimate of α is 0.48 (standard error = 0.013). Substituting $\alpha \approx 0.5$ into the social welfare function above gives the simple approximation $S \propto \sum_i \sqrt{U_i}$. Aversion to wellbeing inequality not dissimilar to the aversion to income inequality estimated using hypothetical redistributive choices, i.e. withdrawing a sum of money from a higher income quantile and transferring a part of it to a lower quantile. The estimates of α from that approach typically lie between 0.1 and 0.5 (e.g. [Amiel et al., 1999](#); [Pirttilä and Uusitalo, 2010](#)). That estimate is lower than those for income found when respondents are asked to compare hypothetical societies: one with lower mean income but less inequality, versus another with higher mean income but greater inequality. These estimates range from 1 to over 3 (e.g. [Hurley et al., 2020](#); [Pirttilä and Uusitalo, 2010](#); [Carlsson et al., 2005](#); [Costa-Font and Cowell, 2025](#)).

The overall median estimate of 0.48 may understate the public’s preferred level of inequality aversion, as it includes responses from individuals who struggled with the survey task. We find that the inequality aversion parameter is close to zero among those who reported low comprehension or high difficulty of the task, but rises substantially among the majority who found the task clear or easy.

We find significant heterogeneity in wellbeing inequality aversion across individual characteristics. Aversion to wellbeing inequality is lower among happier individuals and higher among those who engage in charitable giving. Younger respondents show higher inequality aversion than older respondents. Men have higher inequality aversion than women. Widowed respondents have markedly lower inequality aversion than other groups. Higher-income

respondents display greater inequality aversion. Importantly, we find no significant differences across UK nations, implying that a single welfare weighting framework can be applied consistently for policy evaluation in the UK.

Our paper contributes to two strands of literature. First, it connects to the literature on wellbeing policy evaluation, which uses reports of life satisfaction as an overall welfare measure to assess the impact of policies or to assign value to their intangible effects.⁴ Current evaluations typically treat wellbeing improvements as equally valuable, regardless of the initial wellbeing level of the recipient. Our contribution is to provide a tool for differentially valuing improvements across the wellbeing distribution, where the differences in treatment reflect the views of the UK population.

Secondly, we contribute to the literature on inequality measurement and distributional weights (Atkinson, 1970; Clark and D’Ambrosio, 2015; Jenkins, 2024; Cowell et al., 2025).⁵ Our contribution here is twofold. First, we propose a novel survey instrument that directly elicits respondents’ distributional preferences for wellbeing, rather than recovering them indirectly from complex hypothetical choices. This makes it easier for respondents to provide consistent answers across different points of the distribution. Second, we apply this direct-elicitation approach to wellbeing, which, to the best of our knowledge, has not been done before.

2 The Survey and Data

Rather than infer distributional weights from choices between alternative outcomes, we elicit them by asking people directly. First, we introduce the respondents to the scale, by asking them to record their own life satisfaction (LS) on the 0-10 scale.⁶ Next we tell them the distribution of actual answers in the UK population. Then we ask the key question presented in Figure 1: *“How valuable is it to help someone improve their life satisfaction by 1 point, depending on where they start?”*

⁴See Frijters and Krekel (2021); Frijters et al. (2020); Layard and Oparina (2021) for formulations of this approach, which has been applied to value the benefits of volunteering programmes (Krekel et al., 2024), hosting sports events (Dolan et al., 2019), and a wide range of policies (Frayman et al., 2025).

⁵This literature primarily uses two types of survey instruments. One approach asks respondents to evaluate hypothetical redistribution scenarios, such as withdrawing money from a higher income quantile and transferring part of it to a lower one (Saez and Stantcheva, 2016; Capozza and Srinivasan, 2025). Another asks respondents to compare income distributions that differ in both range and average (Hurley et al., 2020; Pirttilä and Uusitalo, 2010).

⁶We asked the standard life satisfaction question about the respondent’s own life: *“Overall, how satisfied are you with your life nowadays?”* (0–10 scale).

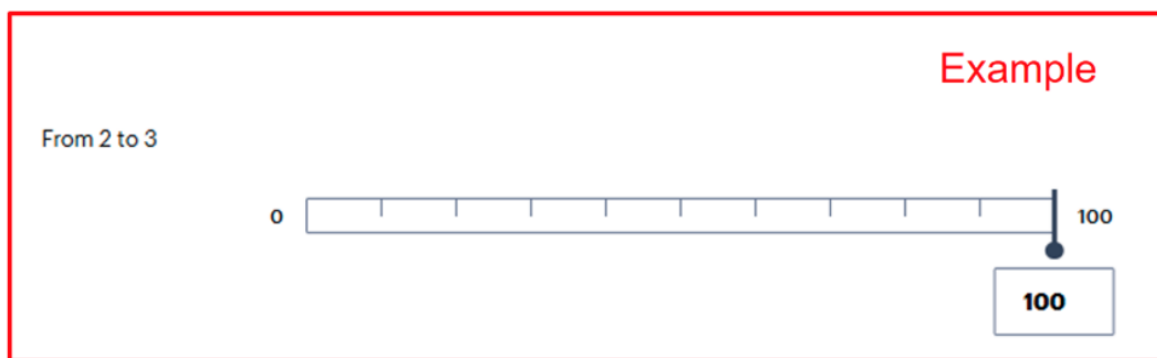
We are interested in your views about how important it is to help people at different levels of wellbeing. In the table below, we ask: How valuable is it to help someone improve their life satisfaction by 1 point, depending on where they start?

When you answered the life satisfaction question above, you used the 0–10 scale in a way that made sense to you. In this section, we ask you to think about the same scale — using your own understanding of what each level represents — and tell us how important it is to help someone move from one level to the next.

For the purposes of this question, when we refer to levels, we mean the positions on the 0–10 Life Satisfaction scale: 0 is the lowest level of wellbeing, and 10 is the highest. So moving from level 2 to 3 means going from a very low to a slightly higher level of wellbeing; moving from level 9 to 10 means going from high to very high wellbeing.

As a guide: suppose it's worth 100 units to help someone move from 2 to 3. On a scale from 0–100, where 0 means *Not at all Important* and 100 means *Very Important*, how important is it to help someone move from each of the levels below to the next level?

The importance of moving wellbeing



From 3 to 4



...

From 9 to 10



Figure 1: Relative importance of increasing wellbeing question.

Note: Respondents were asked to move the dial for each life-satisfaction step between 0 and 100. The current value was shown in the box below the dial. Subsequent steps were presented further down on the same screen.

Proceeding step by step yields a set of relative importance weights of improving wellbeing across the whole scale from $LS = 2$ up to $LS = 9$. To make responses comparable across individuals, we fix the importance of moving from 2 to 3 at 100 units. We anchor at 2 to 3

rather than 0 to 1 because few respondents report life satisfaction below 2 in large UK and international surveys, making such states harder to imagine. For example, the UK Office for National Statistics reports that only around 1% of respondents reported life satisfaction below 2 (ONS, 2023). Starting at 2 avoids this problem while still capturing the lower end of the wellbeing distribution.

We use survey data collected via YouGov between 14 and 19 August 2025. The sample includes 2,068 respondents and is representative of the UK adult population by age, gender, social grade, and ethnicity. Apart from demographic and socio-economic characteristics, respondents report on civic engagement and other topics. We also record respondent’s own life satisfaction score and two measures of task comprehension: whether the question made sense to them and how difficult it was to answer. See Appendix A for the details of the sample. Appendix B further describes the survey instrument and reports screenshots of the instructions and items as presented to respondents.

3 Estimation

Before going further, it is worth noting the necessary properties of a reasonable social welfare function. First, as Arrow showed, utility must be measured in a way that is cardinal and interpersonally comparable (Arrow (1970)). We proceed under the assumption that life satisfaction, like income, has these characteristics. This assumption is supported by some empirical evidence. For example, test-retest errors are similar at all points on the scale (Krueger and Schkade, 2008), suggesting that the points are equally spaced. Moreover, replies on a continuous visual analogue scale are similar to those using a discrete scale (Kaiser and Lepinteur, 2025).

As regards interpersonal comparability of utilities, this is surely not perfect, but again, without a substantial degree of comparability, we would not observe any substantial correlations of life satisfaction with objective variables and behaviours.

The final requirement of a social welfare function is symmetry. In other words, the value of the function would be unchanged if the utility of different participants were switched around. One symmetric function is the isoelastic function used by many writers, where social welfare

(S) is given by

$$S = \frac{1}{1-\alpha} \sum_{i=1}^N U_i^{1-\alpha} k \quad (\alpha \geq 0, \alpha \neq 1, k > 0) \quad (1)$$

where U_i is the income or life satisfaction of person i and k reflects the units of S and U (e.g. [Atkinson and Stiglitz \(1980\)](#)). With this function the marginal social value of utility is

$$\frac{\partial S}{\partial U_i} = U_i^{-\alpha} k$$

and, taking logs of both sides:

$$\log \frac{\partial S}{\partial U_i} = -\alpha \log U_i + \log k \quad (2)$$

In other words, the marginal social value of extra utility is inversely related to the level of utility with an elasticity of minus α .

So α is a measure of inequality aversion. If $\alpha = 0$, we have the approach proposed by Jeremy Bentham where social welfare is measured by the simple addition of utilities – an approach also advocated by the philosopher Peter Singer ([Bentham \(1789\)](#), [Singer \(1981\)](#)). If $\alpha \rightarrow \infty$, we have the extremely egalitarian position advocated by John Rawls where all that matters is the utility of the least happy person [Rawls \(1971\)](#).

In this paper, we estimate equation 2 above. For each of the N survey respondents, we have their reports on the social value of an extra unit of utility starting from each of the 7 freely chosen levels (3 up to 9). Thus, equation 2 is estimated using $7 \times N$ paired observations on U_i and $\partial S / \partial U_i$.⁷ The dependent variable in equation 2 is the individual responses in logs. Its distribution is right-skewed and we estimate equation 2 by median regression.⁸ OLS estimates are reported in Appendix F.

⁷To be explicit, there are N individuals, denoted by i , and 7 relevant levels of utility, denoted by j . Each individual reports, for each of these 7 levels of U_{ij} , an assessment of its social marginal value $\partial S / \partial U_{ij}$. The estimation equation is thus:

$$\log \frac{\partial S}{\partial U_{ij}} = -\alpha \log U_{ij} + \log k + \epsilon_{ij},$$

where U_{ij} takes values from 3 to 9. We fit this equation with YouGov post-stratification weights and report heteroskedasticity-robust standard errors.

⁸Whereas OLS regression selects the regression coefficient to minimise the sum of squared errors ($\sum \epsilon_{ij}^2$), a median regression is arguably more appropriate in that it minimises the sum of absolute errors ($\sum |\epsilon_{ij}|$). This approach is in line with the proposition that the median voter's view should be decisive.

We shall then compare our α with estimates of it when utility is measured by income.⁹ We shall also see how it varies across different population groups.

4 Results

For ethical and political reasons, we focus on the median of the distributional weights at each point on the scale, rather than the mean. Table 1 presents the results. The value of going from 2 to 3 is normalised at 100. We find that the social value of someone going from 9 to 10 is only 49, just under a half the value of raising someone from 2 to 3.

Table 1: Median marginal value of someone going up from life satisfaction at the level shown to the next higher level of wellbeing (from 2 to 3 =100)

LS step	2→3	3→4	4→5	5→6	6→7	7→8	8→9	9→10
Median	100	83	80	72	69	60	50	49

Note: The 2→3 step is fixed at 100 by design (anchor). Steps 3→4 through 9→10 are freely chosen by respondents and enter the regression in Equation 2.

The same data is displayed in graphical form in Figure 2.¹⁰

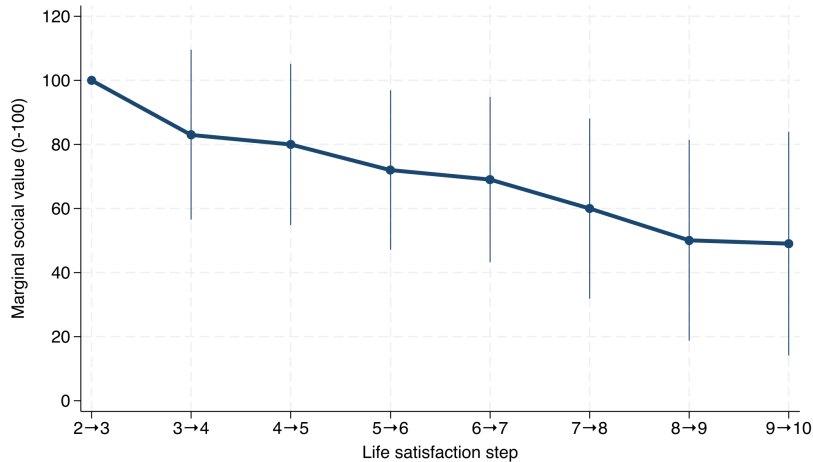


Figure 2: Marginal social value when life-satisfaction is increased by one unit from different starting points (+/- 1 SD)

We can now estimate the value of α , the coefficient of inequality aversion, which summarises the data in Table 1. We have, for each individual i , their estimate of all 7 freely chosen incremental values on which to run Equation 2. The resulting median estimate of α is

⁹Note that when a social welfare function is estimated over income, its concavity is typically attributed to the diminishing marginal utility of money, not to inequality aversion. The underlying social welfare function is then Benthamite.

¹⁰Appendix C presents the distribution of marginal social value by life satisfaction level.

0.48 (se = 0.013).¹¹

It is interesting to compare this degree of aversion to life-satisfaction inequality with the aversion to income inequality in other studies. The latter is typically elicited in two different ways. In one respondents are asked whether they approve of a change where someone (poorer) gains x and another person (richer) loses y . The estimates of α here are usually between 0.1 and 0.5 (e.g. Amiel et al., 1999; Pirttilä and Uusitalo, 2010). This is not that different from the coefficient on wellbeing inequality. An alternative approach asks respondents to choose between hypothetical societies with different income distributions: one with lower mean income but less inequality, versus another with higher mean income but greater inequality. Estimated using this approach the elasticity varies between 1 and over 3 (e.g. Hurley et al., 2020; Pirttilä and Uusitalo, 2010; Carlsson et al., 2005).

The closest analysis to ours is a recent work by Cooper et al. (2026). They offered 300 UK adults a series of gambles between life satisfaction levels to estimate inequality aversion. Each gamble compared a sure outcome with a lottery between a higher and a lower outcome. They find substantially higher inequality aversion than we do. To compare, we set the value of moving someone from 2 to 4 in their analysis at 100. Then moving from 8 to 10 is worth between about 2 and over 12, depending on the aggregation method.¹² In our analysis it is above 50. This is in line with the income literature: indirect methods, lotteries or comparisons of hypothetical distributions, produce higher estimates than direct redistributive choices.

Robustness of the results to question comprehension. A natural question about our results is “Do people really understand the question?”. As Table 2 shows, the survey task was cognitively demanding for some respondents. And this affected their answers. People who found the question difficult reported much lower inequality aversion than people who found it easy (see Table 3).¹³ This suggests that the overall estimate of 0.48 may understate the

¹¹The anchor step (2→3), fixed at 100 by design, is excluded from the regression as it contains no revealed preference information. Including the anchor yields a lower median estimate of $\alpha = 0.39$ (se = 0.020). The corresponding OLS estimate is essentially unchanged at 0.62. For the main analysis, we drop observations where individuals reported a value of 0 due to the log-linearisation. There are 353 zero reports; recoding these as zeros rather than dropping them yields $\alpha = 0.42$ (se = 0.014). The mean estimate is $\alpha = 0.62$ (se = 0.021); full mean results are reported in Appendix F. Diagnostic checks for the quality of fit of Equation 2 are presented in Appendix D.

¹²The lower bound of 2 is calculated using $\lambda = 4.0$, the pooled median societal loss-aversion ratio for non-fatal gambles in their Table 2. Estimates kindly provided by Crispin Cooper for alternative aggregation methods across individuals yield 7.4 and 12.8, the latter incorporating a correction for the overestimation of small probabilities.

¹³ α estimates from Equation 2 with interactions for comprehension levels. Joint F-tests examine equality across comprehension response categories.

public’s level of inequality aversion, as it includes responses from individuals who struggled with the survey task.

Table 2: Question comprehension and difficulty

Did the questions make sense to you?		How easy or difficult it was to answer?	
Response	Percent	Response	Percent
1 (Not at all)	21	1 (Very difficult)	16
2	13	2	17
3	20	3	27
4	19	4	19
5 (Completely)	27	5 (Very easy)	21

Table 3: Inequality aversion by question comprehension

Did the questions make sense to you?			How easy or difficult it was to answer?		
Response	α	se	Response	α	se
Not at all	−0.10	0.035	Very difficult	−0.09	0.040
2	0.36	0.038	2	0.39	0.027
3	0.43	0.028	3	0.55	0.020
4	0.68	0.024	4	0.64	0.027
Completely	0.61	0.056	Very easy	0.51	0.068

Joint test *p-value*: Clarity < 0.001, Difficulty < 0.001

Notes: α estimated by median regression from Equation 2 with interactions for question comprehension and difficulty. Joint F-test examines equality of α across all levels.

For example, 21% of respondents reported that the questions did not make sense at all, and 16% found them very difficult. α equals −0.10 for those who found that the questions did not make sense at all as against 0.61 for those who found that they made complete sense. Similarly, α equals −0.09 for those who found the questions very difficult and 0.51 for those who found them very easy. Figure 3 shows that respondents who struggled with the question tended to report the same marginal social value for all levels of life satisfaction.

To better understand whether the clarity and difficulty of the task are systematically related to respondent characteristics, we regress clarity and easiness responses on a set of individual controls (see Appendix E). The main correlate that we identify is the education level: respondents with higher education levels reported that the questions were clearer and easier to answer. Those who engaged in charitable giving found the questions more clear, but not easier to answer.¹⁴

¹⁴Column 3 of Table 10 regresses life satisfaction on the same set of controls. The relationships are consistent with the wellbeing literature.

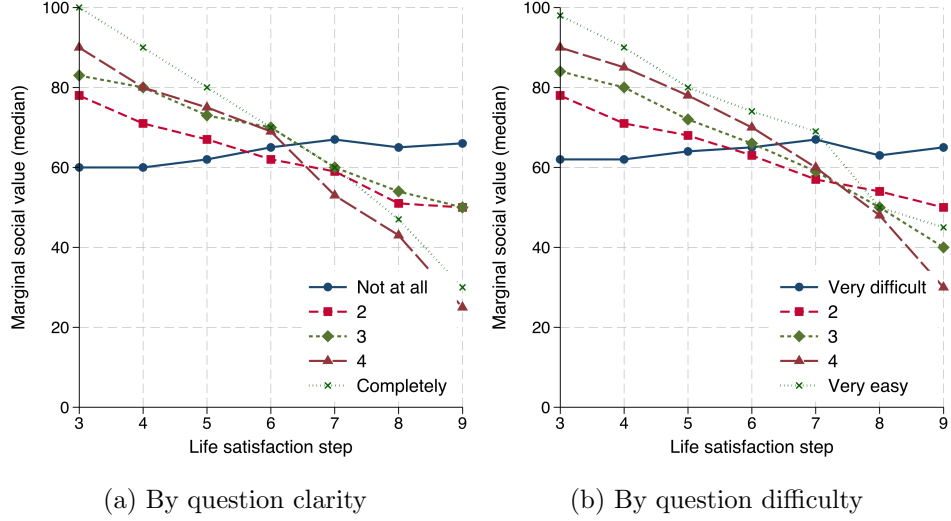


Figure 3: Marginal social value by survey evaluation questions

Heterogeneity. We shall now examine how inequality aversion differs for different groups. First, people who are themselves happy are less averse to wellbeing inequality than those less fortunate (see Table 4). This echoes the findings for incomes of Beckman et al. (2006), Amiel et al. (1999) and Capozza and Srinivasan (2025) that richer respondents are less averse to income inequality than poor ones are.

Table 4: Inequality aversion by individual’s life satisfaction

Life Satisfaction	α	se
≤ 2	0.53	0.072
3	0.57	0.046
4	0.57	0.057
5	0.48	0.043
6	0.52	0.031
7	0.53	0.025
8	0.32	0.023
9	0.24	0.061
10	0.14	0.061

Joint test of equality: $p\text{-value} < 0.001$

Notes: α estimated by median regression from Equation 2 with interactions for individual’s own life satisfaction levels. Life satisfaction levels 0, 1 and 2 are merged into a single bottom category due to small cell sizes. Joint F-test examines equality of α across all satisfaction levels.

People engaged in financial giving are more inequality averse than others ($\alpha = 0.49$ vs. 0.36), suggesting that individual behaviours are informative about their preferred shape of welfare function. We find no significant differences by volunteering or health status (see Table 5).

Younger respondents show significantly higher inequality aversion ($\alpha = 0.55$ for 18–34,

Table 5: Inequality aversion by charitable giving and health

Financial giving		Volunteering		Health	
Response	α (se)	Response	α (se)	Response	α (se)
No	0.36 (0.024)	No	0.48 (0.015)	Limited	0.48 (0.025)
Yes	0.49 (0.016)	Yes	0.50 (0.040)	Not limited	0.48 (0.015)

Joint test *p-values*: Financial giving < 0.001, Volunteering = 0.613, Health = 1.000

Notes: α estimated by median regression from Equation 2 with interactions for the levels of each variable.

Joint F-test examines equality of α across all levels of each variable.

compared to 0.36 for 55+). This is consistent with earlier results for income-related inequality, where younger respondents also have higher inequality aversion (see e.g. [Capozza and Srinivasan, 2025](#)). Men have significantly higher inequality aversion than women (0.49 *vs.* 0.38). Widowed respondents have markedly lower inequality aversion (0.17) than married/partnered (0.48) or divorced/separated (0.51) respondents (see Table 6).

Table 6: Inequality aversion by demographic characteristics

Age group		Gender		Marital status	
Response	α (se)	Response	α (se)	Response	α (se)
18-34	0.55 (0.024)	Male	0.49 (0.023)	Married / Partnered	0.48 (0.017)
35-54	0.46 (0.022)	Female	0.38 (0.015)	Divorced / Separated	0.51 (0.028)
55+	0.36 (0.025)			Single	0.39 (0.056)
				Widowed	0.17 (0.065)

Joint test *p-values*: Age group < 0.001, Gender < 0.001, Marital status < 0.001

Notes: α estimated by median regression from Equation 2 with interactions for the levels of each variable.

Joint F-test examines equality of α across all levels of each variable.

Higher-income respondents display greater inequality aversion: $\alpha = 0.54$ for those earning £60,000 or more per year, compared with $\alpha = 0.44$ for those earning below £20,000 (joint *p-value* = 0.034). We find no significant differences across UK nations (see Table 7). This is reassuring for policy evaluation, as it suggests that a single welfare weighting framework can be applied consistently across the whole of the UK without region-specific adjustments.

5 Illustrative policy example

Finally, we shall now illustrate how using distributional weights can change the rankings between policies. Suppose two policies both cost the same. But

- Policy A moves 1,000 people from level 2 to 3
- Policy B moves 1,500 people from level 8 to 9

Table 7: Inequality aversion by household income and country

Household income		Country	
Response	α (se)	Response	α (se)
Up to £19,999	0.44 (0.037)	England	0.48 (0.015)
£20,000–39,999	0.46 (0.033)	Wales	0.52 (0.064)
£40,000–59,999	0.49 (0.021)	Scotland	0.41 (0.035)
£60,000+	0.54 (0.020)	Northern Ireland	0.48 (0.061)

Joint test *p-values*: Income = 0.034, Country = 0.247

Notes: α estimated by median regression from Equation 2 with interactions for the levels of each variable.

Joint F-test examines equality of α across all levels of each variable.

Without distributional weights, Policy B appears better (helping 1,500 > 1,000 people). But if we add distributional weights, Policy A is best since

- Policy A welfare benefit: $1,000 \times 100 = 100,000$
- Policy B welfare benefit: $1,500 \times 50 = 75,000$,

where 100 and 50 are the respective median marginal welfare weights for improvements at levels 2 and 8.

6 Conclusion

We have estimated the form of the UK public’s social welfare function, defined across individual cardinal utilities. In a survey of 2,068 adults we asked them to state the importance of an extra unit of utility starting from each level (with the transition from 2 to 3 being valued at 100). The results are shown in Figure 2.

It is convenient to summarise these numbers by assuming they emerge from a function where social welfare (S) is given by

$$S = \frac{1}{1-\alpha} \sum_{i=1}^n U_i^{1-\alpha} k \quad (\alpha \geq 0, \alpha \neq 1, k > 0)$$

where U_i is the utility of the person i . Differentiating by U_i makes the marginal social utilities proportional to $U_i^{-\alpha}$. When we estimate this function using median regression we find that α is equal to 0.48 ($se = 0.013$).

Our findings provide ethically grounded distributional weights for wellbeing policy evaluation and cost-benefit analysis. We demonstrate that incorporating these weights can alter

the ranking of policy options, ensuring public resources are allocated in a way that reflects the values of the population.

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A Data and Sample

A.1 Data Collection

Fieldwork was conducted by YouGov between 14 and 19 August 2025. The study is based on an online self-completion survey administered to members of the YouGov UK panel, which consists of more than 2.5 million individuals who have agreed to participate in research. For this study, email invitations were issued at random from the base sample. Invitations contained a generic survey link. Once a panel member clicked on the link, they were directed to the study questionnaire.

The project was reviewed in line with the LSE Research Ethics Policy and Procedure. Prior to the survey with YouGov, the instrument was piloted with a group of postgraduate students at LSE. All respondents included in the analysis provided informed consent before beginning the survey.

A.2 Sample

The full sample includes 2,111 observations. Of these, 43 respondents did not consent to continue the survey, leaving a final sample of 2,068 individuals.

Table 9 reports descriptive statistics for the sample. Around 52% of respondents are female, 27% are aged between 18 and 34, 33% are aged between 35 and 54, and 40% are 55 or older. 86% of the sample identify as white, 58% are married or partnered, and 53% report having no religious faith. 60% are employed full-time or part-time, and 39% work in the private sector. In terms of civic engagement, 47% report having given money to charity and 11% report volunteering in the past 12 months.

Table 8 presents descriptive statistics for life satisfaction responses and follow-up questions on clarity and difficulty. 43% of respondents report life satisfaction of 7 or 8 on the 0–10 scale, 10% score 9 or 10, and 20% report a score of 4 or below. For question comprehension, around 65% of respondents reported that the question made some sense (3 or above on the 1–5 scale, where 1 is *not at all clear* and 5 is *completely clear*), and around 67% found the question somewhat easy to answer (3 or above on the 1–5 scale, where 1 is *very difficult* and 5 is *very easy*). However, 21% of respondents reported that the question was *not at all clear*, the lowest category, and 16% described it as *very difficult*, the lowest category.

All descriptive statistics and analyses in the paper use YouGov’s post-stratification weights

to ensure national representativeness. These weights adjust the achieved sample to match the demographic profile of the UK adult population on age, gender, region, and social grade.

A.3 Descriptive Statistics

Table 8: Distribution of life satisfaction etc. across individuals.

	Mean	SD
<i>Life Satisfaction:</i>		
Not at all	0.03	0.17
1	0.01	0.10
2	0.04	0.19
3	0.06	0.25
4	0.06	0.24
5	0.12	0.33
6	0.14	0.35
7	0.23	0.42
8	0.20	0.40
9	0.06	0.24
Completely	0.04	0.20
<i>Did the questions make sense:</i>		
Not at all	0.21	0.41
2	0.13	0.33
3	0.19	0.40
4	0.19	0.39
Completely	0.27	0.4
<i>How easy was to answer:</i>		
Very difficult	0.16	0.37
2	0.17	0.38
3	0.27	0.44
4	0.19	0.39
Very easy	0.21	0.41
Observations	2068	

Table 9: Descriptive statistics for the covariates.

	Mean	SD
<i>Gender:</i>		
Male	0.48	0.50
Female	0.52	0.50
<i>Age group:</i>		
18-34	0.27	0.44
35-54	0.33	0.47
55+	0.40	0.49
<i>Ethnicity:</i>		
White	0.86	0.35
Ethnic minority	0.14	0.35
<i>Marital status:</i>		
Married / Partnered	0.58	0.49
Divorced / Separated	0.27	0.44
Single	0.07	0.26
Widowed	0.04	0.20
Missing	0.03	0.18
<i>Religion:</i>		
Christian	0.30	0.46
Other faiths	0.09	0.29
No faith	0.53	0.50
Missing	0.08	0.27
<i>Sexuality:</i>		
Heterosexual / Missing	0.88	0.32
Non-heterosexual	0.12	0.32
<i>Work status:</i>		
Working (FT or PT)	0.60	0.49
Unemployed / Non-working	0.10	0.30
Retired	0.23	0.42
Student / Other	0.07	0.26
<i>Household income:</i>		
Up to £19,999 per year	0.16	0.37
£20,000 to £39,999 per year	0.24	0.43
£40,000 to £59,999 per year	0.15	0.36
£60,000 per year or more	0.22	0.41
Missing	0.23	0.42
<i>Sector:</i>		
Private sector	0.39	0.49
Public sector	0.21	0.41
Third/voluntary sector	0.06	0.23

Continued on next page

Table 9: Descriptive statistics for the covariates (cont.)

	Mean	SD
Missing	0.34	0.47
<i>Household size:</i>		
1	0.23	0.42
2	0.36	0.48
3	0.17	0.38
4 or more	0.22	0.41
Missing	0.02	0.14
<i>IMD decile:</i>		
Decile 1 to 3 (most deprived)	0.26	0.44
Decile 4 to 7 (middle)	0.42	0.49
Decile 8 to 10 (least deprived)	0.32	0.47
<i>Education:</i>		
Low	0.20	0.40
Medium	0.36	0.48
High	0.44	0.50
<i>Media source:</i>		
A printed copy of a newspaper	0.03	0.17
A newspaper's website	0.10	0.30
A news website not associated with a newspaper	0.09	0.29
A news app on a mobile or tablet device	0.17	0.38
Social network websites	0.16	0.37
Television	0.26	0.44
Radio	0.09	0.29
Missing	0.09	0.28
<i>Social grade:</i>		
AB	0.23	0.42
C1	0.31	0.46
C2	0.21	0.41
DE	0.25	0.43
<i>Region:</i>		
England	0.84	0.37
Wales	0.05	0.21
Scotland	0.08	0.28
Northern Ireland	0.03	0.16
<i>Disability:</i>		
Limited at all	0.31	0.46
Not limited	0.66	0.47
Missing	0.02	0.14
<i>Tenure:</i>		

Continued on next page

Table 9: Descriptive statistics for the covariates (cont.)

	Mean	SD
Own	0.60	0.49
Rent	0.24	0.43
Other / Neither	0.13	0.34
Missing	0.03	0.17
<i>Financial giving:</i>		
No	0.50	0.50
Yes	0.47	0.50
Missing	0.02	0.15
Volunteered in last 12 months	0.11	0.31
Observations	2068	

Note: Social Grade is a classification system based on occupation used in the UK: AB - Higher and intermediate managerial, administrative, professional occupations; C1 - Supervisory, clerical, junior managerial, administrative, professional occupations; C2 - Skilled manual occupations; DE - Semi-skilled and unskilled manual occupations, unemployed and lowest grade occupations. Education levels: Low (no formal qualifications to GCSE level), Medium (A-Levels/vocational/professional qualifications), High (university degrees).

B Questionnaire Details

The core task of the survey experiment asks respondents to judge how important it is to raise someone’s wellbeing at different points on the life satisfaction scale. This is a cognitively demanding task, so the instrument was structured to make the question as intuitive as possible while preserving the information needed for estimation.

After informed consent, we asked the standard life satisfaction question about the respondent’s own life: *“Overall, how satisfied are you with your life nowadays?”* (0–10 scale). This familiarised respondents with the response scale and ensured that, when later asked to evaluate improvements for others, they would be using the *same* evaluative frame they had just applied to themselves.

Before the importance questions, participants were given brief context about how the life satisfaction scale is used in representative UK surveys, including a short description of typical response patterns. They were explicitly instructed to interpret the 0–10 scale in the same way they had just done for themselves. This framing reduces ambiguity about what counts as a “one-point” improvement and anchors the task in a familiar metric.

Respondents were encouraged to think about the task in a policy context, where public spending can be directed toward both those who are struggling and those who are already doing well, but resources are limited, hence, policies that support some groups of individuals need to be prioritised over others.

We fixed a common benchmark by defining the improvement from life satisfaction from 2 to 3 to have an importance of 100 units. Respondents were then asked, for each subsequent step $LS \rightarrow LS + 1$ with $LS = 3, \dots, 9$:

“On a scale from 0-100, where 0 means not at all important and 100 means very important, how important is it to help someone move from each of the levels below to the next level?”

Proceeding step by step yielded a set of relative importance weights across the whole scale from $LS = 2$ up to $LS = 9$.

Following best practice in survey methodology (see [Tourangeau et al. \(2000, Ch. 2\)](#) and [Willis \(2005, Ch. 2 and Ch. 4\)](#)), we included post-survey debriefing items to capture respondents’ perceptions of clarity (*Did the question make sense to you?*) and difficulty (*How easy or difficult was it to answer the question?*) of the main question. These measures help assess clarity and the cognitive burden of the instrument and support robustness checks, where we

report how the estimates of welfare function depend on perceived clarity and difficulty.

Figures 4–9 reproduce the survey questions as displayed to participants.



The first section of the survey is about improving wellbeing.

If you agree to take part, you will be asked to answer a series of hypothetical questions about priorities for improving wellbeing at different levels. The section will take approximately 10 minutes to complete. Participation is voluntary, and you may stop at any time. You will receive compensation for your time in accordance with YouGov's policy.

Your responses will be used for future research and publications. Your participation will remain anonymous — your name will not appear in any reports or publications resulting from the study.

This study has been reviewed and approved in accordance with the LSE Research Ethics Policy and Procedure. The LSE Research Privacy Policy is available online. If you have any questions about the study, please contact Ekaterina Oparina at e.oparina@lse.ac.uk. For any concerns or complaints regarding the conduct of this research, please contact the LSE Research Ethics Managers at research.ethics@lse.ac.uk.

By clicking the button below, you confirm that you have read and understood the information above, that you are at least 18 years of age, and that you agree to take part. We appreciate your participation.

- ☐ I consent and would like to start the section
- ☐ I do not wish to participate in this section

Figure 4: Consent form.

Overall, how satisfied are you with your life these days?

- ☐ Not at all
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ Completely

Figure 5: Life satisfaction (0–10 scale).

The Office for National Statistics asks this same question as part of the UK's largest household survey. Over half of people in the UK score between 7 and 8. Some score much lower: those with scores of 4 or less are often considered to be in distress or misery — that's about 1 in 20 people in the UK. At the other end, around a quarter of people score 9 or 10, the highest levels.

This is a wide spread. Public spendings can help both people who are struggling and those who are already doing well — but budgets are limited. So policymakers often have to decide: How important is it to improve life satisfaction at different levels?



Figure 6: Relative importance of increasing wellbeing (preamble).

We are interested in your views about how important it is to help people at different levels of wellbeing. In the table below, we ask: How valuable is it to help someone improve their life satisfaction by 1 point, depending on where they start?

When you answered the life satisfaction question above, you used the 0–10 scale in a way that made sense to you. In this section, we ask you to think about the same scale — using your own understanding of what each level represents — and tell us how important it is to help someone move from one level to the next.

For the purposes of this question, when we refer to levels, we mean the positions on the 0–10 Life Satisfaction scale: 0 is the lowest level of wellbeing, and 10 is the highest. So moving from level 2 to 3 means going from a very low to a slightly higher level of wellbeing; moving from level 9 to 10 means going from high to very high wellbeing.

As a guide: suppose it's worth 100 units to help someone move from 2 to 3. On a scale from 0–100, where 0 means *Not at all Important* and 100 means *Very Important*, how important is it to help someone move from each of the levels below to the next level?

The importance of moving wellbeing

Example

From 2 to 3

From 3 to 4

Figure 7: Relative importance of increasing wellbeing question.



Did the questions on the previous page make sense to you?

- ☐ Not at all
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ Completely

Figure 8: Follow-up comprehension question.



How easy or difficult was it to answer the questions?

- ☐ Very difficult
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ Very easy

Figure 9: Follow-up difficulty question.

C Distribution of Marginal Social Value by Life Satisfaction Level

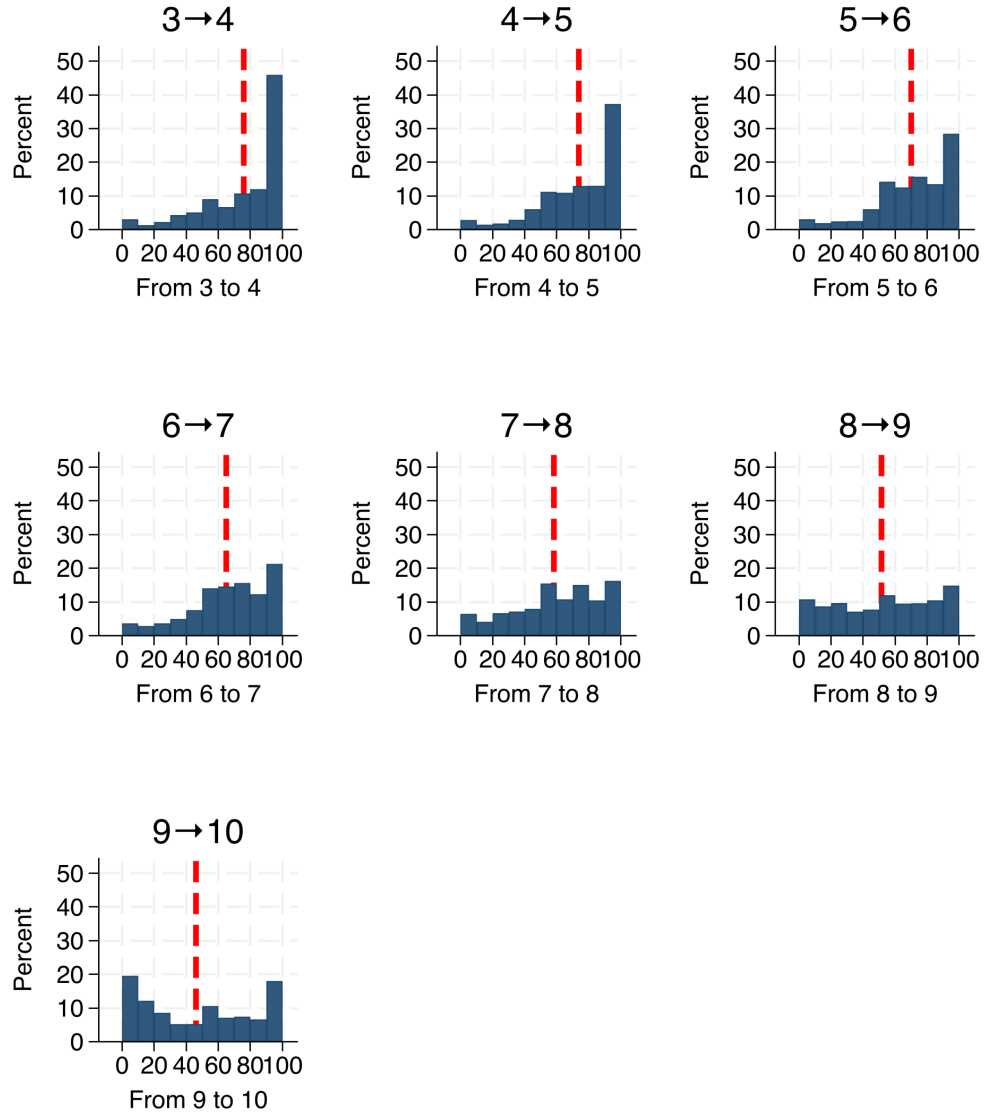


Figure 10: Distribution of marginal social value by life satisfaction level.

Note: Each histogram shows the distribution of marginal social value (0-100) assigned to improving life satisfaction by one point. Red line indicates mean.

D Diagnostic Checks for Equation 2

To check whether the log-linear specification of the isoelastic weighting function provides a good fit, we examine the distribution of residuals from the OLS regression of the log relative weights on the log of wellbeing levels. Overall, the residual pattern supports the adequacy of the log-linear isoelastic form. Figure 11 plots these residuals against the corresponding life satisfaction levels, LS . Each dot represents an individual residual, while the red line shows a locally weighted (Lowess) smooth of the residuals across LS .

The residuals are approximately centred around zero over the full range of wellbeing, indicating that the model's predictions are, on average, unbiased. The Lowess curve is nearly flat, with only a slight downward bend at higher satisfaction levels, suggesting that the model may marginally overpredict relative weights for individuals at the top of the wellbeing distribution. The vertical spread of residuals widens modestly at higher LS , which points to mild heteroskedasticity.

While most residuals are close to zero, their distribution is not symmetric: there is a concentration of positive residuals and a longer negative tail. This asymmetry motivates the use of median regression, which is robust to such skewness. The corresponding mean estimate is $\alpha = 0.62$ ($se = 0.021$); full mean results are reported in Appendix F.

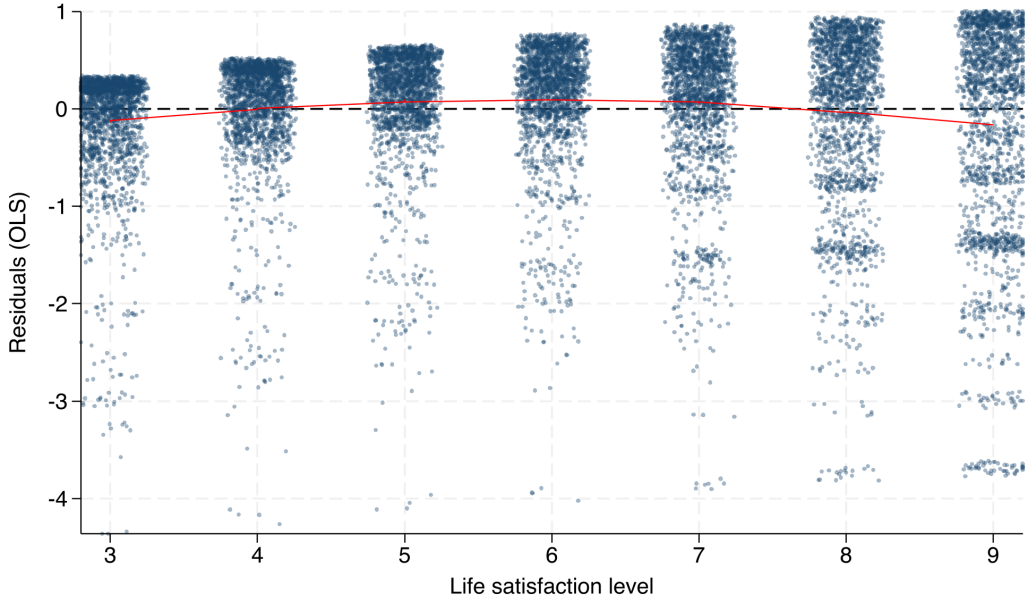


Figure 11: Residuals from the OLS regression of Equation 2

E Robustness to Question Comprehension

Columns 1 and 2 report the results of regression of responses about clarity (*Did the question make sense to you?* from 1 – Not at all to 5 – Completely) and difficulty (*How easy or difficult was it to answer the question?* from 1 - Very difficult to 5 – Very easy) of the survey instrument on the set of individual controls. Column 3 reports the results of regressing individual level of life satisfaction on the same set of controls.

Table 10: Regression results for question clarity, difficulty and life satisfaction.

	Questions clear	Questions easy	Life satisfaction
<i>Gender:</i>			
Male	0.00 (.)	0.00 (.)	0.00 (.)
Female	0.06 (0.069)	-0.04 (0.063)	0.09 (0.095)
<i>Age group:</i>			
18-34	0.00 (.)	0.00 (.)	0.00 (.)
35-54	-0.09 (0.092)	-0.16 (0.087)	-0.33* (0.131)
55+	0.13 (0.130)	0.10 (0.117)	0.16 (0.176)
<i>Ethnicity:</i>			
White	0.00 (.)	0.00 (.)	0.00 (.)
Ethnic minority	-0.22* (0.114)	-0.08 (0.102)	-0.04 (0.176)
<i>Marital status:</i>			
Married / Partnered	0.00 (.)	0.00 (.)	0.00 (.)
Divorced / Separated	-0.09 (0.099)	-0.04 (0.092)	-0.80*** (0.139)
Single	-0.01 (0.154)	0.05 (0.149)	-0.73*** (0.210)
Widowed	-0.07 (0.196)	0.26 (0.170)	-1.26*** (0.298)
Missing	0.14 (0.200)	0.34 (0.179)	0.13 (0.293)
<i>Religion:</i>			
Christian	0.00 (.)	0.00 (.)	0.00 (.)
Other faiths	0.20 (0.152)	-0.08 (0.136)	0.13 (0.217)
No faith	0.05 (0.079)	0.01 (0.073)	-0.07 (0.109)
Missing	-0.06 (0.136)	-0.09 (0.118)	-0.09 (0.209)
<i>Sexuality:</i>			
Heterosexual / Missing	0.00 (.)	0.00 (.)	0.00 (.)
Non-heterosexual	0.05	0.10	-0.09

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Table 10: Regression results for question clarity, difficulty and life satisfaction (cont.)

	Questions clear (0.111)	Questions easy (0.099)	Life satisfaction (0.148)
<i>Work status:</i>			
Working (FT or PT)	0.00 (.)	0.00 (.)	0.00 (.)
Unemployed / Non-working	-0.04 (0.146)	-0.12 (0.138)	-0.43* (0.218)
Retired	0.05 (0.150)	-0.09 (0.131)	0.91*** (0.207)
Student / Other	0.07 (0.157)	0.06 (0.150)	-0.05 (0.237)
<i>Household income:</i>			
Up to £19,999 per year	0.00 (.)	0.00 (.)	0.00 (.)
£20,000 to £39,999 per year	0.06 (0.117)	-0.07 (0.110)	0.04 (0.170)
£40,000 to £59,999 per year	0.01 (0.132)	-0.03 (0.120)	0.15 (0.192)
£60,000 per year or more	0.15 (0.134)	0.08 (0.126)	0.47* (0.195)
Missing	-0.15 (0.119)	-0.27* (0.109)	0.11 (0.177)
<i>Sector:</i>			
Private sector	0.00 (.)	0.00 (.)	0.00 (.)
Public sector	-0.04 (0.090)	-0.12 (0.082)	0.11 (0.119)
Third/voluntary sector	-0.04 (0.148)	-0.18 (0.130)	-0.47* (0.209)
Missing	0.11 (0.123)	0.11 (0.112)	-0.35* (0.172)
<i>Household size:</i>			
1	0.00 (.)	0.00 (.)	0.00 (.)
2	-0.16 (0.110)	-0.19 (0.100)	-0.17 (0.156)
3	-0.22 (0.124)	-0.19 (0.115)	-0.12 (0.172)
4 or more	-0.01 (0.126)	0.04 (0.117)	0.00 (0.176)
Missing	-0.21 (0.292)	-0.22 (0.260)	-0.48 (0.376)
<i>IMD decile:</i>			
Decile 1 to 3 (most deprived)	0.00 (.)	0.00 (.)	0.00 (.)
Decile 4 to 7 (middle)	0.11 (0.084)	0.03 (0.077)	0.08 (0.120)
Decile 8 to 10 (least deprived)	0.10 (0.091)	-0.01 (0.085)	0.09 (0.125)
<i>Education:</i>			
Low	0.00 (.)	0.00 (.)	0.00 (.)
Medium	0.28** (0.102)	0.13 (0.092)	-0.07 (0.139)
High	0.69***	0.42***	-0.25

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Table 10: Regression results for question clarity, difficulty and life satisfaction (cont.)

	Questions clear (0.107)	Questions easy (0.098)	Life satisfaction (0.145)
<i>Media source:</i>			
A printed copy of a newspaper	0.00 (.)	0.00 (.)	0.00 (.)
A newspaper's website	0.48* (0.215)	0.16 (0.193)	-0.27 (0.311)
A news website not associated with a newspaper	0.45* (0.215)	0.20 (0.189)	-0.39 (0.299)
A news app on a mobile or tablet device	0.43* (0.203)	0.21 (0.179)	-0.16 (0.281)
Social network websites	0.27 (0.206)	0.17 (0.182)	-0.36 (0.290)
Television	0.12 (0.198)	-0.07 (0.174)	-0.12 (0.276)
Radio	0.10 (0.220)	0.02 (0.196)	0.03 (0.309)
Missing	0.07 (0.221)	-0.03 (0.195)	-0.63* (0.322)
<i>Social grade:</i>			
AB	0.00 (.)	0.00 (.)	0.00 (.)
C1	0.02 (0.091)	-0.05 (0.085)	-0.29* (0.124)
C2	-0.08 (0.108)	0.04 (0.099)	-0.33* (0.147)
DE	-0.01 (0.106)	-0.01 (0.099)	-0.41** (0.157)
<i>Nation:</i>			
England	0.00 (.)	0.00 (.)	0.00 (.)
Wales	-0.25 (0.145)	-0.24 (0.127)	0.00 (0.219)
Scotland	0.07 (0.126)	0.15 (0.119)	0.41** (0.149)
Northern Ireland	0.09 (0.152)	0.04 (0.143)	0.05 (0.239)
<i>Health limits activities:</i>			
Limited at all	0.00 (.)	0.00 (.)	0.00 (.)
Not limited	0.01 (0.080)	0.01 (0.074)	1.02*** (0.115)
Missing	0.16 (0.265)	0.05 (0.230)	0.19 (0.394)
<i>Tenure:</i>			
Own	0.00 (.)	0.00 (.)	0.00 (.)
Rent	-0.02 (0.089)	-0.01 (0.080)	-0.22 (0.125)
Other / Neither	-0.00 (0.133)	-0.06 (0.123)	-0.29 (0.188)
Missing	0.76*** (0.188)	0.25 (0.190)	-0.09 (0.269)
<i>Financial giving:</i>			
No	0.00	0.00	0.00

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Table 10: Regression results for question clarity, difficulty and life satisfaction (cont.)

	Questions clear	Questions easy	Life satisfaction
	(.)	(.)	(.)
Yes	0.25*** (0.073)	0.12 (0.067)	0.14 (0.098)
Missing	-0.28 (0.253)	-0.06 (0.219)	-0.12 (0.247)
<i>Volunteering:</i>			
No	0.00 (.)	0.00 (.)	0.00 (.)
Yes	0.01 (0.106)	-0.13 (0.102)	0.33* (0.143)
Constant	2.34*** (0.290)	2.97*** (0.265)	6.27*** (0.418)
R2	0.09	0.06	0.22
Observations	2068	2068	2068

Note: Standard errors in parentheses, * p<0.05, ** p<0.01, *** p<0.001

F Mean estimates

This appendix reports mean (OLS) estimates corresponding to the median regression results in the main text. Three patterns are worth noting before turning to the tables. First, the OLS estimates are uniformly higher than the median estimates by roughly 0.10 to 0.25 across cells, reflecting the right-skewed distribution of individual inequality aversion. Second, the heterogeneity pattern is qualitatively similar, with only two exceptions. The age gradient that is sharp in the median (0.55, 0.46, 0.36 across age groups) is essentially flat under OLS (0.67, 0.61, 0.61). And volunteering becomes marginally significant under OLS ($p = 0.015$) but is not under the median ($p = 0.613$).

Overall estimate

The OLS estimate of α is 0.62 (se = 0.021), compared with the median estimate of 0.48 (se = 0.013) reported in the main text. Both estimates exclude the design-fixed anchor step (2→3) and use the same $7 \times N$ paired observations and YouGov post-stratification weights.

Marginal weights

Table 11: Mean marginal value of someone going up from life satisfaction at the level shown to the next higher level of wellbeing (from 2 to 3 = 100)

LS step	2→3	3→4	4→5	5→6	6→7	7→8	8→9	9→10
Mean	100	76	74	70	65	58	51	46

Inequality aversion by question comprehension (OLS)

Table 12: Inequality aversion by question comprehension (OLS)

Did the questions make sense to you?			How easy or difficult it was to answer?		
Response	α	se	Response	α	se
Not at all	-0.01	0.053	Very difficult	0.03	0.062
2	0.46	0.046	2	0.59	0.047
3	0.60	0.040	3	0.73	0.035
4	0.96	0.044	4	0.87	0.043
Completely	0.98	0.038	Very easy	0.74	0.045

Joint test of equality (Clarity): $p\text{-value} < 0.001$

Joint test of equality (Difficulty): $p\text{-value} < 0.001$

Notes: α estimated by OLS from Equation 2.

Inequality aversion by life satisfaction (OLS)

Table 13: Inequality aversion by individual's life satisfaction (OLS)

Life Satisfaction	α	se
≤ 2	0.67	0.095
3	0.80	0.083
4	0.71	0.075
5	0.56	0.058
6	0.68	0.045
7	0.73	0.039
8	0.51	0.043
9	0.46	0.127
10	0.34	0.075

Joint test of equality: $p\text{-value} < 0.001$

Notes: α estimated by OLS from Equation 2. Life satisfaction levels 0, 1 and 2 are merged into a single bottom category due to small cell sizes, matching the main text.

Inequality aversion by charitable giving and health (OLS)

Table 14: Inequality aversion by charitable giving and health (OLS)

Financial giving		Volunteering		Health	
Response	α (se)	Response	α (se)	Response	α (se)
No	0.54 (0.027)	No	0.61 (0.022)	Limited	0.67 (0.037)
Yes	0.72 (0.031)	Yes	0.76 (0.061)	Not limited	0.61 (0.025)

Joint test $p\text{-values}$: Financial giving < 0.001 , Volunteering $= 0.015$, Health $= 0.234$

Notes: α estimated by OLS from Equation 2.

Inequality aversion by demographic characteristics (OLS)

Table 15: Inequality aversion by demographic characteristics (OLS)

Age group		Gender		Marital status	
Response	α (se)	Response	α (se)	Response	α (se)
18-34	0.67 (0.036)	Male	0.69 (0.031)	Married / Partnered	0.64 (0.027)
35-54	0.61 (0.034)	Female	0.57 (0.027)	Divorced / Separated	0.65 (0.038)
55+	0.61 (0.036)			Single	0.69 (0.092)
				Widowed	0.37 (0.095)

Joint test $p\text{-values}$: Age group $= 0.428$, Gender $= 0.004$, Marital status $= 0.034$

Notes: α estimated by OLS from Equation 2.

Inequality aversion by household income and country (OLS)

Table 16: Inequality aversion by household income and country (OLS)

Household income		Country	
Response	α (se)	Response	α (se)
Up to £19,999	0.60 (0.050)	England	0.63 (0.023)
£20,000–39,999	0.58 (0.038)	Wales	0.66 (0.093)
£40,000–59,999	0.70 (0.044)	Scotland	0.57 (0.055)
£60,000+	0.74 (0.051)	Northern Ireland	0.64 (0.086)

Joint test *p-values*: Income = 0.038, Country = 0.775

Notes: α estimated by OLS from Equation 2.