

Online Appendix to Choice Errors and Choice Restrictions in Public Housing Allocation

Canishk Naik

Neil Thakral

UC Berkeley

Brown University

March 2026*

Abstract

This document contains appendix material for Naik and Thakral (2026).

*Naik: Haas School of Business, UC Berkeley (email: canishk@berkeley.edu). Thakral: Department of Economics, Brown University, Box B, Providence, RI 02912 (email: neil_thakral@brown.edu).

Contents

A UK public housing context	2
B Derivations for two-applicant example	2
B.1 Rational benchmark	2
B.2 Choice error	3
C BACE	5
C.1 Rent post-processing	6
C.2 Imputing priority points	6
C.2.1 Behavioral biases	6
C.3 Parameterization details	9
C.3.1 Cell selection via LASSO	9
C.3.2 Present-focus calibration	9
C.3.3 Loss aversion calibration	10
C.3.4 Decision noise	10
C.3.5 Biased beliefs	10
References	12
D Appendix Figures and Tables	13

List of Appendix Figures

1	Strength of relationship between each preference parameter and behavioral biases	14
2	UK vs US vs US- ∞ on congestion and prioritization under rationality	15
3	Overall effects of bias with FCFS	16
4	Survey questions (1/10)	17
5	Survey questions (2/10)	18
6	Survey questions (3/10)	19
7	Survey questions (4/10)	20
8	Survey questions (5/10)	21
9	Survey questions (6/10)	22
10	Survey questions (7/10)	23
11	Survey questions (8/10)	24
12	Survey questions (9/10)	25

List of Appendix Tables

A UK public housing context

Camden Council allocates social housing through a points-based system, in which applicants accumulate points according to their housing circumstances and needs. See Appendix Table 1 for full details.

B Derivations for two-applicant example

We set $p = \frac{1}{2}$ and $\delta = \frac{1}{2}$. Both applicants value unit X at 1 and unit Y at $\frac{1}{3}$.

B.1 Rational benchmark

US mechanism. When Y arrives in period 0.1, it is first offered to the higher-priority applicant A . The utility from accepting Y in period 0.1 is $\frac{1}{3}$. If A rejects Y , then A would accept X when it arrives, either in period 0.2 for a utility of δ or in period 1 for a utility of δ^2 . Since the expected utility from waiting for X is $p\delta + (1 - p)\delta^2 = \frac{3}{8}$, A rejects the offer of Y and waits for X . Unit Y is then offered to applicant B , who correctly anticipates that A will accept X when it arrives and thus accepts Y in period 0.1 for an immediate payoff of $\frac{1}{3}$. The resulting expected utilities are $\frac{3}{8}$ for A and $\frac{1}{3}$ for B , yielding total welfare of $\frac{17}{24}$.

UK mechanism. In the scenario that unit X arrives in period 0.2, applicant A bids on X while B bids on Y . This results in A receiving X at the end of period 0 for a utility of δ and B receiving Y at the end of period 0 for a utility of $\frac{1}{3}\delta$.

The other possibility is that unit X does not arrive until period 1. In this case, B bids on Y at the end of period 0, receiving a utility of $\frac{1}{3}\delta$, while A bids on X in period 1, receiving a utility of δ^2 .

The resulting expected utilities are $p\delta + (1 - p)\delta^2 = \frac{3}{8}$ for A and $\frac{1}{3}\delta = \frac{1}{6}$ for B , yielding total welfare of $\frac{13}{24}$.

B.2 Choice error

We now posit that applicants deviate from the optimal decision with probability ε . Formally, with probability $1 - \varepsilon$ they take the action that maximizes expected utility, and with probability ε they take a second-best action. This reduced-form perturbation captures choice noise around the optimal decision rule: an applicant sometimes selects the wrong option even when the optimal ranking of actions stays fixed. Later sections also consider directional distortions that systematically shift behavior, e.g., accepting or bidding too much or too little. We do not model the source of bias explicitly here; the goal is simply to compare how the same error rate ε translates into welfare losses across mechanisms.

US mechanism. We characterize expected utilities under the US mechanism with choice error with the following proposition.

Proposition 1 (US mechanism with choice error). *Under the US mechanism with choice error probability ε , expected utilities are given by*

$$EU_A^{US}(\varepsilon) = \frac{3}{8} - \frac{5}{12}\varepsilon + \frac{3}{8}\varepsilon^2$$

and

$$EU_B^{US}(\varepsilon) = \frac{1}{3} - \frac{7}{24}\varepsilon + \frac{1}{3}\varepsilon^2 - \frac{3}{4}\varepsilon^3 + \frac{3}{8}\varepsilon^4.$$

Proof. In period 0.1, unit Y is initially offered to applicant A , who rejects the unit (probability $1 - \varepsilon$), leaving Y to be offered to applicant B . In this case, applicant B accepts Y (probability $1 - \varepsilon$) and obtains a payoff of $\frac{1}{3}$, or mistakenly rejects Y (probability ε).¹ In the latter case, when unit X arrives (either in period 0.2 or period 1), A receives the offer and accepts it (probability $1 - \varepsilon$), resulting in an expected payoff of $p\delta + (1 - p)\delta^2 = \frac{3}{8}$. If A mistakenly rejects this unit (probability ε), the offer goes to B , who either accepts (probability $1 - \varepsilon$) and gets the expected payoff of $\frac{3}{8}$, or makes another mistaken rejection (probability ε).

The other possibility at the outset in period 0.1 is that applicant A mistakenly accepts unit Y (probability ε), in which case A receives a payoff of $\frac{1}{3}$ and B waits for the future arrival of X . In this case, B accepts X (probability $1 - \varepsilon$) to receive the previously calculated expected payoff of $\frac{3}{8}$ or mistakenly rejects X and remains unmatched (probability ε).

Aggregating these scenarios and weighting by their probabilities yields the explicit polynomial expressions for both applicants' expected payoffs stated in the proposition (see Appendix B for details on calculations). \square

¹Applicant B finds it optimal to accept unit Y as long as its payoff $\frac{1}{3}$ exceeds the expected payoff from waiting for X to arrive and be mistakenly rejected by A , which is $\frac{3}{8}\varepsilon$, so we require $\varepsilon < \frac{8}{9}$.

These expressions highlight the first-order effects of choice error on expected payoffs. For applicant A , mistakenly accepting Y in period 0.1 results in an expected payoff of $\frac{1}{3}$ instead of $\frac{3}{8}$ from waiting for X . Similarly, mistakenly rejecting X when it arrives results in an expected payoff of 0 instead of $\frac{3}{8}$. This leads to a first-order effect of $(\frac{1}{3} - \frac{3}{8}) - \frac{3}{8} = -\frac{5}{12}$ for applicant A , which can be interpreted as the welfare loss from bias for the higher-priority applicant under the US mechanism.

In addition, applicant A mistakenly accepting Y in period 0.1 imposes a positive externality on B , who receives an expected payoff of $\frac{3}{8}$ instead of $\frac{1}{3}$. However, if B mistakenly rejects Y in period 0.1, then B receives a payoff of 0 instead of $\frac{1}{3}$. This leads to a first-order effect of $(\frac{3}{8} - \frac{1}{3}) - \frac{1}{3} = -\frac{7}{24}$ for applicant B . In our simple example, the congestion externality shows up in the fact that A 's decision about whether to wait for X determines whether B ever has a chance to receive that unit; bias that pushes A toward accepting Y instead of waiting relaxes this congestion for B .

UK mechanism. We next derive expected utilities under the UK mechanism with choice error.

Proposition 2 (UK mechanism with choice error). *Under the UK mechanism with choice error probability ε , expected utilities are given by*

$$EU_A^{UK}(\varepsilon) = \frac{3}{8} - \frac{7}{24}\varepsilon - \frac{1}{24}\varepsilon^2 + \frac{1}{24}\varepsilon^3$$

and

$$EU_B^{UK}(\varepsilon) = \frac{1}{6} - \frac{1}{24}\varepsilon + \frac{7}{24}\varepsilon^3 - \frac{1}{6}\varepsilon^4.$$

Proof. The probability that only unit Y arrives in period 0 is $1 - p$. With no mistakes in period 0 (probability $(1 - \varepsilon)^2$), applicant B bids on Y and receives a payoff of $\frac{\delta}{3}$, while applicant A receives an expected payoff of $(1 - \varepsilon)\delta^2$ from securing X in the next period without making a mistake. If A makes a mistake in period 0 (probability ε), then A bids on Y and receives a payoff of $\frac{\delta}{3}$, regardless of whether B makes the mistake of failing to bid on Y , and B receives an expected payoff of $(1 - \varepsilon)\delta^2$ from securing X in the next period without making a mistake. If only B makes a mistake in period 0 (probability $(1 - \varepsilon)\varepsilon$), then both applicants and both units are available to match in period 1. In that case, A either bids on X (probability $1 - \varepsilon$) for a payoff of δ^2 , or A makes a mistake (probability ε) and bids on Y for a payoff of $\frac{\delta^2}{3}$; and B either bids on Y and receives a payoff of $\frac{\delta^2}{3}$ in the event that A also does not make a mistake (probability $(1 - \varepsilon)^2$), or B mistakenly bids on X and receives an expected payoff of δ^2 in the event that A also makes a mistake (probability ε^2).²

²If only A or only B makes a mistake, then both applicants bid on the same unit in period 1, resulting in

The alternative possibility is that both units arrive in period 0, which occurs with probability p . With no mistakes in period 0 (probability $(1 - \varepsilon)^2$), applicant A bids on X and receives a payoff of $\delta = \frac{1}{2}$, while applicant B bids on Y and receives a payoff of $\frac{1}{3}\delta = \frac{1}{6}$. If only A makes a mistake in period 0 (probability $\varepsilon(1 - \varepsilon)$), then A fails to bid on X and receives an expected payoff of $(1 - \varepsilon)\delta^2 = \frac{1-\varepsilon}{4}$ from securing X in the next period without making a further mistake.³ If only B makes a mistake in period 0 (probability $(1 - \varepsilon)\varepsilon$), then both applicants bid on X , so B receives an expected payoff of $(1 - \varepsilon)\frac{\delta^2}{3} = \frac{1-\varepsilon}{12}$ from securing Y in period 1 without making a further mistake. If both A and B make a mistake in period 0 (probability ε^2), then B receives X at the end of period 0 for a payoff of δ and A receives an expected payoff of $(1 - \varepsilon)\frac{\delta^2}{3} = \frac{1-\varepsilon}{12}$ from securing Y in period 1 without making a further mistake.

This results in the expressions for the expected payoffs of each applicant stated in the proposition (see [Appendix B](#) for details on calculations). \square

As before, these expressions highlight the first-order effects of choice error. For applicant A , if only $\{Y\}$ arrives in period 0, mistakenly bidding on Y results in an expected payoff of $\frac{\delta}{3} = \frac{1}{6}$ instead of $\delta^2 = \frac{1}{4}$ for A . Likewise, mistakenly not bidding on X in period 1 results in a payoff of 0 instead of $\delta^2 = \frac{1}{4}$. If $\{X, Y\}$ arrives in period 0, mistakenly not bidding on X in period 0 results in a payoff of $\delta^2 = \frac{1}{4}$ instead of $\delta = \frac{1}{2}$ due to having to wait until the next period for X . This leads to a first-order effect of $\frac{1}{2}(\frac{1}{6} - \frac{1}{4} + 0 - \frac{1}{4}) + \frac{1}{2}(\frac{1}{4} - \frac{1}{2}) = -\frac{7}{24}$ for applicant A .

For applicant B , if only $\{Y\}$ arrives in period 0, then A mistakenly bidding on Y imposes a positive externality on B , who receives an expected payoff of $\delta^2 = \frac{1}{4}$ instead of $\frac{\delta}{3} = \frac{1}{6}$. However, if applicant B mistakenly does not bid on Y in period 0, then B receives a payoff of $\frac{\delta^2}{3} = \frac{1}{12}$ instead of $\frac{\delta}{3} = \frac{1}{6}$. If $\{X, Y\}$ arrives in period 0, then B mistakenly bidding on X results in a payoff of $\frac{\delta^2}{3} = \frac{1}{12}$ instead of $\frac{\delta}{3} = \frac{1}{6}$. This leads to a first-order effect of $\frac{1}{2}(\frac{1}{4} - \frac{1}{6} + \frac{1}{12} - \frac{1}{6}) + \frac{1}{2}(\frac{1}{12} - \frac{1}{6}) = -\frac{1}{24}$ for applicant B . Relative to the US mechanism, the first-order loss for the lower-priority applicant is therefore substantially smaller in magnitude under the UK mechanism.

C BACE

Full survey questions appear in [Appendix Figures 4 to 8 and 10 to 13](#).

a payoff of zero for B .

³Not bidding in period 0 gives A an expected payoff of $(1 - \varepsilon)\delta^2 + \varepsilon\frac{\delta^2}{3}$. bidding on Y would give A an expected utility of $\frac{\delta}{3}$. Thus, the second-best option is to not bid at all rather than bid on Y as long as $\varepsilon < \frac{1}{2}$.

C.1 Rent post-processing

The survey data and Camden arrivals data exhibit different rent distributions (Figure 5). We adjust rents reported in the survey data through two steps. First, for the subset of participants reporting weekly rents below £20 (likely data quality issues), we impute replacement values by: (i) estimating a truncated normal distribution fitted to valid rents in the survey data ($\geq \text{£}20$), and (ii) drawing from this distribution using participant-specific random seeds. Second, we shift all rents reported in the survey data by a constant equal to the difference in means between the Camden and (post-imputation) survey rent distributions. This ensures our simulation environment reflects Camden’s rental market while preserving within-BACE heterogeneity in rent preferences.

C.2 Imputing priority points

The process happens in three steps. We ask participants to report their priority, in whichever format is appropriate for their local authority. We then transform this data into $q(a) \in [0, 1]$, reflecting a ’s quantile in the waitlist.⁴ Finally, armed with $q(a)$, we identify $p(a)$ by $p(a) = F^{-1}(q(a))$ where F is the points distribution in Camden which we observe in the arrivals data. Note that we observe the distribution of winning applicants. This is the appropriate population to estimate F because the BACE data contains those residing in, rather than waiting for, social housing. Therefore, our sample is likely needier than the average waitlist.

C.2.1 Behavioral biases

We measure a collection of six prominent biases in behavioral economics, which are straightforward to elicit in an online survey and directly related to some of the frictions in the context of housing allocation. Our choices are guided by the taxonomy proposed by Stango and Zinman (2023), who show that many widely studied biases are prevalent, tend to co-occur within individuals, and relate to real-world outcomes like financial conditions and well-being. They organize biases into three broad categories: preferences, beliefs, and decision quality. Preferences such as present bias and loss aversion matter in our application because applicants trade off “now vs. later” when deciding whether to accept a current offer or wait for a better match, and they may evaluate potential losses relative to their outside options. Beliefs (e.g., exponential growth bias, gambler’s fallacy, and non-belief in the law of large numbers) can

⁴For example, if someone says their priority band was “Gold”, we look up the prioritization scheme in that person’s local authority check that there are three bands “Gold”, “Silver” and “Bronze” in decreasing order of priority. This person is assigned priority quantile of 0.83, reflecting that they are somewhere in the middle of the top third of the distribution

shape expectations about how quickly suitable units will arrive, which in turn affects the willingness to wait. Decision quality (e.g., limited attention and narrow bracketing) captures how people process complex, multi-attribute options under a heavy information load, which can lead applicants to underweight less-salient features.

Table 3 reports the prevalence of each bias in our survey alongside comparable estimates from the American Life Panel (Stango and Zinman, 2023). This side-by-side comparison shows that the distribution of biases in our survey is broadly similar to that from a large, nationally representative US sample, while also revealing a few systematic differences that can be relevant for the housing context. The table shows that our sample aligns relatively closely with the ALP benchmark on most measures. Present bias, captured by choosing a less healthy snack today and a healthy snack later, appears at similar rates in both datasets (18 percent vs. 15 percent). By contrast, loss aversion, defined based on rejecting at least one of two small-stakes lotteries, is considerably more common in our data (82 percent vs. 64 percent). Narrow bracketing, which we measure from dominance-violating paired choices, shows similar prevalence across the samples (32 percent vs. 29 percent).⁵ Non-belief in the law of large numbers (NBLLN), elicited by asking for the expected number of heads in 1000 fair coin tosses, shows slight differences in the distribution of answers. While similar shares of respondents underestimate the probability of the central range (above 480 and below 520 heads), our respondents are more likely to give answers that are very low (less than 20 percent) rather than slightly low (40 percent to 60 percent), compared to the truth (78 percent). Beliefs about streaks, elicited based on the perceived probability that a fair coin will land on heads again after 9 heads in a row, are of similar overall prevalence, though our sample has slightly fewer “Gambler’s fallacy” responses (21 percent vs. 26 percent) and more “hot-hand” responses (18 percent vs. 14 percent). Exponential growth bias, measured by asking how much \$200 grows to at 10 percent interest over two years, shows a small reallocation of responses away from the tails toward the two focal answers. Relative to the ALP, our data shows a higher share of the correctly compounded answer of 242 (46 percent vs. 44 percent) as well as a higher share of the uncompounded answer of 240 (28 percent vs. 24 percent). Limited attention, captured by questions about whether households regret not paying attention to their finances over different time horizons (day to day, medium run, and long run), is slightly higher in our data.

Table 4 reports results from regressions of each preference parameter from the adaptive choice experiment on the full set of bias measures.⁶ The rows list the preference parameters

⁵Stango and Zinman (2023) administer two separate paired-choice tasks but find the responses to be highly correlated. We therefore use only one of their tasks to reduce survey length while preserving comparability.

⁶See Appendix C for more details on the bias measures, including the wording of the questions from the survey.

from the discrete choice experiment, and the columns display coefficients for selected biases, shown both without and with a standard set of demographic controls. The controls consist of a quadratic in age, household size and composition, gender and marital status, ethnicity and nativity, monthly income, education, and full-time employment. The table focuses on the biases that are robustly related to at least one preference measure, while [Appendix Figure 1](#) shows the full set.

A first clear pattern is the relationship between exponential growth bias and preference for residing in a preferred location. In particular, applicants with stronger exponential growth bias place less value on proximity. This is consistent with the idea that they underestimate how small daily time costs accumulate over weeks and months, which may lead them to fail to translate extra daily commuting time into the larger recurring burdens it implies.

There is also evidence that belief in the hot-hand fallacy relates to the estimated discount factor. Applicants who believe in streaks of good or bad luck may appear more willing to wait, not necessarily because they are truly patient, but because they expect the process to produce a favorable outcomes. In contrast, the discount factor shows only a weak relationship with our present-bias measure, which is based on a direct question about trade-offs between present and future consumption of unhealthy snacks. [Stango and Zinman \(2023\)](#) also note a lack of prior evidence relating such consumption-based measures to field outcomes.

Loss aversion shows up most clearly in preferences over property types. More loss-averse applicants assign greater value to houses and low-rise flats relative to high-rises, consistent with reference-point effects and the salience of perceived losses from moving into a tower. For most public housing applicants, high-rises represent a departure from the status quo, which can cause loss-averse individuals to favor property types that minimize that sense of loss.

Finally, limited attention exhibits a strong negative association with preferences over the ownership of their housing unit. In particular, applicants who report that they regret not paying more attention to their finances place systematically less weight on whether a unit is owned by the council or by a housing association. Ownership is relatively less salient than location or property type, and limited-attention respondents appear to put less emphasis on it when making trade-offs.

[Appendix Figure 1](#) summarizes the incremental contribution of each group of bias measures to each preference parameter when all other biases and the controls are in the model. Darker cells indicate a larger share of the remaining variation explained by that block.⁷ The heatmap reinforces the relationships highlighted in the table (exponential growth bias with location,

⁷We compute this from the joint F -test for each block and transform it into a type of partial R^2 with a small-sample correction, which corresponds to the generalized ω^2 statistic; see [Olejnik and Algina 2003](#) for details.

hot hand beliefs with discount factors, loss aversion with property types, and limited attention with ownership), while showing that other cells contribute comparatively less.

C.3 Parameterization details

This appendix provides details on the calibration of each behavioral bias parameter used in the simulations.

C.3.1 Cell selection via LASSO

For each bias, we regress the binary indicator on a set of demographics: priority points, gender, age (above/below median), income group (low/medium/high), education (\leq high school), marital status, and employment. We fit a LASSO with cross-validation for each bias outcome and select the covariates retained most frequently across outcomes. Gender, age group, and income group are each retained for 3 out of 5 outcomes; all other demographics are retained less frequently. We therefore estimate bias parameters within cells of gender \times age group \times income group. Within each cell, we compare the disaggregated model (fully interacted cells) to a fully aggregated model (one parameter for everyone) using a likelihood ratio test.

C.3.2 Present-focus calibration

We take β directly from the meta-analytic distribution in [Frederick, Loewenstein and O’donoghue \(2002\)](#), setting $\beta \sim G = \mathcal{U}[0.7, 0.9]$. For a demographic cell in which a fraction q exhibit present focus, we assign:

$$\hat{\beta}^{\text{biased}} = \mathbb{E}[\beta \mid \beta \leq G^{-1}(q)], \quad \hat{\beta}^{\text{unbiased}} = \mathbb{E}[\beta \mid \beta \geq G^{-1}(q)].$$

This treats the survey question as revealing whether an individual’s β falls below or above the q -th quantile of G .

We apply a single β to both mechanisms. In each case, β discounts everything from the next period onward, regardless of how long a period is in calendar time. In the UK mechanism, a period is one week; in the US mechanism, a period is approximately 1.5 hours. Present focus therefore operates on different real-time horizons across mechanisms, but the parameter itself is the same.

C.3.3 Loss aversion calibration

We apply the same truncated-expectations approach with $G = U[1.82, 2.10]$, following the meta-analytic estimate of Brown et al. (2024). Loss aversion is identified from willingness to accept small-stakes lotteries. The disaggregated model fits significantly better than a single parameter ($\chi^2 = 13.7$, $p = 0.01$), so we retain cell-level heterogeneity.

C.3.4 Decision noise

The scale parameter ν_i is estimated individually from each respondent’s 25 pairwise choices in the BACE. No further calibration is required: the BACE directly delivers a continuous measure of choice inconsistency at the individual level.

C.3.5 Biased beliefs

To calibrate biased beliefs about offer probabilities, we construct a hypothetical allocation scenario in which the true probabilities are known to us, allowing any deviation to be interpreted as distortion in how applicants map observed frequencies into perceived offer probabilities.

Design. We create five hypothetical house types (A–E) for a fictional council where applicants have priority points ranging from 0 to 20. For each house type, historical winning priority points are drawn from a uniform distribution on a distinct sub-interval of $[0, 20]$. This pins down the true probability of receiving an offer for any given priority level. We design five questions that elicit beliefs at true probability levels spanning $\{0, 0.25, 0.5, 0.75, 1\}$. Respondents are shown historical data on the last 25 (or 100, randomly assigned) offers and asked to estimate their probability of receiving an offer on a sliding scale from 0 to 100 percent.

Incentives. The belief elicitation is hypothetical rather than incentivized. Incentive-compatible belief elicitation requires a proper scoring rule, which in turn requires respondents to understand the scoring mechanism — a demanding cognitive task that risks introducing its own biases, particularly in our sample of public housing residents (Schotter and Trevino, 2014). Hypothetical elicitation avoids this confound while still delivering meaningful variation: the task closely mirrors the actual inference problem applicants face when consulting historical letting data, and the controlled design ensures that any systematic departure from the known true probabilities reflects genuine distortion rather than ambiguity about the correct answer. Moreover, Armantier and Treich (2013) find that hypothetical and incentivized probability

elicitations produce similar distributions of responses in comparable populations, suggesting that the lack of incentives is unlikely to substantially distort our estimates.

Estimation. We model systematic deviations using a cubic probability weighting function:

$$w(\theta) = b_0 + b_1\theta + b_2\theta^2 + b_3\theta^3.$$

The four parameters are estimated by OLS for each demographic cell, regressing elicited beliefs on the true probability and its powers. The cubic specification is flexible enough to capture overweighting of small probabilities, underweighting of large probabilities, and S-shaped distortions. With five elicitation points per respondent, the specification is exactly identified at the cell level.

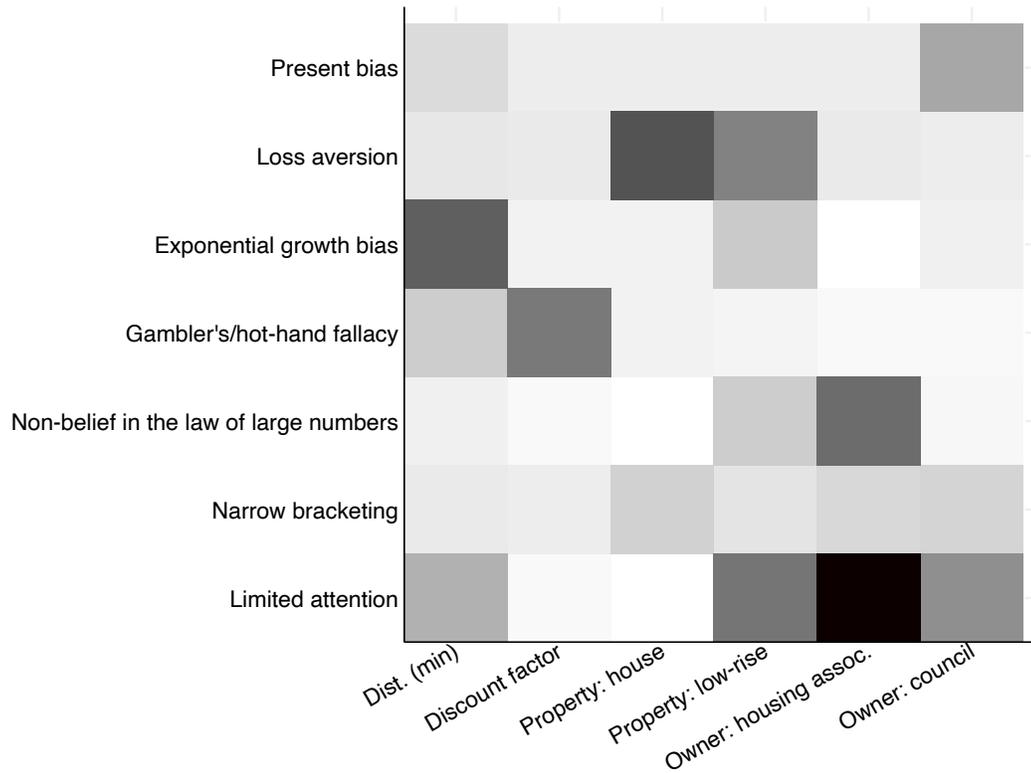
Table 8 reports the estimated parameters for each cell. Figure 1 visualizes the estimated probability weighting functions, showing the 45-degree line (rational expectations), the estimated cubic function with 95 percent confidence bands, and mean elicited beliefs at each probability level. The systematic departures from the 45-degree line confirm that applicants do not form beliefs rationally, and the pattern of bias is well-captured by the cubic specification.

References

- Armantier, Olivier, and Nicolas Treich.** 2013. “Eliciting beliefs: Proper scoring rules, incentives, stakes and hedging.” *European Economic Review*, 62: 17–40. 10
- Brown, Alexander L, Taisuke Imai, Ferdinand M Vieider, and Colin F Camerer.** 2024. “Meta-analysis of empirical estimates of loss aversion.” *Journal of Economic Literature*, 62(2): 485–516. 10
- Camden Council.** 2018. “Housing Allocation Scheme 2018: Full Scheme.” London: Camden Council. 27
- Frederick, Shane, George Loewenstein, and Ted O’donoghue.** 2002. “Time discounting and time preference: A critical review.” *Journal of economic literature*, 40(2): 351–401. 9
- Naik, Canishk, and Neil Thakral.** 2026. “Choice Errors and Choice Restrictions in Public Housing Allocation.” *Mimeo*.
- Olejnik, Stephen, and James Algina.** 2003. “Generalized eta and omega squared statistics: measures of effect size for some common research designs.” *Psychological methods*, 8(4): 434. 8, 14
- Schotter, Andrew, and Isabel Trevino.** 2014. “Belief elicitation in the laboratory.” *Annu. Rev. Econ.*, 6(1): 103–128. 10
- Stango, Victor, and Jonathan Zinman.** 2023. “We are all behavioural, more, or less: A taxonomy of consumer decision-making.” *The Review of Economic Studies*, 90(3): 1470–1498. 6, 7, 8

D Appendix Figures and Tables

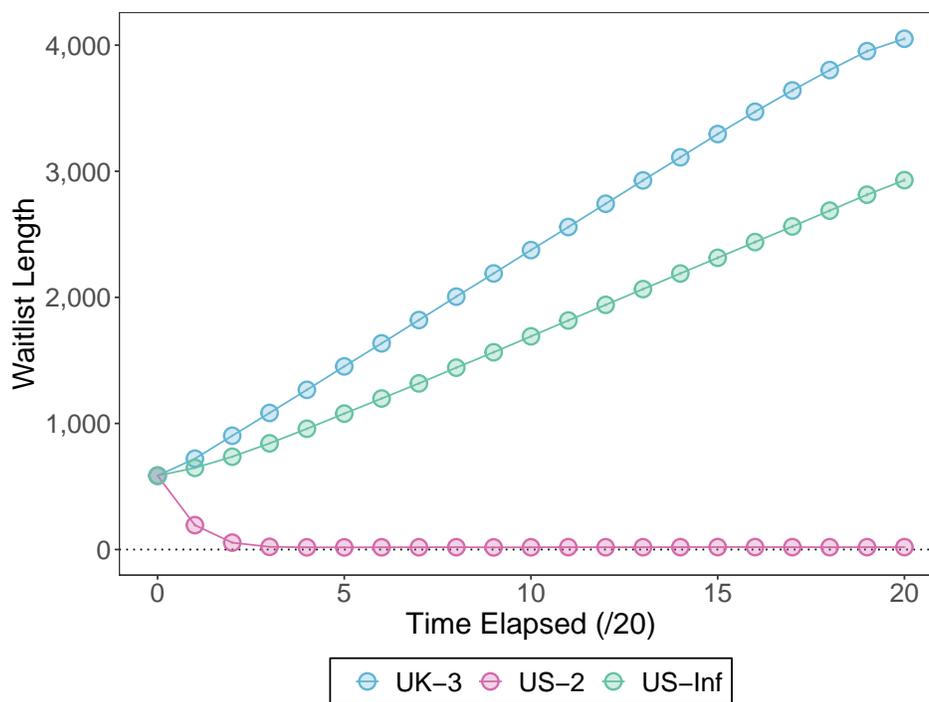
Appendix Figure 1: Strength of relationship between each preference parameter and behavioral biases



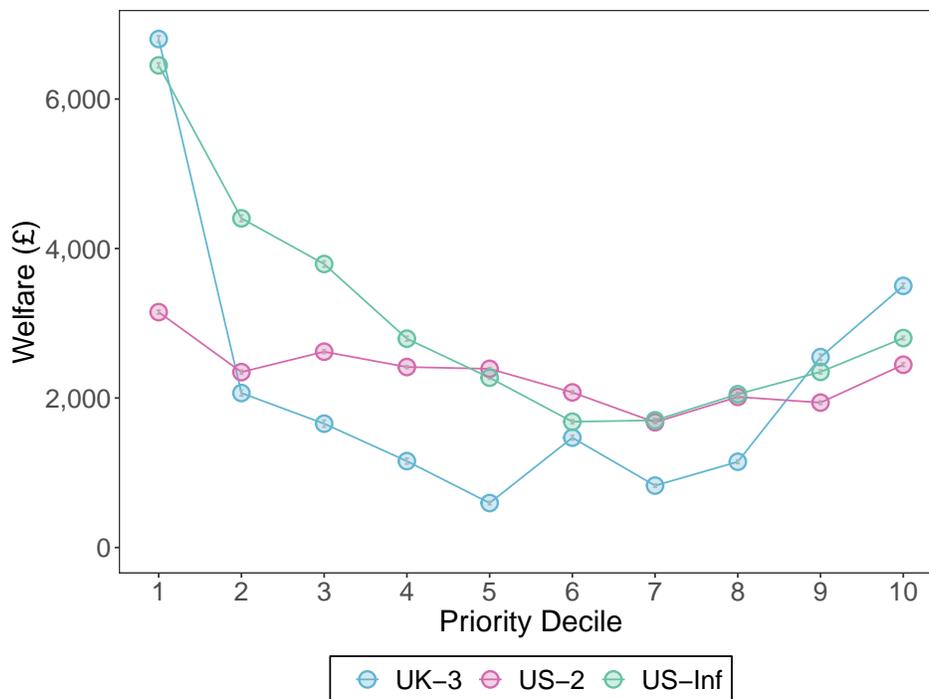
Note: Each cell reports a group-level effect size from the joint test that the coefficients on the corresponding bias group equal zero in the regression for that preference parameter, conditional on all other bias groups and controls. We transform the resulting $F(d_1, d_2)$ statistic into a df-adjusted partial effect size using generalized ω^2 , which corrects the upward small-sample bias of partial R^2 when groups contain multiple parameters. See Olejnik and Algina (2003) for discussion and derivations.

Appendix Figure 2: UK vs US vs US-∞ on congestion and prioritization under rationality

(a) Waitlist length by mechanism



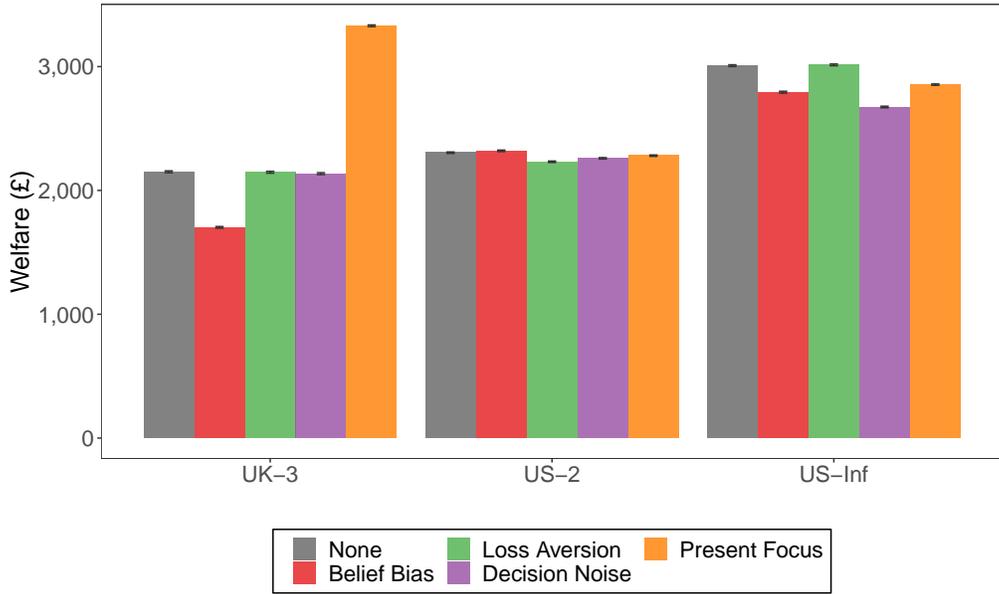
(b) Priority welfare by mechanism



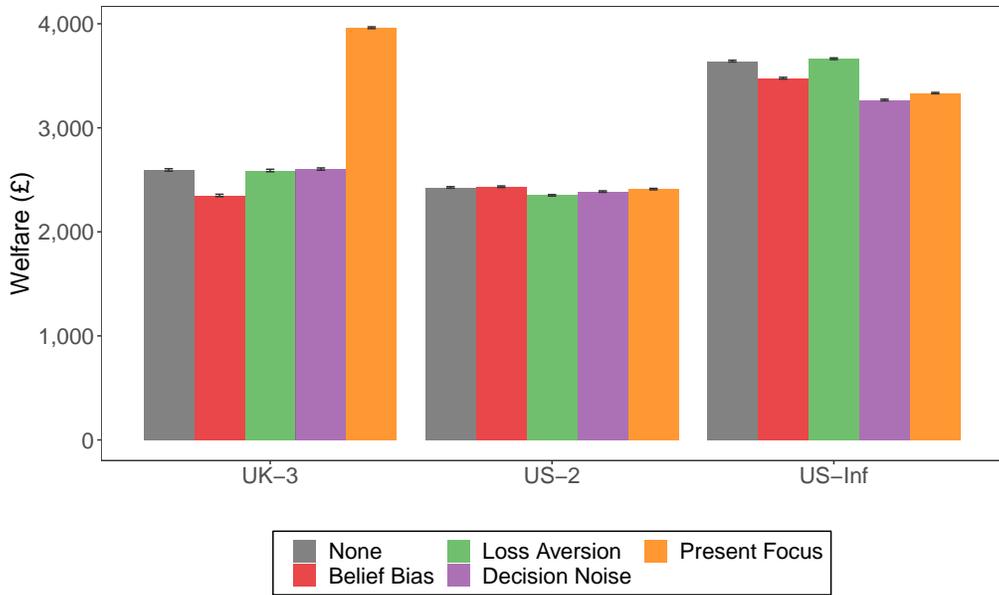
Note: Plot shows results of simulations of $UK - 3$, $US - 2$, and $US - \infty$ mechanisms. Each circle represents an across-simulation average and across-simulation Monte-Carlo standard errors are also shown. Appendix Figure 2a shows the length of the waitlist over time (split into 20 stages) and Appendix Figure 2b shows welfare split by deciles of the priority distribution.

Appendix Figure 3: Overall effects of bias with FCFS

(a) Average welfare



(b) Priority-weighted welfare



Note: Plot shows welfare effects under different behavioral biases for $UK - 3$, $US - 2$, and $US - \infty$ mechanisms. Each bar represents an across-simulation average and error bars show Monte-Carlo standard errors. Appendix Figure 3a shows average welfare where all applicants are weighted equally. Appendix Figure 3b shows priority-weighted welfare where weights are proportional to priority points.

Appendix Figure 4: Survey questions (1/10)

Please indicate where you currently live.

- Greater London
 - South East
 - South West
 - West Midlands
 - North West
 - North East
 - Yorkshire and the Humber
 - East Midlands
 - Outside of England
-

How do you identify yourself?

- Gender Non-Conforming/Genderqueer
 - Man
 - Non-Binary
 - Transgender Man/Trans Man
 - Transgender Woman/Trans Woman
 - Woman
 - Not listed (please state)
 - Prefer not to answer
-

What is your age?

Please choose "Success" to answer this question correctly.

- Failure
 - Success
-

What was the monthly income of your household, before taxes, on average last year?

- Less than £750
 - £750–£1,500
 - £1,500–£2,500
 - £2,500–£3,500
 - £3,500–£4,500
 - More than £4,500
-

Please indicate your marital status.

- Single
- Married
- Other

Appendix Figure 5: Survey questions (2/10)

In total, how many people live in your household?

How many children live in your household?

What of the following ethnic groups do you belong to?

- White
- Asian/Asian British
- Black/African/Caribbean/Black British
- Chinese
- Arab
- Other (please specify)

Were you born in the United Kingdom?

- Yes
- No (Where were you born?)
- Prefer not to answer

Which category best describes your highest level of education?

- Primary education or less
- Some secondary education
- Secondary education
- Further education
- Attended university
- Master's degree
- Doctoral degree

In the last 2 years, have you been in a job that is reflective of where you want to be in the long term?

- Yes, I have been in a job that is reflective of my long-term goal
- No

Appendix Figure 6: Survey questions (3/10)

Have you ever been on a housing register (waiting list)?

- No
 Yes (for how long?)
-

In which council do you reside?

How long have you lived there?

- <2 years
 2–5 years
 5–10 years
 >10 years
-

When you were last on the waitlist, what was your rent (£)?

	Rent £	Per Period
Rent	<input type="text"/>	<input type="text" value=""/>

When you were last on the waitlist, what was your distance to your workplace or other preferred location (in minutes)?

When you were last on the waitlist, what type of property did you reside in?

- Low-rise flat
 High-rise flat
 House
-

When you were last on the waitlist, what was the ownership of the property you resided in?

- Council
 Housing association
 Private

Appendix Figure 7: Survey questions (4/10)

When you were last on the waitlist, were you living in temporary accommodation?

- Yes
 No

When you were last on the waitlist, was your local authority operating a points-based system?

- Yes
 No

When you were last on the waitlist, how many priority points did you have?

When you were last on the waitlist, was your local authority operating a bands-based system?

- Yes
 No

When you were last on the waitlist, which priority band were you in?

Do you find the system that councils use to allocate social homes to applicants difficult to understand?

- Yes (explain)

- No (explain)

What do you see as the main issues to do with social housing allocation in the UK?

Appendix Figure 8: Survey questions (5/10)

In this survey, we will show you a total of 25 scenarios about housing options.

In each scenario, imagine that you received the two options shown in the scenario (Option A and Option B). You will then be asked to choose which housing option you would prefer.

Since housing options vary along many aspects, we will focus on a small number of housing characteristics. In any given choice problem, you should assume that the housing options are identical in all aspects except those that are displayed. All other housing characteristics not displayed are identical to those in the typical housing option you would expect to receive.

For the purpose of the next choice problems, you will see 3 characteristics that can vary across the two jobs, with all others being the same:

- *Weekly rent*: The amount you would pay each week in rent in pounds.
- *Waiting time*: How many months you must wait before the unit becomes available for you to move in.
- *Location*: How many minutes it will take you to reach your preferred location (e.g., job) from your home.
- *Property type*: Low-rise flat, High-rise flat, House
- *Property ownership*: Housing association owned, Council owned

BACE Question 1

Which option do you prefer?

\${e://Field/message_0_1}



\${e://Field/message_1_1}



BACE Question 2

Which option do you prefer?

\${e://Field/message_0_2}



\${e://Field/message_1_2}



Appendix Figure 9: Survey questions (6/10)

House A	House B
Weekly rent: £184	Weekly rent: £92
Waiting time (months): 17	Waiting time (months): 2
Location: In location of choice	Location: Not in location of choice
Property type: Low-rise flat	Property type: High-rise flat
Property ownership: Council owned	Property ownership: Housing association owned

Note: This figure reproduces the survey instrument as shown to respondents.

Appendix Figure 10: Survey questions (7/10)

You have made choices in 12 out of 25 scenarios. Please answer the questions below before completing the remaining choice scenarios.

Imagine that you are given the choice of receiving one of two snacks for free, **right now**. One snack is more delicious but less healthy, while the other is healthier but less delicious. Which would you rather have **right now**:

- A delicious snack that is not good for your health
 - A snack that is less delicious but good for your health
-

Imagine that you are given the choice of receiving one of two snacks for free, **five weeks from now**. One snack is more delicious but less healthy, while the other is healthier but less delicious. Which would you rather have **five weeks from now**:

- A delicious snack that is not good for your health
 - A snack that is less delicious but good for your health
-

Consider the following lottery:

- 50% chance of winning £80, and 50% chance of losing £50

Which of the following do you prefer?

- Play the lottery
 - No lottery
-

Consider the following lottery:

- 50% chance of winning £80, and 50% chance of losing £50

Which of the following do you prefer?

- Play the lottery six times
 - No lottery
-

In each row below, please indicate whether you prefer the option on the left or the option on the right:

Winning £100 Equal chance of losing £300 or winning £700

Losing £400 Equal chance of losing £900 or winning £100

Appendix Figure 11: Survey questions (8/10)

Suppose the computer flips a coin 1000 times, and counts the total number of heads. Please tell us what you think are the chances, in percentage terms, that the total number of heads will lie within the following ranges. Your answers should sum to 100.

0 to 480	<input type="text" value="0"/> perc
481 to 519	<input type="text" value="0"/> perc
520 to 1000	<input type="text" value="0"/> perc
Total	<input type="text" value="0"/> perc

Imagine that we had a computer "flip" a fair coin 10 times. The first 9 are all heads.

0 10 20 30 40 50 60 70 80 90 100

What are the chances, in percentage terms, that the 10th flip will be a head?

Let's say you have **£200 in a savings account**. The account earns **10 percent interest per year**. You don't withdraw any money for two years.

How much would you have in the account at the end of two years?

Do you believe that your household's **day-to-day (dealing with routine expenses, checking credit card accounts, bill payments, etc.)** finances would improve if your household paid more attention to them?

- Yes, and I/we often regret not paying greater attention
- Yes, but paying more attention would require too much time/effort
- No, my household finances are set up so that they don't require much attention
- No, my household is already very attentive to these matters

Do you believe that your household's **medium-run (dealing with periodic expenses like car repair, kids' activities, vacations, etc.)** finances would improve if your household paid more attention to them?

- Yes, and I/we often regret not paying greater attention
- Yes, but paying more attention would require too much time/effort
- No, my household finances are set up so that they don't require much attention
- No, my household is already very attentive to these matters

Do you believe that your household's **long-run (dealing with kids' college, retirement planning, allocation of savings/investments, etc.)** finances would improve if your household paid more attention to them?

- Yes, and I/we often regret not paying greater attention
- Yes, but paying more attention would require too much time/effort
- No, my household finances are set up so that they don't require much attention
- No, my household is already very attentive to these matters

Appendix Figure 12: Survey questions (9/10)

Thank you for completing all of the choice scenarios! The last set of questions for this survey is below.

Consider the following hypothetical situation:

There are 5 types of houses (A, B, C, D, E) in Council X. Imagine you are one of many people applying for these houses. All applicants have priority points ranging from 0 to 20 points.

Applicants can apply for 1 house that they like. Then, Council X offers each available house to the person who:

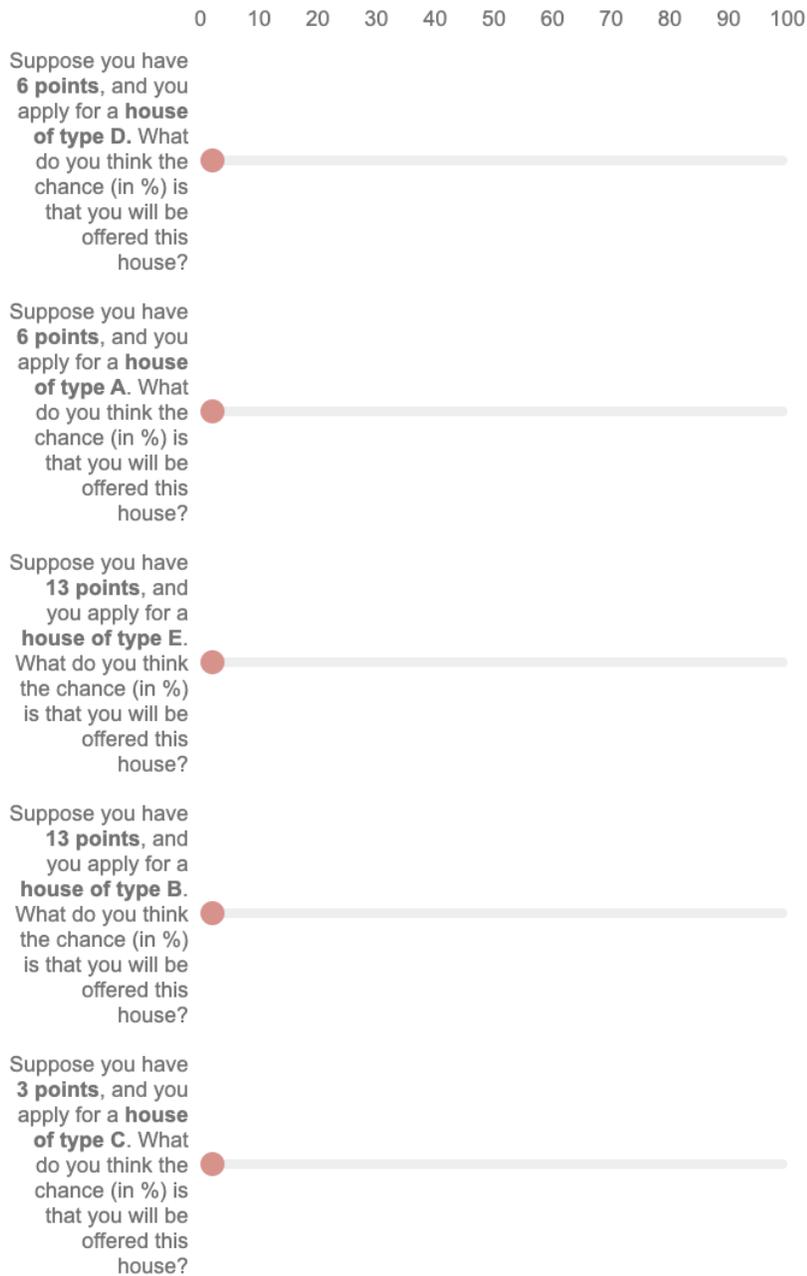
- (a) Applied for that house
- (b) Has the highest number of points amongst applicants for that house

Shown below are data on the last 25 allocations made by Council X. The data show information on which type of house was allocated and the number of points of the winner.

House Type	Priority Points of Winner
E	13
E	15
A	18
E	13
A	17
D	5
C	3
B	10
A	16
C	2
E	14
D	7
C	1
B	9
D	5
D	4
B	9
B	10
C	2
D	5
B	8
E	14
A	17
C	3
A	19

Note: This figure reproduces the survey instrument as shown to respondents.

Appendix Figure 13: Survey questions (10/10)



	A	B	C	D	E	Don't know
What do you think the most preferred house type is?	<input type="radio"/>					
What do you think the least preferred house type is?	<input type="radio"/>					

Note: This figure reproduces the survey instrument as shown to respondents.

Appendix Table 1: Camden housing allocation scheme: Points schedule

Group	Criteria	Points
<i>A1 — Homelessness</i>		
	Threat of homelessness (up to 56 days prior / 4 months after)	50
	Owed main homelessness duty	100
<i>A2 — Homelessness prevention</i>		
	Accepted private rented sector offer / qualifying offer	100
	+ homelessness prevented for at least 6 months	+100
<i>B1 — Housing conditions</i>		
	Sharing facilities with dependent children or pregnancy	50
	Private sector: insanitary or poor condition	50
	Private sector: uninhabitable / immediate health threat	300
	Overcrowding: same rooms as assessed bedroom need	50
	Overcrowding: 1 bedroom short of assessed need	100
	Overcrowding: 2+ bedrooms short of assessed need	250
	Overcrowding: dependent children in a studio	250
<i>B2 — Under-occupation, repairs, regeneration</i>		
	Under-occupation (Council or HA tenant)	600
	Essential repairs to Council property	600
	Regeneration / Community Investment Programme	600
	No longer requires accessible adaptations (rated A or B)	400
<i>C — Health and housing</i>		
	Urgent medical need (Category 1)	500
	Medical need where rehousing necessary (Category 2)	150
<i>D — Harassment and violence</i>		
	Fleeing severe harassment / violence; urgent rehousing	600
	Fleeing harassment / violence; rehousing desirable	75
<i>E — Additional support needs</i>		
	Council tenant surrendering tenancy for supported housing	300
	Care leaver (aged ≤ 25 , looked after ≥ 13 weeks)	200
	Particularly vulnerable move-on from supported accommodation	200
	Move-on from supported accommodation	50
<i>F — Social needs and hardship</i>		
	Foster carer needing larger accommodation	150
	Special guardianship order affecting housing conditions	100
	Moving to give or receive substantial long-term care	100
	Accessing specialist medical or support facilities	75
	Taking up education or training opportunity	75
	Taking up employment or apprenticeship	75
<i>G — Transfers</i>		
	Current Camden Council tenant applying for transfer	30
<i>H — Additional preference</i>		
	Current or former armed forces member (with other points)	+50
<i>Waiting time bonus (applied annually)</i>		
	Standard	+5%
	Long-term resident (10 of last 15 years in Camden)	+10%
	Previously looked-after child in Camden's care	+10%

Note: Points accumulate across groups except within groups A1/A2, B2, D, E, and F, where only the highest award applies. Tie-breaking uses application date, then highest single-group award. Source: Camden Council (2018).