Appendix R: Additional Choice Models

Preference Differences between Recruitment Pools

The first relates to whether the different samples had different preferences. We investigate this using the preferred models as reported in the main text, as there may differences in condition across the samples, and one does not want to ascribe differences in preferences per se to differences in condition.

We consider 3 samples: repeats from wave 1 (WAVE1), the Pure Profile sample (PURE), and new recruits (SUPPORT). We conduct a simple Log Likelihood test, comparing the aggregate sample model LL with the sum of the LL from three independent models. For all conditions we reject the null that parameters across the sample can be restricted to be the same. We then investigated where these effects may manifest, by estimating a model with interactions on the years, cost and mean of the SQ distribution. These are reported below. In all cases it is possible to accept that these interaction models are acceptable restrictions to the unrestricted models (p values of 0.34, 0.44 and 0.12 for the allergy, coeliac and intolerance models respectively).

Table 1. Models by condition, with recruitment method dummies interacting with attributes.

Condition	Allergy	Coeliac	Intolerance
years	0.3023***	0.404***	-0.0033
years	(0.0977)	(0.0504)	(0.0470)
PURE x years	-0.4335***	-0.419***	0.0716***
PURE x years	(0.1066)	(0.0901)	(0.0297)
SUPPORT x years	00.2315**	-0.219***	-0.661**
SUPPORT x years	(0.1021)	(0.0700)	(0.0349)
FIQ x years	-	-	0.0268***
FIQ x years	-	-	(0.00757)
FAQ x years	0.0198**	-	-
FAQ x years	(0.0088)	-	-
years^2	-0.0121***	-0.0109***	-
years^2	(0.0039)	(0.00212)	-
PURE x years^2	0.0139***	0.0124***	-
PURE x years^2	(0.0048)	(0.00401)	-
SUPPORT x years^2	0.0094**	0.00855***	-
SUPPORT x years^2	(0.0047)	(0.00286)	-
cost	-0.000338***	-0.000339***	-0.000371***
cost	(4.53e-05)	(3.87e-05)	(4.98e-05)

Condition	Allergy	Coeliac	Intolerance
PURE x cost	0.000154***	0.000293***	0.00028***
PURE x cost	(4.57e-05)	(4.06e-005)	(4.91e-05)
SUPPORT x cost	0.000154***	0.000171	0.000258***
SUPPORT x cost	(0.0000472)	(0.00005)	(5.12e-05)
SQ (Mean)	4.1444***	2.678***	3.974***
SQ (Mean)	(1.124)	(0.459)	(0.991)
PURE x SQ	-0.7021	-0.262	0.895
PURE x SQ	(0.6297)	(0.594)	(0.579)
SUPPORT x SQ	-0.8296	0.146	0.108
SUPPORT x SQ	(0.6037)	(0.366)	(0.678)
FAQ x SQ	-0.722***	-	-
FAQ x SQ	(0.166)	-	-
CDQ x SQ	-	-0.0319***	-
CDQ x SQ	-	(0.00819)	-
FIQ x SQ	-	-	-0.553***
FIQ x SQ	-	-	(0.158)
age x SQ	0.0305***	-	-
age x SQ	(0.0104)	-	-
SQ (SD)	2.571***	2.650***	3.012***
SQ (SD)	(0.209)	(0.201)	(0.245)
Observations	5,454	9,504	6,642

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1This would seem to suggest that the Pure profile, in particular, has different preferences and choice probabilities than the other pools of respondents.

Increasing the number of Random parameters in mixed logit models

We also tested for more general models of heterogeneity in preferences by using the preferred models in the main report and estimating models with random parameters for the ‘years’ variables.

These models are reported in Table 2 below.

Table 2. Models by condition, with random parameter on years

Condition	Allergy	Coeliac	Intolerance
cost	-0.0001354***	-0.000320***	-0.000228***
cost	(3.13e-05)	(0.000069)	(0.000636)
Years (mean)	-0.0954	0.380***	-0.550***
Years (mean)	(0.111)	(0.0555)	(0.195)
FAQ x years	0.0505***	-	-
FAQ x years	(0.0201)	-	-
FIQ x years	-	-	0.108***
FIQ x years	-	-	(0.0365)
years2 (mean)	-0.00528***	-0.00795***	-

Condition	Allergy	Coeliac	Intolerance
years^2 (mean)	(0.00248)	(0.00199)	-
FAQ x SQ	-0.561***	-	-
FAQ x SQ	(0.140)	-	-
CDQ x SQ	-	-0.0346***	-
CDQ x SQ	-	(0.0097)	-
FIQ x SQ	-	-	-0.316***
FIQ x SQ	-	-	(0.111)
age x SQ	0.0253**	-	-
age x SQ	(0.00963)	-	-
SQ (mean)	2.932***	2.928***	2.597***
SQ (mean)	(0.815)	(0.533)	(0.634)
SQ (SD)	2.188***	2.840***	(1.674)***
SQ (SD)	(0.412)	(0.423)	(0.295)
years (SD)	0.264***	0.364***	0.400***
years (SD)	(0.089)	(0.095)	(0.131)
years^2 (SD)	0.0144	0.0174***	-
years^2 (SD)	(0.0047)	(0.0057)	-
Cov (SQ: years)	0.115	-0.250	-0.447***
Cov (SQ: years)	(0.237)	(0.372)	(0.165)
Cov (SQ: years^2)	(0.011)	(0.0181)	-
Cov (SQ: years^2)	(0.0024)	(0.00298)	-
Choices	2727	4752	3321
Individuals	303	528	369

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

Given individual estimates of preference parameters it is then possible to generate individual specific estimates of WT for a year's relief from the condition.
These are calculated using the individual specific measures of the condition scores, and for coeliacs, for the initial year of improvement.

The distribution of these values is reported in Figure 1-3 below.

Figure 1. Distribution of individual WTP, Food Allergy

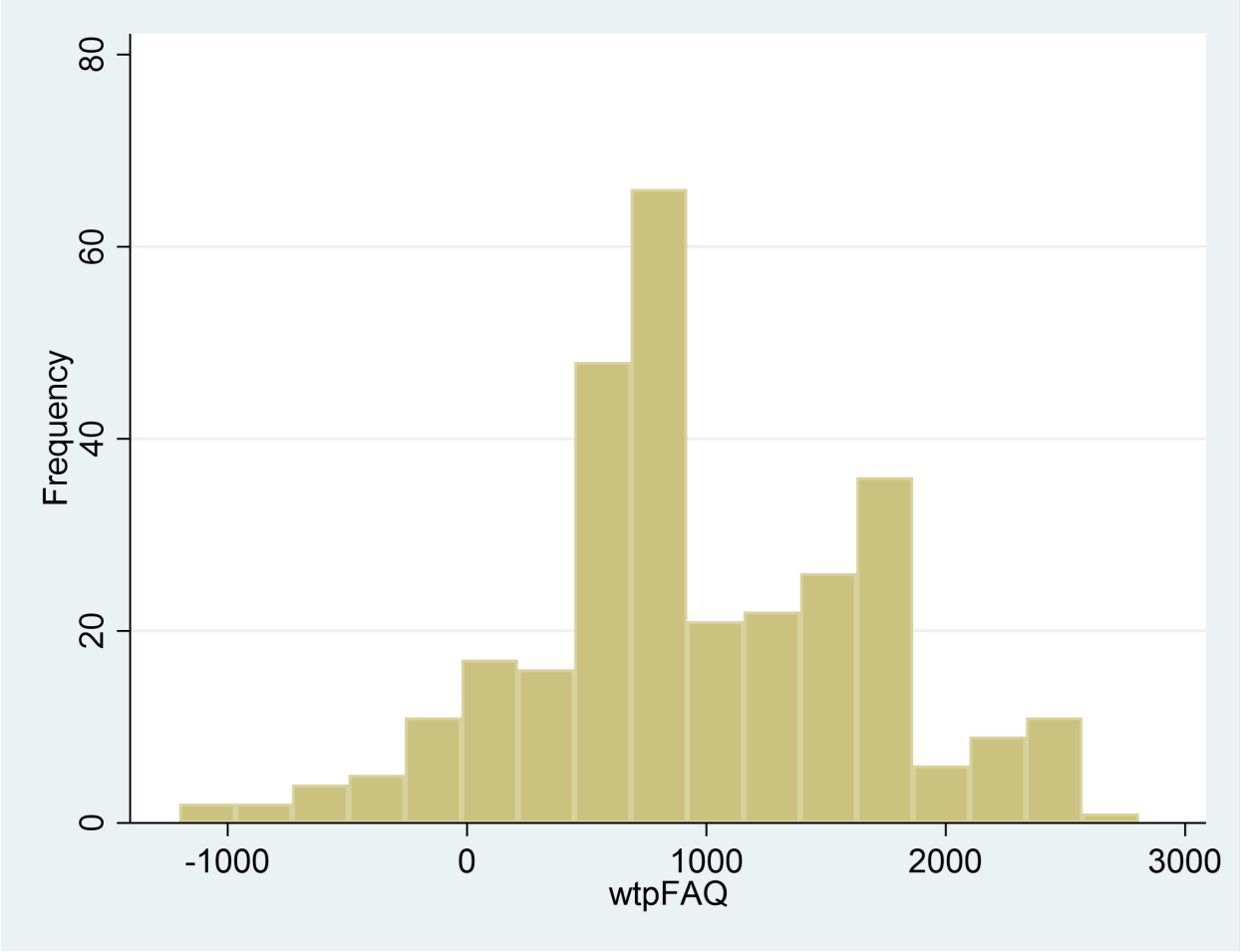


Figure 2. Distribution of individual WTP, Coeliac Disease

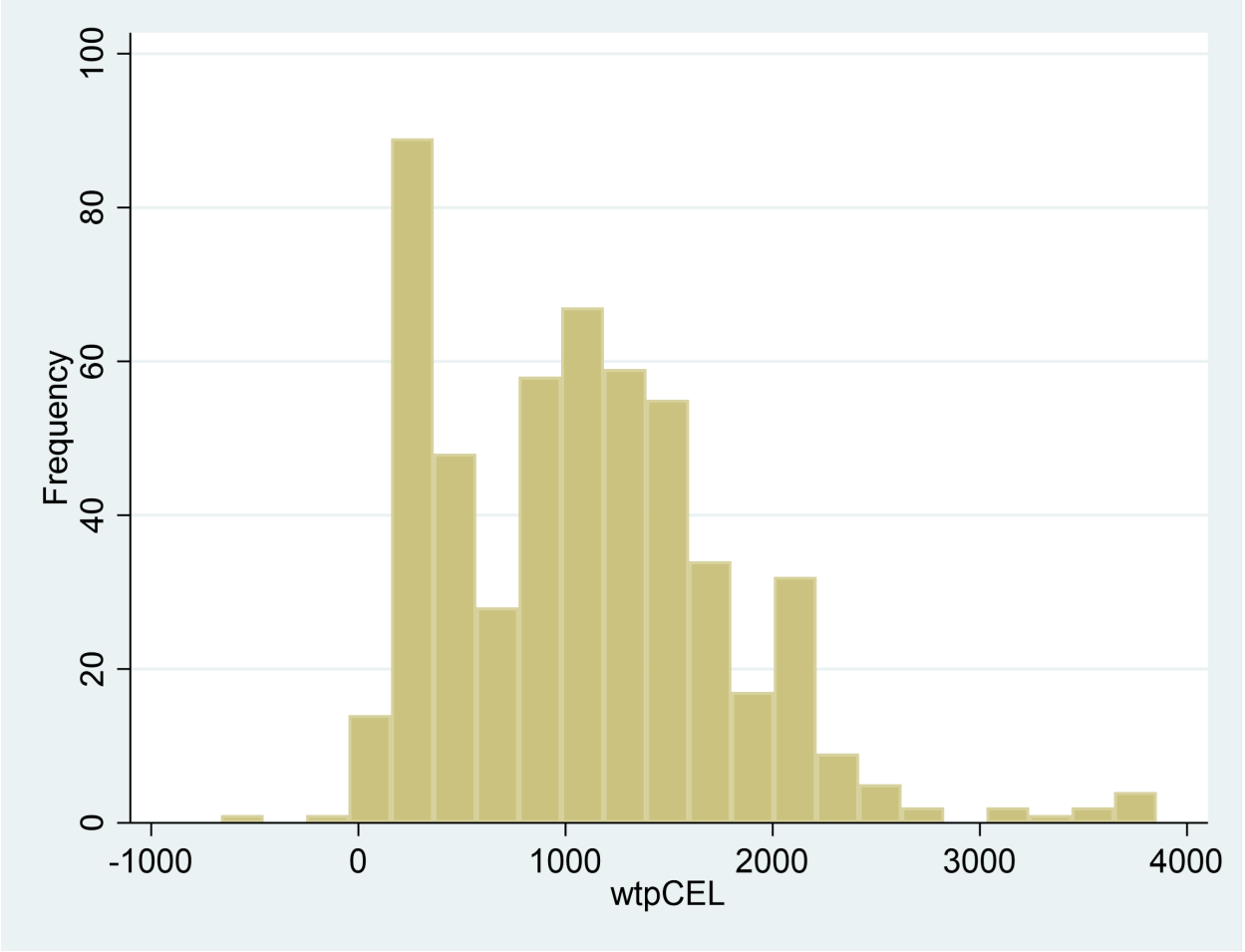
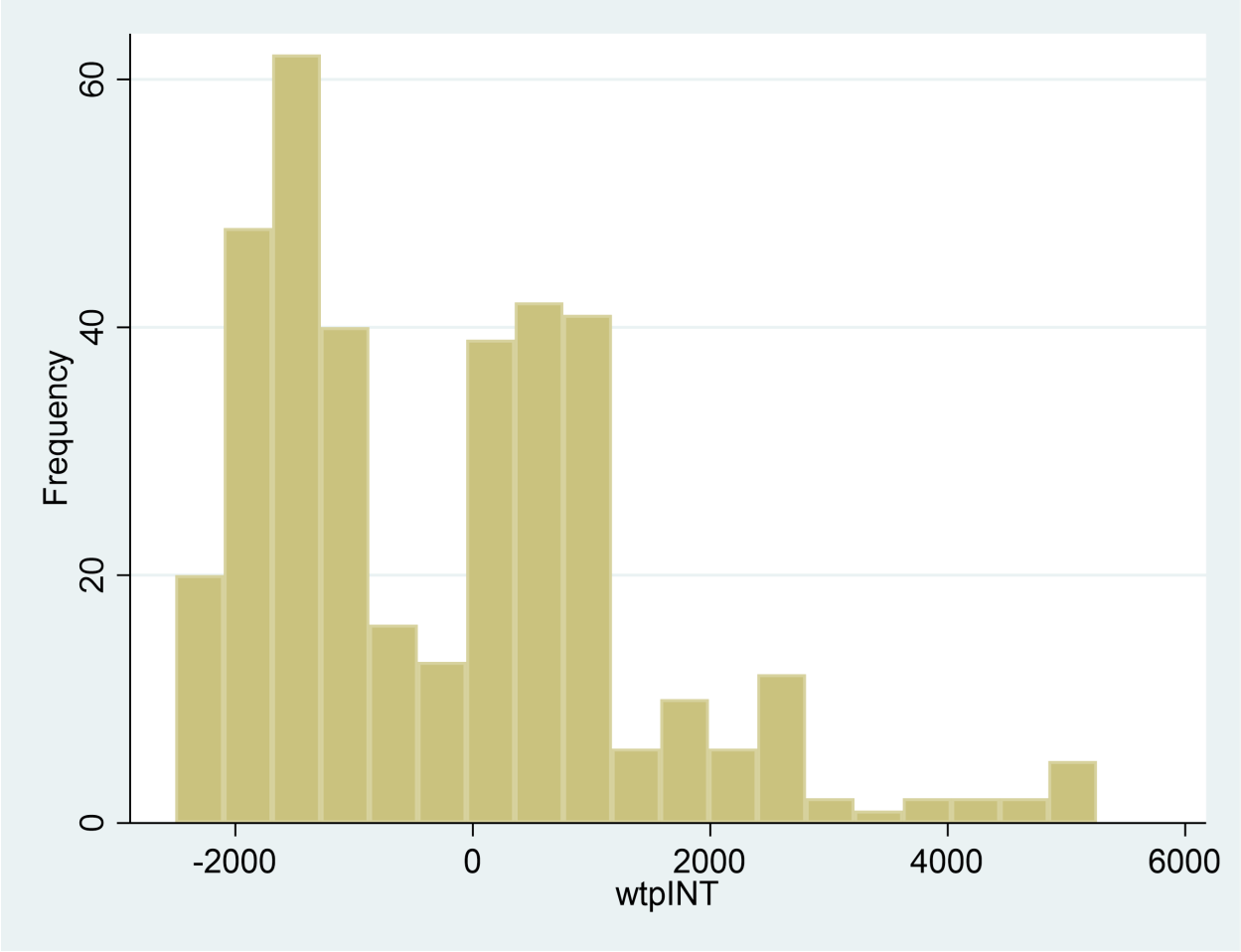


Figure 3. Distribution of individual WTP, Food Intolerance



Where there are negative values, we interpret this to mean that respondents have such a low value for the change (either because they have a negative preference parameter and/or a low value for the condition score) that they would not want to take the pill even if subsidised: not that they would value greater lengths of time with the condition.

Including Attitude to Risk in the Mixed Logit Models

Appendix N describes the nature and distribution of a measure of risk that was generated in the study.

We investigated whether this could be used to explain choices within the DCE. We specified a model in which that individual-level risk attitude was interacted with the status quo (SQ) dummies variable (Table 3 below).

For all three models (conditions) a higher level of willingness to take risk led to a reduction in the value placed on the status quo: or equivalently, those who had more risk averse attitudes were less likely to buy and take the pill.

Table 3: Models by condition, with risk interactions on the SQ dummy

Condition	Allergy	Coeliac	Intolerance
years	0.0146	0.238***	-0.0454
years	(0.0574)	(0.0324)	(0.0399)
FAQ x years	0.0228***	-	-
FAQ x years	(0.00783)	-	-

Condition	Allergy	Coeliac	Intolerance
FIQ x years	-	-	0.0229***
FIQ x years	-	-	(0.00775)
years2	-0.00301*	-0.00532***	-
years2	(0.0018)	(0.00130)	-
cost	-0.000115***	-0.000170***	-0.000115***
cost	(2.14e-05)	(2.36e-05)	(1.84e-05)
FAQ x SQ	-0.693***	-	-
FAQ x SQ	(0.144)	-	-
CDQ x SQ	-	-0.0294***	-
CDQ x SQ	-	(0.00814)	-
FIQ x SQ	-	-	-0.793***
FIQ x SQ	-	-	(0.160)
age x SQ	0.0222**	-	-
age x SQ	(0.00934)	-	-
risk x SQ	-0.281***	-0.199*	-0.453***
risk x SQ	(0.0953)	(0.0877)	(0.107)
SQ (mean)	4.969***	3.402***	7.537***
SQ (mean)	(1.083)	(0.586)	(1.086)
SQ (SD)	2.275***	2.634***	3.102***
SQ (SD)	(0.249)	(0.288)	(0.357)
Choices	2727	4752	3321
Individuals	303	528	369

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

Including Subjective Perception Of Illness in the Mixed Logit Models

We used a subjective perception of illness scale as an additional potential measure of the impact of the conditions on respondents. We used the widely cited Brief Illness Perception Questionnaire (Brief IPQ) (Broadbent at al., 2006).

In the model below we use the response to this question:

How much does your condition affect your life?

0 - no effect at all

10 - severely affects my life

(labelled, BIPQ) as an interaction term in the Adult models for the 3 conditions.
BIPQ is interacted with both years without the FHS and the Status Quo ASC.

Table 4. Models by condition, with BIPQ interactions

Condition	Allergy	Coeliac	Intolerance
years	0.0527	0.237***	0.0242
years	(0.0542)	(0.0324)	(0.0345)

Condition	Allergy	Coeliac	Intolerance
BIPQ x years	-0.00308*	-	0.00586
BIPQ x years	(0.00181)	-	(0.00450)
$years^2$	-0.00301*	-0.00531***	-
$years^2$	(0.0018)	(0.00130)	-
cost	-0.000114***	-0.000169***	-0.000113***
cost	(2.13e-05)	(2.39e-05)	(1.77e-05)
BIPQ x SQ	-0.446***	-0.127**	-0.369***
BIPQ x SQ	(0.0837)	(0.0559)	(0.0963)
age x SQ	0.0183**	-	-
age x SQ	(0.00868)	-	-
SQ (mean)	3.855***	2.011***	4.586***
SQ (mean)	(0.794)	(0.427)	(0.751)
SQ (SD)	2.259***	2.656***	3.322***
SQ (SD)	(0.243)	(0.281)	(0.389)
Choices	2727	4752	3321
Individuals	303	528	369

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

Compared to using the condition specific measures, there is a slight improvement in fit using the BIPQ for the Allergy data, and reductions in fit for coeliac and Intolerance data. There is now no significant effect of the interaction with years for food intolerance. However, the other parameters in the models are largely unchanged.