ONLINE APPENDIX (Supplementary Material)

"Relative Concerns for Consumption at the Top": An Intertemporal Analysis for the UK

This online appendix contains supplementary material of the article *"Relative Concerns for Consumption at the Top": An Intertemporal Analysis for the UK* by Climent Quintana-Domeque and Johannes Wohlfart.

The supplementary material is organized in nine sections:

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A.1 Derivation of the Euler equation

This section provides the derivation of the Euler equation. Throughout, we assume that utility is additively time-separable, separable between consumption of non-durable and durable goods and separable between non-durable consumption and leisure.[1] Moreover, we abstract from finite lives of households and the possibility of liquidity constraints or precautionary motives. When taking the model to the data, therefore, we try to focus on non-liquidity constrained households.[2] We assume that each household acts as a single decision-making unit, so that the household utility function is independent of prices and income.[3] The optimisation problem outlined in section 2 implies the following first-order condition:

$$E_{t-1}\left[\beta\left(1+r_{i,t}\right)\frac{\partial u/\partial C_{i,t}}{\partial u/\partial C_{i,t-1}}\right]=1. \tag{1}$$

In order to derive a closed form solution for consumption growth, it is necessary to assume a particular form of the intra-period sub-utility function. We adopt a version of the function suggested in Abel (1990) and widely used in the literature ever since (Dynan, 2000; Ravina, 2007; Alvarez-Cuadrado et al., 2015). Consistent with the available empirical evidence (Chiappori and Paiella, 2011), we assume that the household exhibits constant relative risk aversion (CRRA) and that its preferences can be described through the isoelastic intra-period sub-utility function:

$$u(\tilde{C}_{i,t+j},\psi_{i,t+j})=\exp\left(\psi_{i,t+j}\right)\frac{\tilde{C}_{i,t+j}^{1-\rho}}{1-\rho},$$
$$\text{where}\qquad \tilde{C}_{t+j}=\frac{C_{t+j}}{(GEOM\left[C_{i,t+j}^{R}\right])^{\gamma}}.$$

ρ denotes the coefficient of relative risk aversion or the inverse of the intertemporal elasticity of substitution.[4] The parameter γ can be interpreted as the *strength of relative concerns for the consumption of rich households*. For the case $\gamma=0$, the model nests the standard life-cycle model with CRRA utility and without relative concerns. The Euler equation (1) can now be written as:

[1] This last separability assumption allows us to abstract from the labour choice.
[2] See also Table A10.
[3] Technically, we are assuming that the Pareto weight of each individual felicity function in the household utility function is constant (Browning et al., 2014).
[4] The formulation using the geometric mean is chosen because it yields an empirical specification with the arithmetic mean of log consumption in the reference group as independent variable. This specification is more robust to outliers than the one obtained using the arithmetic mean in the utility function.

$$\beta E_{t-1}\left[(1+r_{i,t})\exp\left(\Delta\psi_{i,t}\right)\left(\frac{\tilde{C}_{i,t}}{\tilde{C}_{i,t-1}}\right)^{-\rho}\right]=1. \tag{2}$$

Taking a log-linear approximation of the term in brackets around a steady state in which variables are either constant or grow at a constant rate gives:

$$\begin{aligned}
&(1+r_{i,t})\exp\left(\Delta\psi_{i,t}\right)\left(\frac{\tilde{C}_{i,t}}{\tilde{C}_{i,t-1}}\right)^{-\rho}\\
&=\exp(\ln(1+r_{i,t})+\Delta\psi_{i,t}-\rho\Delta\ln\tilde{C}_{i,t})\\
&\approx\exp(\ln(1+r_i^*)+\Delta\psi_{i,t}^*-\rho\Delta\ln\tilde{C}_{i,t}^*)\\
&+\exp(\ln(1+r_i^*)+\Delta\psi_{i,t}^*-\rho\Delta\ln\tilde{C}_{i,t}^*)\left[\ln(1+r_{i,t})-\ln(1+r_i^*)\right]\\
&+\exp(\ln(1+r_i^*)+\Delta\psi_{i,t}^*-\rho\Delta\ln\tilde{C}_{i,t}^*)\left[\Delta\psi_t-\Delta\psi_t^*\right]\\
&-\rho\exp(\ln(1+r_i^*)+\Delta\psi_{i,t}^*-\rho\Delta\ln\tilde{C}_{i,t}^*)\left[\ln\tilde{C}_{i,t}-\ln\tilde{C}_{i,t}^*\right]\\
&+\rho\exp(\ln(1+r_i^*)+\Delta\psi_{i,t}^*-\rho\Delta\ln\tilde{C}_{i,t}^*)\left[\ln\tilde{C}_{i,t-1}-\ln\tilde{C}_{i,t-1}^*\right],
\end{aligned}$$

where asterisks denote steady state values of the variables. Now define the constant:

$$K=\exp(\ln(1+r_i^*)+\Delta\psi_{i,t}^*-\rho\Delta\ln\tilde{C}_{i,t}^*).$$

Substituting the approximation back into the Euler equation (2) and ignoring the non-log-linear component of consumption growth gives:

$$\begin{aligned}
\beta E_{t-1}\Big[&K+K\left[\ln(1+r_{i,t})-\ln(1+r_i^*)\right]\\
&+K\left[\Delta\psi_{i,t}-\Delta\psi_{i,t}^*\right]-\rho K\left[\Delta\ln\tilde{C}_{i,t}-\Delta\ln\tilde{C}_{i,t}^*\right]\Big]=1.
\end{aligned} \tag{3}$$

In steady state, the Euler equation is given by $\beta E_{t-1}\left[K\right]=1$. Taking logs gives:

$$\Delta\ln\tilde{C}_{i,t}^*=\frac{1}{\rho}\ln\beta+\frac{1}{\rho}\ln(1+r_i^*)+\frac{1}{\rho}\Delta\psi_i^*.$$

Subtracting from (3) the untransformed version of the steady state Euler equation, dividing by βK and adding the logged version of the steady state Euler equation, one obtains:

$$E_{t-1}\left[\Delta \ln \tilde{C}_{i,t}\right] = \frac{1}{\rho}\ln\beta + \frac{1}{\rho}E_{t-1}\left[\ln(1+r_{i,t})\right] + \frac{1}{\rho}E_{t-1}\left[\Delta\psi_{i,t}\right]. \tag{4}$$

Letting $\tilde{C}_t = \frac{C_t}{(GEOM\left[C^R_{i,t}\right])^\gamma}$ and using the fact that the geometric mean of the log equals the log of the arithmetic mean, equation (4) can be rewritten as:

$$\begin{aligned} E_{t-1}\left[\Delta \ln C_{i,t}\right] = {} & \frac{1}{\rho}\ln\beta + \frac{1}{\rho}E_{t-1}\left[\ln\left(1+r_{i,t}\right)\right] \\ & + \frac{1}{\rho}E_{t-1}\left[\Delta\psi_{i,t}\right] + \gamma E_{t-1}\left[\Delta ARITM\left[\ln C^R_{i,t}\right]\right], \end{aligned}$$

where $ARITM\left[\ln C^R_{i,t}\right]$ denotes the arithmetic mean of log consumption among the rich households in non-rich household i's reference group.[5] This implies for observed consumption growth at time t:

$$\Delta \ln C_{i,t} = \frac{1}{\rho}\ln\beta + \frac{1}{\rho}\ln(1+r_{i,t}) + \frac{1}{\rho}\Delta\psi_{i,t} + \gamma\Delta ARITM\left[\ln C^R_{i,t}\right] + \epsilon_{i,t}, \tag{5}$$

where $E_{t-1}\left[\epsilon_{i,t}\right] = 0$.

$\epsilon_{i,t}$ denotes the forecast error that reflects innovations to permanent income (Dynan, 2000, p.393).

A.2 Investigation of consumption growth

- See Table A1
- See Table A2

A.3 Sample selection

The initial unbalanced panel of all English, Scottish and Welsh observations completing a full interview consists of 72,437 household-year observations from 13,813 households and 140 counties. Household years are matched across waves according to the identification number of the household head, and households with head changes are treated as new households. Moreover, we treat households whose county of

[5] Alternatively, following Muellbauer (1988) and Dynan (2000), one could use the specification $\ln\tilde{C}_{i,t} = \ln(C_{i,t} - \gamma GEOM\left[C^R_{i,t}\right])$ and approximate it with $\ln C_{i,t} - \gamma \ln GEOM\left[C^R_{i,t}\right]$, obtaining an equivalent expression.

residence changes as new households. We cannot use the distribution of individual labour earnings to classify households who are retired or in full-time education, so we neglect these households in our analysis (22,244 household-year observations). We drop 351 household-year observations with missing employment status of the household head and trim the top and bottom 1 percent of the distribution of net disposable household income in each year to account for outliers (982 household-year observations). Since our consumption data are categorised and we take midpoints, we do not have substantial outliers in our consumption variable. We therefore stay away from excluding outliers in this category. 829 household-year observations are excluded due to missing consumption data. The resulting sample consists of 48,031 household-year observations living in 10,407 households and 140 counties.

We merge the deciles of the county-level earnings distributions from the ASHE to this sample and classify observations into "rich" or "non-rich" as explained in the main text. Next, we restrict the analysis to county-year cells with at least 10 rich observations. The remaining sample contains 28,746 household-year observations (7,571 rich and 21,137 non-rich) residing in 62 counties. We estimate the mean (log) consumption of total food and the average (log) net disposable income in the rich group in each county-year cell that is part of this sample. Table A3 shows how the composition of our sample is affected by the sample selection. Columns 3 and 4 show summary statistics for rich and non-rich observations in the unrestricted sample, while columns 5 and 6 refer to the restricted sample with at least 10 rich observations in each cell. We conducted t-tests for differences in means between the restricted and unrestricted samples. The means differ significantly only for relative consumption of food at home and food at restaurants (for both rich and non-rich) and marital status and educational attainment above A-level (for non-rich). However, the economic magnitude of the differences is negligible, so the deletion of small cells should not be a major concern.

Because we aim to study how the consumption behaviour of non-rich households is affected by the consumption of rich households, we subsequently drop rich observations from our study sample. Moreover, in line with most of the consumption literature, we drop observations for which the age of the head is outside the range 20-64 (978 household-year observations). This focus can be justified by the fact that the consumption behaviour of such households is likely to follow different patterns, for instance due to health-related spending ("old" households) or liquidity constraints ("young" households). Since they represent only a fairly small fraction of our sample, we also drop 845 household-year observations whose head belongs to an ethnic minority.[6] Moreover, we drop 404 household-year observations due to missing employment

[6]One might be worried that observations in the rich group that were used to estimate the mean

status of the spouse. While we cannot identify liquidity-constrained households, we exclude the households from the low-income sample of the BHPS because they are likely to be liquidity-constrained (982 household-year observations).[7] As we are interested in consumption growth, we also have to exclude all observations that are not part of a two-year spell, deleting another 3,341 household-year observations. Finally, we have to drop first differences for which the lagged growth in the 80th percentile of the local earnings distribution, which we use as an instrument, is missing. This deletes further 1,097 observations from the years 1997 and 1998. The final sample is an unbalanced panel consisting of 13,490 non-rich household-year observations and 10,037 first differences belonging to 2,914 households and 50 counties.

A.4 Main results showing all controls

- See Table A4

A.5 First stage for GMM estimates

- See Table A5
- See Table A6

A.6 Main results separately for food at home and food away from home

- See Table A7
- See Table A8

A.7 Additional checks

A.7.1 Alternative definition of rich households

Estimating the average consumption of rich households out of a small number of observations could lead to noisy estimates of the independent variable. To check whether this contributes to our zero finding, we conduct the following exercise. We restrict the study sample to non-rich household-year observations for whom the gross

consumption of rich households were partly outside this age range and / or belonged to ethnic minorities, while our final study sample of non-rich households does not contain such observations. This choice was made to have a sufficient number of counties with at least 10 rich observations available while at the same time obtaining a meaningful sample for our main estimations. We checked the robustness of our results to excluding these households from the rich group. While the coefficients were less precisely estimated, their direction and magnitude remained very similar.

[7] See also Table A10.

earnings of the main earner do not exceed the 70th percentile of the county-level earnings distribution. We then estimate the average consumption of all observations in the top 30 percent of the earnings distribution and use this as an alternative independent variable. The procedure of reducing the cutoff from the 80th to the 70th percentile increases the average number of rich observations per county-year cell from 22.15 to 32.70. Moreover, as a second alternative independent variable we compute the average consumption of all household year observations for which gross earnings of the main earner exceeded the 80th percentile of the earnings distribution at the higher level of the government office region. This leads to an average number of 81.71 rich observations used to estimate average rich consumption in each region-year cell. There are no overlaps of the region-level rich group and the county-level below-70th-percentile study sample that we use in the estimations. The results of this exercise are presented in Table A9. Columns 1 and 2 show specifications using the initial version of the independent variable, while columns 3 and 4 use the alternative definition based on the top 30 percent. Columns 5 and 6 show the results using the region-level definition. Throughout, the estimates of γ remain small in size and statistically insignificant.

A.7.2 Liquidity constraints

Our model assumes that households are not liquidity constrained. However, in reality some of the households in our sample are likely to face such constraints. While in our main analysis we exclude households from the low income sample and households with a very young head (less than 20) to account for liquidity constraints, it may well be the case that this selection is not stringent enough. Therefore, we repeat our main estimations applying a more narrow method of identifying liquidity-constrained households.

Estimating Euler equations on data from the PSID, Alan et al. (2009) exclude household observations that do not bring forward any liquid assets to the current period. Since the BHPS does not provide information on asset holdings, we instead exclude observations who report zero current investment income. This reduces our sample size from 10,037 to 4,105 observations, while the number of counties remains 50. Table A10 reports the results of these estimations. Notably, the change in employment status of the household head is no longer a significant determinant of consumption growth, while the change in the employment status of the spouse still enters significantly at the 1 percent level. However, even though the coefficient estimates on the growth of rich consumption increase to values between 0.05 and 0.07, they remain statistically insignificant. This suggests that liquidity constraints are not responsible for our previous findings.

A.7.3 Local trends

Columns 1 and 3 of Table A11 control for linear trends in consumption growth at the higher level of the government office region. Columns 2 and 4 control for county-specific linear trends. The coefficient estimates on rich consumption growth now even become negative for the GMM specifications. However, across specifications they remain small in size and statistically insignificant.

A.7.4 Inference based on a wild bootstrap procedure

We adjust our p-values for the fact that the independent variable is an estimate for the growth of rich consumption in the population. Given that the number of counties is relatively small (at most 50), and the number of observations varies substantially across counties, we provide Wild bootstrap p-values (MacKinnon and Webb, 2014). Since Wild bootstrap is unavailable for GMM estimation, we only conduct this exercise for the OLS estimations in columns 1 and 2 of Table 2 in the main text. Table A12 compares p-values for the hypothesis test that the coefficient on consumption growth of the rich equals zero both obtained using conventional clustering and using Wild bootstrap. Applying Wild bootstrap leads to higher p-values, confirming our result that we cannot reject the hypothesis that there is no effect of rich consumption growth on consumption growth of the non-rich.

A.8 Lagged changes in rich consumption

- See Table A13

A.9 Alternative models of relative concerns: Heterogeneous effects

- See Table A14
- See Table A15
- See Table A16

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Table A1: Transition matrix for change between bands of consumption of food at home in study sample

Consumption t: \ *Consumption t+1:*	£5	£15	£25	£35	£45	£55	£70	£90	£110	£130	£150	£180	N
£5	**28**	23	9	6	1	5	1	0	0	0	0	0	73
£15	17	**160**	150	56	16	8	5	0	1	0	0	0	413
£25	11	142	**419**	310	97	46	28	5	2	2	0	0	1,062
£35	3	28	216	**462**	317	167	64	22	8	4	0	1	1,292
£45	1	18	84	255	**454**	389	196	34	18	1	0	1	1,451
£55	2	6	37	109	288	**557**	485	94	39	2	3	3	1,625
£70	0	10	22	46	132	348	**895**	401	122	19	8	3	2,006
£90	0	1	5	10	31	71	264	**433**	218	54	14	2	1,103
£110	0	0	1	9	4	24	82	164	**239**	79	34	6	642
£130	0	0	1	1	1	5	20	27	73	**70**	27	8	233
£150	0	1	0	1	1	2	4	9	20	20	**19**	11	88
£180	0	0	0	0	0	0	4	9	10	4	8	**14**	49
N	62	389	944	1,265	1,342	1,622	2,048	1,198	750	255	113	49	10,037

Sample period: 1997-2008. The table shows a transition matrix for switches between bands of weekly expenditure on food consumed at home in the sample that is used for the main estimations. The values for expenditure are the midpoints assigned to the different bands.

Table A2: Numbers of observations with no change in consumption in study sample

Consumption variable:	Food at home	Food away from home	Total food	N
1999	302	113	46	1,289
2000	408	178	64	1,482
2001	468	189	74	1,457
2002	423	174	74	1,376
2003	380	151	57	1,376
2004	395	145	62	1,264
2005	361	156	59	1,241
2006	386	144	62	1,233
2007	355	114	44	1,143
2008	272	121	45	825

Sample period: 1997-2008. The table shows the number of observations with no change in observed consumption for each year and each consumption category in the sample that is used for the main estimations.

Table A3: Summary statistics and sample selection

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		Less retired and full-time educ.			Less small cells		Study sample
	All	All	Rich	Non-rich	Rich	Non-rich	Non-rich
$\hat{C}$	3,688.23	4,203.09	5,429.61	3,787.23	5,456.19	3,815.19	3,870.79
$\Delta\hat{c}$	0.008	0.013	0.017	0.011	0.019	0.009	0.008
Y	20,228.38	23,663.38	37,255.28	19,054.83	37,413.92	19,142.38	19,526.67
$MainEarnings$	13,547.88	19,628.84	38,319.02	13,291.64	38,652.96	13,393.83	14,141.98
Age	53.862	44.044	42.814	44.461	42.928	44.596	43.891
$Female$	0.340	0.279	0.120	0.334	0.126	0.335	0.306
$nadults$	1.781	1.928	2.094	1.872	2.084	1.861	1.869
$nchildren$	0.463	0.699	0.843	0.651	0.822	0.634	0.627
$Married$	0.486	0.535	0.713	0.474	0.700	0.460†††	0.465
$GCSE$	0.266	0.321	0.233	0.351	0.222	0.348	0.361
$ALevel$	0.171	0.212	0.234	0.204	0.226	0.208	0.227
$AboveALevel$	0.208	0.253	0.465	0.181	0.479	0.189††	0.180
$PaidEmployed$	0.466	0.727	0.860	0.682	0.854	0.684	0.719
$SelfEmployed$	0.086	0.126	0.126	0.126	0.130	0.129	0.123
$SpouseEmployed$	0.320	0.464	0.639	0.405	0.625	0.399	0.427
$England$	0.864	0.863	0.888	0.855	0.903***	0.900†††	0.895
$Scotland$	0.088	0.090	0.078	0.094	0.068***	0.069†††	0.073
$Wales$	0.048	0.047	0.034	0.051	0.029***	0.032†††	0.032
$\ln(80thPercentile)$		10.192	10.180	10.196	10.192	10.214	10.220
Number of rich observations per cell		16.229	16.038	16.296	20.747	22.132	21.946
$\bar{\hat{c}}^R$						8.525	8.525
$\Delta\bar{\hat{c}}^R$						0.005	0.005
$\bar{y}^R$						10.495	10.503
N	72,437	48,031	11,348	36,683	7,571	21,137	13,490
N households	13,813	10,407	3,340	9,185	2,437	5,978	2,914
N counties	140	140	140	140	62	62	50

Sample period: 1997-2008. ˆ denotes observed. Summary statistics are computed using the BHPS sampling weights. ∗, ∗∗ and ∗ ∗ ∗ denote significant difference of means as compared to column 3 at the 10 percent, 5 percent and 1 percent level. †, †† and † † † denote significant difference of means as compared to column 4 at the 10 percent, 5 percent and 1 percent level.

Table A4: Main results showing all controls

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)
	$\Delta\hat{c}$					
	OLS	OLS	GMM	GMM	GMM	GMM
$\Delta\bar{\hat{c}}^R$	0.014	0.012	0.007	0.012	0.009	0.023
	(0.028)	(0.027)	(0.090)	(0.090)	(0.101)	(0.187)
ΔAge^2 / 1000	-0.448	-0.447	-0.441	-0.440	-0.439	-0.440
	(0.086)***	(0.086)***	(0.087)***	(0.087)***	(0.087)***	(0.087)***
$\Delta HeadEmployed$	0.104	0.104	0.111	0.112	0.112	0.112
	(0.016)***	(0.016)***	(0.043)***	(0.043)***	(0.043)***	(0.043)***
$\Delta SpouseEmployed$	0.079	0.079	0.110	0.111	0.110	0.110
	(0.014)***	(0.014)***	(0.030)***	(0.030)***	(0.030)***	(0.030)***
$EmploymentRate$		0.003		0.003	0.003	0.003
		(0.003)		(0.003)	(0.003)	(0.003)
$\Delta nadults$	0.278	0.278	0.274	0.275	0.274	0.274
	(0.013)***	(0.013)***	(0.013)***	(0.013)***	(0.013)***	(0.013)***

Table A4: Main results showing all controls, continued

$\Delta nchildren0\_2$	0.046	0.046	0.050	0.050	0.050	0.050
	(0.014)***	(0.014)***	(0.016)***	(0.016)***	(0.016)***	(0.016)***
$\Delta nchildren3\_4$	0.043	0.043	0.046	0.046	0.046	0.046
	(0.013)***	(0.013)***	(0.014)***	(0.014)***	(0.014)***	(0.014)***
$\Delta nchildren5\_11$	0.086	0.085	0.085	0.084	0.084	0.084
	(0.010)***	(0.010)***	(0.010)***	(0.010)***	(0.010)***	(0.010)***
$\Delta nchildren12\_15$	0.125	0.125	0.123	0.123	0.123	0.123
	(0.012)***	(0.012)***	(0.012)***	(0.012)***	(0.012)***	(0.012)***
$\Delta nchildren16\_18$	-0.102	-0.102	-0.102	-0.102	-0.102	-0.102
	(0.017)***	(0.017)***	(0.017)***	(0.017)***	(0.017)***	(0.018)***
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N observations	10,037	10,037	10,037	10,037	10,037	10,037
N households	2,914	2,914	2,914	2,914	2,914	2,914
N counties	50	50	50	50	50	50
R^2	0.10	0.10	0.10	0.10	0.10	0.10
Hansen J-stat			0.00	0.00	0.00	0.00
J-stat p-value			1.00	0.95		
Sanderson-Windmeijer first stage F-stat:						
$\Delta\bar{\hat{c}}^R$			37.24	36.70	44.12	24.46
$\Delta HeadEmployed$			115.94	117.02	230.49	233.02
$\Delta SpouseEmployed$			220.64	219.82	437.30	438.88
95-percent confidence interval for γ	(-.041, .070)	(-.042, .065)	(-.169, .183)	(-.165, .189)	(-.189, .207)	(-.344, .389)

Sample period: 1997-2008. ˆdenotes observed. $\Delta\hat{c}$ is the change (first difference) in the log of the total household food consumption of households classified as non-rich (below the 80th percentile). $\Delta\bar{\hat{c}}^R$ is the change in the average log consumption of food among households classified as rich (above the 80th percentile). In the GMM estimations 3-4 the change in rich consumption is instrumented with the lagged average log income of rich households and the lagged growth in the 80th percentile of the county-level earnings distribution, while 5 only uses lagged rich income and 6 only uses the lagged growth in the 80th percentile. Changes in labour market status are instrumented with the lagged labour market status. Standard errors are clustered at the county level and are reported in parentheses. *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level.

Table A5: First stages for GMM estimates in columns 3-4 in Table 2

	(1)	(2)	(3)	(4)	(5)	(6)
First stage to table 2:	Column 3			Column 4		
Dependent variable:	$\Delta\bar{\hat{c}}^R$	$\Delta HeadEmp$	$\Delta SpouseEmp$	$\Delta\bar{\hat{c}}^R$	$\Delta HeadEmp$	$\Delta SpouseEmp$
	OLS	OLS	OLS	OLS	OLS	OLS
$\bar{y}^R_{-1}$	-0.401	0.048	-0.037	-0.402	0.048	-0.037
	(0.068)***	(0.033)	(0.035)	(0.068)***	(0.033)	(0.035)
$\Delta \ln(80thPercentile)_{-1}$	-0.616	-0.005	-0.258	-0.645	-0.004	-0.258
	(0.217)***	(0.069)	(0.084)***	(0.216)***	(0.069)	(0.086)***
$HeadEmployed_{-1}$	0.003	-0.188	0.060	0.002	-0.188	0.060
	(0.002)	(0.013)***	(0.006)***	(0.002)	(0.013)***	(0.006)***
$SpouseEmployed_{-1}$	-0.000	0.038	-0.158	-0.000	0.038	-0.158
	(0.002)	(0.004)***	(0.007)***	(0.002)	(0.004)***	(0.007)***
N observations	10,037	10,037	10,037	10,037	10,037	10,037
N households	2,914	2,914	2,914	2,914	2,914	2,914
N counties	50	50	50	50	50	50
R^2	0.14	0.10	0.12	0.15	0.10	0.12
Sanderson-Windmeijer F-stat	37.24	115.94	220.64	36.70	117.02	219.82

Sample period: 1997-2008. ˆ denotes observed. Columns 1-3 are first stages for column 3 Table 2 and columns 4-6 are first stages for column 4 in Table 2 in the main text. Apart from the excluded instruments the first-stage regressions contain all other exogenous variables used in the second stages. Standard errors are clustered at the county level and are reported in parentheses. *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level.

Table A6: First stages for GMM estimates in columns 5-6 in Table 2

	(1)	(2)	(3)	(4)	(5)	(6)
First stage to table 2:	Column 5			Column 6		
Dependent variable:	$\Delta\bar{\hat{c}}^R$	$\Delta HeadEmp$	$\Delta SpouseEmp$	$\Delta\bar{\hat{c}}^R$	$\Delta HeadEmp$	$\Delta SpouseEmp$
	OLS	OLS	OLS	OLS	OLS	OLS
$\bar{y}^R_{-1}$	-0.442	0.048	-0.053			
	(0.073)***	(0.033)	(0.037)			
$\Delta \ln(80thPercentile)_{-1}$				-0.771	0.012	-0.269
				(0.236)***	(0.073)	(0.086)***
$HeadEmployed_{-1}$	0.002	-0.188	0.060	0.001	-0.188	0.060
	(0.001)	(0.013)***	(0.006)***	(0.002)	(0.013)***	(0.006)***
$SpouseEmployed_{-1}$	-0.001	0.038	-0.158	-0.000	0.038	-0.158
	(0.002)	(0.004)***	(0.007)***	(0.001)	(0.004)***	(0.007)***
N observations	10,037	10,037	10,037	10,037	10,037	10,037
N households	2,914	2,914	2,914	2,914	2,914	2,914
N counties	50	50	50	50	50	50
R^2	0.12	0.10	0.12	0.09	0.10	0.12
Sanderson-Windmeijer F-stat	44.12	230.49	437.30	24.46	233.02	438.88

Sample period: 1997-2008. ˆ denotes observed. Columns 1-3 are first stages for column 5 Table 2 and columns 4-6 are first stages for column 6 in Table 2 in the main text. Apart from the excluded instruments the first-stage regressions contain all other exogenous variables used in the second stages. Standard errors are clustered at the county level and are reported in parentheses. *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level.

Table A7: Main results for food consumed at home

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)
	$\Delta Food\hat{H}ome$					
	OLS	OLS	GMM	GMM	GMM	GMM
$\Delta\overline{Food\hat{H}ome}^{R}$	0.0246	0.0223	0.0732	0.0776	0.123	-0.00872
	(0.0290)	(0.0286)	(0.118)	(0.117)	(0.148)	(0.204)
ΔAge^2 / 1000	-0.509	-0.508	-0.498	-0.497	-0.511	-0.507
	(0.094)***	(0.094)***	(0.091)***	(0.091)***	(0.095)***	(0.092)***
$\Delta HeadEmployed$	0.0582	0.0583	0.0611	0.0625	0.0627	0.0620
	(0.0174)***	(0.0175)***	(0.0429)	(0.0430)	(0.0429)	(0.0431)
$\Delta SpouseEmployed$	0.0529	0.0530	0.0512	0.0517	0.0508	0.0512
	(0.0159)***	(0.0158)***	(0.0306)*	(0.0307)*	(0.0307)*	(0.0307)*
Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Business cycle indicator	No	Yes	No	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N observations	10,037	10,037	10,037	10,037	10,037	10,037
N households	2,914	2,914	2,914	2,914	2,914	2,914
N counties	50	50	50	50	50	50
R^2	0.050	0.050	0.050	0.050	0.049	0.050
Hansen J-stat			0.32	0.27	0.00	0.00
J-stat p-value			0.57	0.60		
Sanderson-Windmeijer first stage F-stat:						
$\Delta\overline{Food\hat{H}ome}^{R}$			12.32	13.36	12.21	18.40
$\Delta HeadEmployed$			117.18	117.93	231.02	231.88
$\Delta SpouseEmployed$			221.18	220.48	438.40	441.93
95-percent confidence interval for γ	(-.032, .081)	(-.034, .078)	(-.159, .305)	(-.152, .307)	(-.168, .414)	(-.409, .392)

Sample period: 1997-2008. ˆ denotes observed. $\Delta Food\hat{H}ome$ is the change (first difference) in the log of the household consumption of food at home of households classified as non-rich (below the 80th percentile). $\Delta\overline{Food\hat{H}ome}^{R}$ is the change in the average log consumption of food at home among households classified as rich (above the 80th percentile). Demographic controls include the change in the number of adults and changes in the number of children aged 0-2, 3-4, 5-11, 12-15 and 16-18 in the household. The business cycle indicator is the county-level employment rate. In the GMM estimations 3-4 the change in rich consumption is instrumented with the lagged average log income of rich households and the lagged growth in the 80th percentile of the county-level earnings distribution, while 5 only uses lagged rich income and 6 only uses the lagged growth in the 80th percentile. Changes in labour market status are instrumented with the lagged labour market status. Standard errors are clustered at the county level and are reported in parentheses. *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level.

Table A8: Main results for food consumed away from home

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)
	$\Delta Food\hat{A}way$					
	OLS	OLS	GMM	GMM	GMM	GMM
$\Delta\overline{Food\hat{A}way}^{R}$	0.016	0.017	-0.247	-0.243	-0.245	-0.136
	(0.061)	(0.061)	(0.194)	(0.195)	(0.197)	(0.366)
ΔAge^2 / 1000	-0.966	-0.962	-0.911	-0.900	-0.921	-0.922
	(0.231)***	(0.231)***	(0.230)***	(0.228)***	(0.236)***	(0.236)***
$\Delta HeadEmployed$	0.242	0.243	0.270	0.277	0.266	0.264
	(0.0505)***	(0.0507)***	(0.0804)***	(0.0791)***	(0.0857)***	(0.0875)***
$\Delta SpouseEmployed$	0.163	0.163	0.316	0.319	0.316	0.316
	(0.0309)***	(0.0310)***	(0.0714)***	(0.0713)***	(0.0716)***	(0.0719)***
Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Business cycle indicator	No	Yes	No	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N observations	9,225	9,225	9,225	9,225	9,225	9,225
N households	2,791	2,791	2,791	2,791	2,791	2,791
N counties	50	50	50	50	50	50
R^2	0.08	0.08	0.07	0.07	0.08	0.08
Hansen J-stat			0.07	0.12	0.00	0.00
J-stat p-value			0.79	0.73		
Sanderson-Windmeijer first stage F-stat:						
$\Delta\overline{Food\hat{A}way}^{R}$			21.22	20.16	27.05	12.53
$\Delta HeadEmployed$			117.72	116.78	231.63	236.10
$\Delta SpouseEmployed$			205.50	204.95	410.51	400.72
95-percent confidence interval for γ	(-.103, .136)	(-.102, .135)	(-.627, .134)	(-.626, .140)	(-.631, .141)	(-.853, .580)

Sample period: 1997-2008. ˆdenotes observed. $\Delta Food\hat{A}way$ is the change (first difference) in the log of the household consumption of food away from home of households classified as non-rich (below the 80th percentile). $\Delta\overline{Food\hat{A}way}^{R}$ is the change in the average log consumption of food away from home among households classified as rich (above the 80th percentile). Demographic controls include the change in the number of adults and changes in the number of children aged 0-2, 3-4, 5-11, 12-15 and 16-18 in the household. The business cycle indicator is the county-level employment rate. In the GMM estimations 3-4 the change in rich consumption is instrumented with the lagged average log income of rich households and the lagged growth in the 80th percentile of the county-level earnings distribution, while 5 only uses lagged rich income and 6 only uses the lagged growth in the 80th percentile. Changes in labour market status are instrumented with the lagged labour market status. Standard errors are clustered at the county level and are reported in parentheses. *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level.

Table A9: Alternative definition of rich households

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)
	$\Delta\hat{c}$					
	OLS	GMM	OLS	GMM	OLS	GMM
$\Delta\bar{\hat{c}}^{R,80}$	0.004	0.033				
	(0.036)	(0.093)				
$\Delta\bar{\hat{c}}^{R,70}$			-0.024	0.071		
			(0.050)	(0.156)		
$\Delta\bar{\hat{c}}^{R,Region80}$					0.051	-0.057
					(0.098)	(0.223)
Employment status changes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Business cycle indicator	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes	Yes	No	No
Region fixed effects	No	No	No	No	Yes	Yes
N observations	8,166	8,166	8,166	8,166	8,166	8,166
N households	2,497	2,497	2,497	2,497	2,497	2,497
N counties	50	50	50	50	50	50
N regions	11	11	11	11	11	11
R^2	0.10	0.10	0.10	0.10	0.10	0.10
Hansen J-stat		0.05		0.56		0.83
J-stat p-value		0.82		0.45		0.36
Sanderson-Windmeijer first stage F-stat:						
$\Delta\bar{\hat{c}}^{R}$		31.87		9.25		113.55
$\Delta HeadEmployed$		134.61		158.95		140.70
$\Delta SpouseEmployed$		176.84		181.89		207.00

Sample period: 1997-2008. ˆ denotes observed. The study sample includes only observations *below the 70th percentile*. $\Delta\bar{c}^{R,80}$ is the change (first difference) in the average log consumption of food among households classified as rich (above the 80th percentile) in a given county and year. $\Delta\bar{c}^{R,70}$ is the change in the average log consumption of food among households above the 70th percentile. $\Delta\bar{c}^{R,Region80}$ is the change in the average log consumption of food among households above the 80th percentile at the regional level. In the GMM estimations the change in reference group consumption is instrumented by the lagged average log income of reference group households and the lagged growth in the relevant percentile of the earnings distribution (county-level 80th and 70th percentile and region-level 80th percentile). Changes in labour market status are instrumented with the lagged labour market status. Standard errors are clustered at the county level and are reported in parentheses. *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level.

Table A10: Liquidity constraints

Dependent variable:	(1)	(2)	(3)	(4)
	$\Delta\hat{c}$			
	OLS	OLS	GMM	GMM
$\Delta\bar{\hat{c}}^R$	0.070	0.069	0.047	0.050
	(0.043)	(0.044)	(0.142)	(0.142)
$\Delta HeadEmployed$	0.034	0.034	0.024	0.023
	(0.021)	(0.021)	(0.064)	(0.064)
$\Delta SpouseEmployed$	0.078	0.078	0.136	0.136
	(0.021)***	(0.021)***	(0.049)***	(0.049)***
Demographic controls	Yes	Yes	Yes	Yes
Business cycle indicator	No	Yes	No	Yes
Year fixed effects	Yes	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes	Yes
N observations	4,105	4,105	4,105	4,105
N households	1,555	1,555	1,555	1,555
N counties	50	50	50	50
R^2	0.12	0.12	0.11	0.11
Hansen J-stat			1.27	1.34
J-stat p-value			0.26	0.25
Sanderson-Windmeijer first stage F-stat:				
$\Delta\bar{\hat{c}}^R$			30.59	30.32
$\Delta HeadEmployed$			38.22	37.38
$\Delta SpouseEmployed$			116.55	116.29

Sample period: 1997-2008. The study sample only includes non-rich observations with positive current investment income. $\hat{}$ denotes observed. $\Delta\hat{c}$ is the change (first difference) in the log of the total household food consumption of households classified as non-rich (below the 80th percentile). $\Delta\bar{\hat{c}}^R$ is the change in the average log consumption of food among households classified as rich (above the 80th percentile). In the GMM estimations the change in rich consumption is instrumented with the lagged average log income of rich households and the lagged growth in the 80th percentile of the county-level earnings distribution. Changes in labour market status are instrumented with the lagged labour market status. Standard errors are clustered at the county level and are reported in parentheses. *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level.

Table A11: Local trends

Dependent variable:	(1)	(2)	(3)	(4)
	$\Delta\hat{c}$			
	OLS	OLS	GMM	GMM
$\Delta\bar{\hat{c}}^R$	0.022	0.027	-0.022	-0.022
	(0.029)	(0.031)	(0.076)	(0.082)
ΔAge^2 / 1000	-0.444	-0.446	-0.437	-0.439
	(0.088)***	(0.089)***	(0.087)***	(0.089)***
$\Delta HeadEmployed$	0.104	0.105	0.110	0.105
	(0.016)***	(0.016)***	(0.043)***	(0.043)**
$\Delta SpouseEmployed$	0.079	0.078	0.109	0.106
	(0.014)***	(0.014)***	(0.030)***	(0.031)***
Demographic controls	Yes	Yes	Yes	Yes
Business cycle indicator	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes	Yes
Region-specific linear trend	Yes	No	Yes	No
County-specific linear trend	No	Yes	No	Yes
N observations	10,037	10,037	10,037	10,037
N households	2,914	2,914	2,914	2,914
N counties	50	50	50	50
R^2	0.10	0.10	0.10	0.10
Hansen J-stat			0.04	0.04
J-stat p-value			0.84	0.84
Sanderson-Windmeijer first stage F-stat:				
$\Delta\bar{\hat{c}}^R$			50.27	57.56
$\Delta HeadEmployed$			119.26	122.61
$\Delta SpouseEmployed$			216.42	217.10

Sample period: 1997-2008. ˆ denotes observed. $\Delta\hat{c}$ is the change (first difference) in the log of the total household food consumption of households classified as non-rich (below the 80th percentile). $\Delta\bar{\hat{c}}^R$ is the change in the average log consumption of food among households classified as rich (above the 80th percentile). In the GMM estimations the change in rich consumption is instrumented with the lagged average log income of rich households and the lagged growth in the 80th percentile of the county-level earnings distribution. Changes in labour market status are instrumented with the lagged labour market status. Standard errors are clustered at the county level and are reported in parentheses. *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level.

Table A12: Inference using wild bootstrap

	(1)	(2)	(3)	(4)
Inference based on:	Standard clustering		Wild bootstrap	
Dependent variable:	$\Delta\hat{c}$			
	OLS	OLS	OLS	OLS
p-value on $H_0 : \gamma = 0$	0.618	0.675	0.640	0.716
Employment status changes	Yes	Yes	Yes	Yes
Demographic controls	Yes	Yes	Yes	Yes
Business cycle indicator	No	Yes	No	Yes
Year fixed effects	Yes	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes	Yes
N observations	10,037	10,037	10,037	10,037
N households	2,914	2,914	2,914	2,914
N counties	50	50	50	50

Sample period: 1997-2008. $\hat{}$ denotes observed. $\Delta\hat{c}$ is the change (first difference) in the log of the total household food consumption of households classified as non-rich (below the 80th percentile). γ is the coefficient estimate on $\Delta\bar{\hat{c}}^R$, i.e. the estimate on the change in the average log consumption of food among households classified as rich (above the 80th percentile). Columns 1 and 2 report p-values based on standard clustering, while columns 3 and 4 use p-values obtained from a wild bootstrap exercise. The number of bootstrap draws is 500.

Table A13: Lagged changes in rich consumption

	(1)	(2)	(3)
Dependent variable:	$\Delta\hat{c}$	$\Delta\overline{Food\hat{H}ome}$	$\Delta\overline{Food\hat{A}way}$
	OLS	OLS	OLS
$\Delta\bar{\hat{c}}^R$	0.0381		
	(0.0381)		
$\Delta\bar{\hat{c}}^R_{-1}$	0.0410		
	(0.0407)		
$\Delta\overline{Food\hat{H}ome}^R$		0.0371	
		(0.0349)	
$\Delta\overline{Food\hat{H}ome}^R_{-1}$		-0.00183	
		(0.0389)	
$\Delta\overline{Food\hat{A}way}^R$			0.0687
			(0.0664)
$\Delta\overline{Food\hat{A}way}^R_{-1}$			0.0536
			(0.0519)
Employment status changes	Yes	Yes	Yes
Demographic controls	Yes	Yes	Yes
Business cycle indicator	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes
N observations	9,214	9,214	8,515
N households	2,686	2,686	2,686
N counties	46	46	46
R^2	0.10	0.05	0.08

Sample period: 1997-2008. $\hat{}$ denotes observed. $\Delta\hat{c}$, $\Delta\overline{Food\hat{H}ome}$ and $\Delta\overline{Food\hat{A}way}$ are the changes (first differences) in the log of the total food consumption, food at home and food away from home of households classified as non-rich (below the 80th percentile). $\Delta\bar{\hat{c}}^R$, $\Delta\overline{Food\hat{H}ome}^R$ and $\Delta\overline{Food\hat{A}way}^R$ are the changes in the average log consumption of total food, food at home and food away from home among households classified as rich (above the 80th percentile) and similarly for the subcategories of food consumption. Standard errors are clustered at the county level and are reported in parentheses. *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level.

Table A14: Alternative models of relative concerns: Heterogeneous effects for total food

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)
	$\Delta\hat{c}$					
	OLS	OLS	OLS	OLS	OLS	OLS
$\bar{\hat{c}}^R$	0.034	0.091	0.070	0.044	0.003	0.079
	(0.046)	(0.057)	(0.050)	(0.061)	(0.060)	(0.052)
$\bar{\hat{c}}^R \times LowIneq$	0.076					
	(0.071)					
$\bar{\hat{c}}^R \times LowDens$		-0.066				
		(0.076)				
$\bar{\hat{c}}^R \times Old$			-0.028			
			(0.061)			
Old			0.217			
			(0.521)			
$\bar{\hat{c}}^R \times Married$				0.022		
				(0.070)		
$Married$				-0.131		
				(0.590)		
$\bar{\hat{c}}^R \times LowEduc$					0.088	
					(0.064)	
$LowEduc$					-0.791	
					(0.554)	
$\bar{\hat{c}}^R \times MiddleInc$						-0.052
						(0.067)
$MiddleInc$						0.453
						(0.570)
Employment status indicators	Yes	Yes	Yes	Yes	Yes	Yes
Income controls	Yes	Yes	Yes	Yes	Yes	Yes
Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Business cycle indicator	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Household fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N observations	12,248	12,768	12,768	12,768	12,768	12,768
N households	2,760	2,884	2,884	2,884	2,884	2,884
N counties	47	50	50	50	50	50
R^2	0.20	0.19	0.19	0.19	0.19	0.19

Sample period: 1997-2008. ˆdenotes observed. $\hat{c}$ is the log of total household food consumption of households classified as non-rich (below the 80th percentile). $\bar{\hat{c}}^R$ is the average log consumption of food among households classified as rich (above the 80th percentile). *LowIneq* and *LowDens* are dummy variables indicating whether an observation is from a county classified as a low inequality or a low density area according to a median split of the sample along the values in 1997. These estimations do not directly control for the dummy variables because these variables do not vary within counties and we include county dummies. *Old* is a dummy variable indicating whether the head is aged above 42. *Married* is a marital status dummy and *LowEduc* takes a value of 1 if the educational attainment of the head is below A-Level. *MiddleInc* is a dummy variable indicating whether the labour earnings of the main earner exceed the 50th percentile of the earnings distribution. The controls are as explained previously. Standard errors are clustered at the county level and are reported in parentheses. *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level.

Table A15: Alternative models of relative concerns: Heterogeneous effects for food at home

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable:	$\Delta \hat{FoodHome}$					
	OLS	OLS	OLS	OLS	OLS	OLS
$\overline{\hat{FoodHome}}^R$	0.042	0.032	0.026	-0.010	-0.014	0.047
	(0.059)	(0.049)	(0.052)	(0.066)	(0.063)	(0.055)
$\overline{\hat{FoodHome}}^R \times LowIneq$	-0.010					
	(0.067)					
$\overline{\hat{FoodHome}}^R \times LowDens$		-0.001				
		(0.074)				
$\overline{\hat{FoodHome}}^R \times Old$			0.014			
			(0.052)			
Old			-0.130			
			(0.426)			
$\overline{\hat{FoodHome}}^R \times Married$				0.083		
				(0.071)		
$Married$				-0.604		
				(0.573)		
$\overline{\hat{FoodHome}}^R \times LowEduc$					0.078	
					(0.062)	
$LowEduc$					-0.656	
					(0.509)	
$\overline{\hat{FoodHome}}^R \times MiddleInc$						-0.035
						(0.068)
$MiddleInc$						0.301
						(0.554)
Employment status indicators	Yes	Yes	Yes	Yes	Yes	Yes
Income controls	Yes	Yes	Yes	Yes	Yes	Yes
Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Business cycle indicator	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Household fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N observations	12,248	12,768	12,768	12,768	12,768	12,768
N households	2,760	2,884	2,884	2,884	2,884	2,884
N counties	47	50	50	50	50	50
R^2	0.13	0.13	0.13	0.13	0.13	0.13

Sample period: 1997-2008. ˆ denotes observed. $\hat{FoodHome}$ is the log of the household consumption of of food at home of households classified as non-rich (below the 80th percentile). $\overline{\hat{FoodHome}}^R$ is the average log consumption of food among households classified as rich (above the 80th percentile). $LowIneq$ and $LowDens$ are dummy variables indicating whether an observation is from a county classified as a low inequality or a low density area according to a median split of the sample along the values in 1997. These estimations do not directly control for the dummy variables because these variables do not vary within counties and we include county dummies. Old is a dummy variable indicating whether the head is aged above 42. $Married$ is a marital status dummy and $LowEduc$ takes a value of 1 if the educational attainment of the head is below A-Level. $MiddleInc$ is a dummy variable indicating whether the labour earnings of the main earner exceed the 50th percentile of the earnings distribution. The controls are as explained previously. Standard errors are clustered at the county level and are reported in parentheses. *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level.

Table A16: Alternative models of relative concerns: Heterogeneous effects for food away from home

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable:	$\Delta \hat{FoodAway}$					
	OLS	OLS	OLS	OLS	OLS	OLS
$\overline{\hat{FoodAway}}^R$	-0.017	0.140	0.137	0.130	0.126	0.066
	(0.049)	(0.075)*	(0.057)**	(0.056)**	(0.063)*	(0.057)
$\overline{\hat{FoodAway}}^R \times LowIneq$	0.196					
	(0.092)**					
$\overline{\hat{FoodAway}}^R \times LowDens$		-0.077				
		(0.093)				
$\overline{\hat{FoodAway}}^R \times Old$			-0.093			
			(0.070)			
Old			0.612			
			(0.477)			
$\overline{\hat{FoodAway}}^R \times Married$				-0.078		
				(0.063)		
$Married$				0.550		
				(0.444)		
$\overline{\hat{FoodAway}}^R \times LowEduc$					-0.057	
					(0.071)	
$LowEduc$					0.420	
					(0.532)	
$\overline{\hat{FoodAway}}^R \times MiddleInc$						0.056
						(0.068)
$MiddleInc$						-0.396
						(0.487)
Employment status indicators	Yes	Yes	Yes	Yes	Yes	Yes
Income controls	Yes	Yes	Yes	Yes	Yes	Yes
Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Business cycle indicator	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Household fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N observations	12,248	12,768	12,768	12,768	12,768	12,768
N households	2,760	2,884	2,884	2,884	2,884	2,884
N counties	47	50	50	50	50	50
R^2	0.15	0.14	0.14	0.14	0.14	0.14

Sample period: 1997-2008. ˆ denotes observed. $\hat{FoodAway}$ is the log of household consumption of of food away from home of households classified as non-rich (below the 80th percentile). $\overline{\hat{FoodAway}}^R$ is the average log consumption of food among households classified as rich (above the 80th percentile). $LowIneq$ and $LowDens$ are dummy variables indicating whether an observation is from a county classified as a low inequality or a low density area according to a median split of the sample along the values in 1997. These estimations do not directly control for the dummy variables because these variables do not vary within counties and we include county dummies. Old is a dummy variable indicating whether the head is aged above 42. $Married$ is a marital status dummy and $LowEduc$ takes a value of 1 if the educational attainment of the head is below A-Level. $MiddleInc$ is a dummy variable indicating whether the labour earnings of the main earner exceed the 50th percentile of the earnings distribution. The controls are as explained previously. Standard errors are clustered at the county level and are reported in parentheses. *, ** and *** denote significance at the 10 percent, 5 percent and 1 percent level.