INTERACTIONS IN LABOUR FORCE STATUS, AS REVEALED BY PROXY UTILITY DATA

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ABSTRACT

This paper contributes to what is at present a small literature: that testing for comparison effects in proxy utility data. I consider comparisons over unemployment status and show that, broadly, the pain (utility loss) from unemployment (relative to employment) is smaller the higher is the rate of unemployment in the reference group. Three measures of the latter are presented: region, household and partner. Panel data also reveals some evidence that those hurt more by unemployment are more likely to search for a new job, and are more likely to be back in employment one year later. Together, these results suggest a psychological model of unemployment hysteresis: a shock raising unemployment may lead to higher equilibrium unemployment by reducing the utility premium from work.

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Andrew E. Clark*

1. Introduction

Those who carry out research into social interactions constitute a broad church. The variety of different terms and concepts which appear in the literature bear witness to this: custom, norms, fads, fashions, rank, comparisons, status and reputation, to name just some. Although there are a diversity of views about the specific form that such interactions take, those involved in this research all agree that, broadly speaking, individual utility is affected by what other people do, and so, therefore, is all individual behaviour derived from utility maximisation.

As so much is at stake, it would seem essential to furnish empirical evidence that interactions matter. However, it seems that, relative to other empirical questions in microeconomics, little effort has been put into addressing this issue: the vast majority of the literature on interactions remains theoretical. We suspect that this is because there is no clear agreement on either what it is that needs to be measured in order to prove the existence of interdependencies, nor on how to measure it. This is likely a long-term problem, it being difficult to envisage a survey instrument which could be expected to provide accurate information about norms or reference groups.

This paper contributes to the empirical literature not by modelling outcomes, but by using proxy utility data to test directly whether utility depends on what happens to others. The proxy utility measure used is the GHQ-12, very widely applied in social science over the past twenty five years as a measure of psychological well-being. I also use a simple 4-level measure of happiness. The right-hand side variable over which comparisons are assumed to occur is unemployment (although many others can be imagined).

Simply put, the idea of comparisons (as found in the pioneering work of Duesenberry, 1949, Homans, 1961, and Runciman, 1966) implies that unemployment will be less harmful, psychologically, as the unemployment rate in the reference group rises. This is because one's own situation becomes less bad compared to that of others. The same implication comes directly from a model of social norms, such as Akerlof (1980), where the degree of adherence to the employment norm, one minus the unemployment rate, enters utility via a "reputation" effect[1]. With respect to unemployment, three reference groups are considered: those in the same region, household and couple. Variations in these unemployment rates across individuals and over time allow the identification of the social norm or interaction terms in the regression equations.

The paper uses 28 000 observations from five years of a recent British panel. Well-being is typically negatively correlated with all three measures of others' unemployment. However, this correlation depends critically on the individual's own labour force status: the well-being of the employed is **lower** when the unemployment rate of others is higher, while that of the unemployed is **higher** when the unemployment rate of others is higher. This holds for all three reference groups. The experience of unemployment therefore seems to be a function of what happens to others on the labour market, as models of comparisons or norms would imply.

This finding is of interest for those of us who worry about individual well-being. It also has macroeconomic implications. If unemployment hurts less the more there is of it around, there is a danger of slow adjustment, or even hysteresis, in the labour market. As work becomes relatively less attractive compared to unemployment, the effort put into trying to leave the latter will fall. Some small-scale regression results at the end of the paper (using panel data on search effort and search success) are consistent with this hypothesis.

The paper is organised as follows. Section 2 describes the data and presents bivariate results on well-being and own unemployment status. Section 3 considers the relationship between

individual well-being and the labour market status of others, and section 4 presents the panel results on the psychological impact of unemployment and subsequent labour market behaviour. Section 5 concludes.

2. Unhappiness and unemployment: crosstabulations

A standard result in the recent literature on well-being and labour force status is that the unemployed have significantly lower well-being than any other group in the labour force. Useful social psychology summaries include Argyle (1989), Burchell (1992) and Warr *et al*. (1988); recent work in economics has used large-scale single-country datasets (Clark and Oswald, 1994, Winkelmann and Winkelmann, 1998, Woittiez and Theeuwes, 1997, and Korpi, 1997) or multi-country data (Di Tella *et al*., 2001, and Blanchflower, 1996) to address the same question.

The current paper uses data from the first five waves of the British Household Panel Survey (BHPS), a general survey covering a random sample of approximately 10 000 individuals in 5 500 British households. This data set includes a wide range of information about individual and household demographics, health, labour force status (chosen by the individual from a showcard of 10 possible replies), employment and values. There is both entry into and exit from the panel, leading to unbalanced data. The BHPS is a household panel: all adults in the same household are interviewed separately. The wave 1 data were collected in late 1991 - early 1992, the wave 2 data were collected in late 1992 - early 1993, and so on.

The analysis will refer to individuals of working age (16 to 65) who are active in the labour force[2]. This produces 28 291 observations in total, falling from 6199 in wave 1 to 5344 in wave 5. The data include 8512 different individuals, 3336 of whom are present over all five waves. The data includes 2455 observations on unemployed individuals, giving an average unemployment rate over the five waves of 8.7%.

The proxy utility measure used in this paper is the GHQ-12 measure of mental well-being (see Goldberg, 1972). This is constructed from the responses to twelve questions (in a self-completion questionnaire) covering feelings of strain, depression, inability to cope, anxiety-based insomnia, and lack of confidence, amongst others (see the Appendix). Responses are made on a four-point scale of frequency of a feeling in relation to a person's usual state: "*Not at all*", "*No more than usual*", "*Rather more than usual*", and "*Much more than usual*" [3]. The GHQ has been very widely used in medical, psychological and sociological research, and is considered to be a robust indicator of the individual's psychological state.

This paper uses the Caseness GHQ score, which counts the number of questions for which the individual answers in one of the two "low well-being" response categories. This count is then reversed, higher scores indicating higher levels of well-being, running from 0 (all twelve responses indicating poor psychological health) to 12 (no responses indicating poor psychological health). The distribution of this (reversed Caseness) well-being index in the BHPS sample is shown below.

Table 1. Distribution of Well-Being in the BHPS

Well-being Score	*Number of Observations*	*Cumulative Percentage*
0	246	0.9
1	262	1.8
2	330	3.0
3	376	4.4
4	499	6.2
5	575	8.2
6	776	11.0
7	956	14.4
8	1219	18.8
9	1640	24.7
10	2428	33.4
11	4125	48.2
12	14420	100.00
Total	**27852**	**100.00**

The median and mode of the distribution is 12: no responses indicating poor psychological health. However, there is a relatively long tail. A second, simpler, measure is the happiness score

contained in the GHQ (see Appendix). This is on a one to four scale.

An obvious first step is to calculate average well-being and happiness, as defined above, by current labour force status. These, together with the percentage reporting "low well-being" (a GHQ score of less than 10), are presented in the table below.

Table 2. Labour Force Status and Well-Being: Crosstabs

Current Labour Force Status	*Average well-being (0-12)*	*% with low well-being*	*Average happiness (1-4)*	*% with happiness same or greater than usual*
In Paid Employment				
Mean	10.34	23.5	3.01	87.3
Standard error	0.018	0.284	0.004	0.222
N	*22244*	*22244*	*22352*	*22352*
Unemployed				
Mean	9.27	37.5	2.88	77.3
Standard error	0.069	0.989	0.014	0.853
N	*2398*	*2398*	*2413*	*2413*
Self Employed				
Mean	10.32	23.4	3.00	87.4
Standard error	0.047	0.747	0.010	0.584
N	*3210*	*3210*	*3225*	*3225*
Total	**10.25**	**24.7**	**2.99**	**86.5**

The unemployed have the lowest well-being scores. The distribution of both GHQ and happiness is very tight, as shown by the small standard errors: in the multivariate analysis below, the coefficients on "unemployed" consequently attract very large t-statistics. The question of inverse causality can be treated using the panel aspect of the data: transition matrices correlating the changes in well-being with changes in labour force status show sharp falls in well-being upon entering unemployment.

3. The role of other's unemployment

The main innovation in this paper is to ask whether this psychological impact of unemployment depends on what is happening to relevant others in the labour market. I therefore estimate an equation of the form:

$$W_i = \alpha + \beta_1 ue_i + \beta_2 ue^*_i + \beta_3 (ue_i \bullet ue^*_i) + \underline{\gamma}' \underline{X} + \epsilon_i \quad (1)$$

where *W* is a well-being index, ue_i is a dummy for *i*'s unemployment, and ue^*_i is a measure of others' unemployment. The unemployment of relevant others is allowed to have both a main effect, through β_2, and an interaction with individual *i*'s own unemployment, through β_3. I expect to find that $\beta_3 > 0$: my own unemployment hurts less when the unemployment of relevant others is higher, due to comparison or norm effects.

There is no sure way of knowing who is "relevant". I therefore imagine three different kinds of comparison (and so three different definitions of ue^*_i): the regional unemployment rate; the unemployment status of the individual's partner; and the unemployment rate amongst all other adults living in the same household as the respondent[4]. It should be stressed that the aim here is not to see which definition of the reference group is best. In the absence of any firm idea of who the relevant others are, my goal is rather to show that three plausible definitions of the reference group produce results consistent with the hypothesis of norms in labour force status.

3.1 Regional unemployment

I first consider comparisons to others in the same region. Great Britain contains eleven standard regions. With five waves of the BHPS I match in the regional unemployment rate (ILO definition) from the Labour Force Survey. The average GHQ score of the employed and the unemployed is calculated by region and by year: the difference between these two GHQ scores, a summary measure of the psychological pain of unemployment, is then plotted against the

regional unemployment rate in Figure 1[5].

This figure neatly summarises one of the main points of this paper: the pain of unemployment is lower in high unemployment regions. Some simple OLS robust regression results are given after the Figure. Without other controls, the estimated coefficient on the regional unemployment rate is negative with a t-statistic of 4.1. Including controls for region and wave, turns the coefficient marginally significant (t=1.7). The last three columns report results using information on regional unemployment by sex (which has the advantage of doubling the sample size from 55 to 110). In all three specifications, the coefficient on regional unemployment is negative with a t-statistic of over 3.

It is obviously important to carry out multivariate analysis. This is done in Table 3 for the regional unemployment rate, using ordered probit regressions, as the GHQ score is ordinal, not cardinal. The first and third columns report GHQ and happiness regression results including a main effect of ue^*_i and controls for labour market status, sex, education, health and marital status, as well as age, age-squared, yearly income[6], number of children, year of interview and region. The results show that own unemployment is very strongly negatively correlated with individual well-being, even controlling for income (the omitted labour force status category is "employed"[7]). The main effect of ue^*_i is insignificant. Men have, on average, higher levels of well-being than women[8], and that there is a pronounced U-shape in age minimising at age 36 for the GHQ (see Clark *et al.*, 1996) and 46 for happiness. Self-reported well-being is lower for those with higher levels of education[9], which could result from a comparison effect, where education raises expectations (see Clark and Oswald, 1996, and Falk and Knell, 2000), or from the endogeneity of education, being chosen by people who are "naturally" more difficult to please.

Columns 2 and 4 add the interaction between ue^*_i and ue_i: this interaction coefficient is strongly positive, whereas the main effect remains insignificant. These results are consistent with

the numbers in Figure 1: the well-being deficit between employment and unemployment is lower in high unemployment regions[10]. They are also consistent with findings in the medical literature, whereby suicides by the unemployed tend to be lower in high unemployment regions (see Platt and Kreitman, 1990, and Platt *et al*., 1992)[11].

There is no regional variation in unemployment benefits in Great Britain (and, in any case, income is controlled for in these regressions). Labour market policies may lead to regional differences in the attractiveness of unemployment, but if these differences are fixed over time they will be absorbed by the region dummies.

3.2 Partner's unemployment

Comparisons may take place at a more geographically-restricted level than the region: a limiting case is the household. The BHPS data, where all adults in a household are interviewed separately, allows formal tests of such interdependencies to be carried out (Clark, 1996, estimates the relationship between individual job satisfaction and partner's wage). The first panel of Table 4 looks at the impact of partner's unemployment or inactivity on the respondent's well-being. Around two-thirds of Table 3's sample have usable information on partner's labour force status. One important caveat here is the small number of observations, 110, on unemployed respondents with an unemployed partner, which will reduce the accuracy of the relevant estimated coefficient. Only the estimates on the relevant labour force variables are presented here; the other control variables are listed at the foot of the table.

Columns 1 and 3 include , for GHQ and happiness respectively, dummies for "partner unemployed" and "partner not in the labour force". Partner's unemployment is negatively significantly correlated with respondent's well-being, whereas partner's labour force inactivity has no significant effect. Columns 2 and 4 then introduce the interactions between respondent's

and partner's labour force status. There is a sharp distinction in the effect of partner's unemployment or inactivity on a respondent's well-being according to the respondent's own labour force situation. The effect of partner's unemployment or inactivity is negative for working respondents. However, the interaction estimates for the unemployed are positive and significant, showing that the effect of partner's unemployment or inactivity is much less negative for the unemployed. The raw sum of "partner unemployed" and "partner unemployed and respondent unemployed" is positive (-0.152+0.278 > 0; -0.163+0.282 > 0), although the hypothesis that partner's unemployment decreases the well-being of the unemployed is not rejected. With respect to inactivity, we can reject the hypothesis that both -0.050+0.335 < 0 and 0.014+0.163 < 0 at the one per cent level: partner's inactivity significantly reduces the well-being of the employed but significantly raises the well-being of the unemployed. The conclusion is that unemployment always reduces well-being, but much less so when one's partner isn't working.

3.3 Household unemployment

The second panel of Table 4 presents the last type of reference group: all other individuals active in the labour force within the same household. Using the household aspect of the BHPS, we calculate the "others' household unemployment rate" (the unemployment rate of all adults of working age in the household, excluding the respondent). Those living on their own, or for whom the relevant household information is missing, (about thirty percent of Table 3's sample) are hence omitted from this analysis.

The first and third columns add the household unemployment rate to the "standard" GHQ equation: the estimated coefficients show that well-being is reduced by others' unemployment in the same household. The second and fourth columns add the household interaction term. The results are very significant: the correlation between individual well-being and the household

unemployment rate is **negative** if the respondent is employed (the -0.163 and -0.116 coefficients), but **positive** if the respondent is unemployed (-0.163+0.353 > 0 and -0.116+0.278 > 0, statistically). The well-being of the unemployed thus rises when another household member becomes unemployed. It is worth repeating that unemployment always reduces well-being, even when the household unemployment rate is 100% (the hypotheses that -0.555 - 0.163 + 0.353=0 and -0.401-0.116+0.278=0 are both rejected by the data at better than the 0.1% level).

3.4 Checking the results

Tables 3 and 4 have shown some evidence consistent with comparison effects (regarding labour force status) in the utility function. A key question is whether these results are robust. First, the regional unemployment rate in Table 3 is aggregated at a higher level than the dependent GHQ variable, which leads to underestimates of the associated standard errors (Moulton, 1986). However, Table 3's results are unchanged if errors are allowed to be correlated within region and year. Also, as shown in Figure 1, estimation of GHQ equations at the regional level reveals significant estimates on the regional unemployment rate. With respect to Table 4, the results with respect to partner/household unemployment are unchanged if partner/household income and GHQ are added as explanatory variables.

Perhaps more importantly, the above regressions have used the household, but not the panel, aspect of the BHPS. Unfortunately, no standard procedure exists for the analysis of ordinal data with fixed effects (although see Clark and van Soest, 2000). The thirteen point GHQ score is thus collapsed into a (1,0) dummy (in this case, 0-11=0, 12=1: this splits the sample roughly 50:50) and re-estimated using panel logit techniques. One can also wave one's hands in the air and pretend that GHQ is really cardinal, and thus amenable to standard OLS panel techniques. Both methods require that the individual be observed more than once, and that their reference

group unemployment rate change at least once. The results (see Clark, 1999*b*) show that, especially for men[12], regional and household unemployment continue to be positively correlated with the well-being of the unemployed, even controlling for unobserved individual heterogeneity. The results with respect to partner's unemployment are correctly signed but weaker: this is likely partly due to the very small number of observations available (41) on the own unemployment-partner unemployment interaction in panel data.

4. Behaviour

Some economists care about the structure of individual well-being functions. Others don't, and need to be convinced that the above results are of some practical significance. To assuage this latter group, this last section relates the GHQ impact of unemployment to individual labour market behaviour, using panel data. The general idea tested here is that the unemployed's search behaviour will depend on the utility gain from employment, which falls with the unemployment of relevant others.

The change in GHQ is calculated for individuals who are employed at wave *t* and then unemployed at wave *t+1*. This GHQ change is recoded into four dummy variables as follows: -12 to -3; -2 to -1; 0; and positive (the omitted category). Qualitatively similar results are obtained using the simple change in GHQ as a cardinal explanatory variable. The change in GHQ upon entering unemployment is related to two dependent labour market variables.

The first is search activity by the unemployed at wave *t+1*, here a dummy variable for "searched for work in the past week". The second is labour force status at wave *t+2* (employed vs. unemployed). Even with a large panel dataset, the sample size for these regressions is small: 450 for the first and under 300 for the second. The results, which should therefore be thought of as suggestive, are summarised in Table 5. For both dependent variables, the first column uses

only the GHQ gap dummies as explanatory variables, whereas the second adds a full set of additional controls (with the proviso that these controls are significant at the five per cent level). The coefficients reported are marginal effects.

Table 5 shows that those who were the most hurt by losing their job were more likely to search for a new job[13], and were more likely to be back in employment one year later[14]. Both of these results are robust to the inclusion of a variable measuring the change in income between employment and unemployment. Both of these behavioural correlations can be shown to be stronger for men than for women (Clark, 1999*b*). The results are not beyond reproach, and are based on only quite small sample sizes. Nonetheless, they do indicate that the psychological impact of unemployment has behavioural implications.

5. Conclusion

Economists seem particularly wed to utility functions that depend on absolute values of their arguments only, despite the incredulity that this provokes in other social sciences. This paper has tested the idea of interdependencies in labour market status, particularly unemployment, using proxy utility panel data. Three comparison groups were considered: the region, the household and the partner. Higher unemployment amongst these others was shown to reduce well-being for those in employment, but tends to increase the well-being of the unemployed: unemployment always hurts, but it hurts less when there are more unemployed people around.

An important implication concerns hysteresis. A smaller utility return from employment, compared to unemployment, provides a reduced incentive to find work. The last part of this paper used panel analysis to show that those who were hurt less by unemployment were less likely to look for a new job and, one wave into the future, were more likely to remain unemployed.

The most general conclusion of this paper is that individual well-being measures seem to be a useful complement to the standard toolkit used to analyse the labour market. As such, it would seem to make sense to pay more attention to other social science disciplines, where serious research into these variables has been going on for at least thirty years.

Footnotes

* I am grateful to a great number of people for discussions about the ideas described in this paper. I reserve special thanks for my discussant at the ADRES Conference on Social Interactions and Economic Behavior, Stéphane Grégoire, who cast a stern eye over my empirical analysis. The comments of two anonymous referees were also extremely useful. The BHPS data were made available through the ESRC Data Archive. The data were originally collected by the ESRC Research Centre on Micro-social Change at the University of Essex. Neither the original collectors of the data nor the Archive bear any responsibility for the analyses or interpretations presented here.

1. Akerlof (1980) is a model of choice of whether to follow the norm. Here I make no *a priori* statement about whether unemployment is voluntary. The analogy between this paper and Akerlof's is that a change in the norm will have an effect on individual utility.

2. All key results can be reproduced on the sample including inactive individuals.

3. It might be thought that the reference to a "usual state" renders the responses problematic, with "usual" being defined as whatever the person is doing at the time of the interview. However, the empirical literature on GHQ scores treat them unambiguously as indicators of the level of well-being, and it was for this purpose that the instrument was designed. In the BHPS data, GHQ for the employed is far more strongly correlated with the level of job satisfaction than with changes in job satisfaction.

4. Yet another type of reference group is yourself in the past. Clark (1999*a*) shows that current job satisfaction is positively correlated with current wages, but negatively correlated with past wages. Clark *et al.* (2001) use eleven waves of the GSOEP to show that past unemployment is negatively (positively) correlated with the current life satisfaction of the employed (unemployed), as equation (1) would imply.

5. This figure thus assumes (for didactic purposes) cardinality of the GHQ scale. The same results are found if the percentage with high GHQ is used, which respects ordinality.

6. All income variables are expressed in real terms, using the private consumption deflator. The use of yearly income helps to smooth out any effects of unusually high income receipt in any one month. Alternatively, the use of monthly income avoids the contagion effect of someone who is unemployed now, but who was previously employed at a high wage, and is thus unhappy (although this eventuality is not allowed by the standard utility function, where comparisons do not figure). Empirically, both income measures produce very similar results.

7. Income is insignificant in this regression. This is not unusual in well-being analysis: see Easterlin (1974) and, more recently, Diener *et al*. (1999), Di Tella *et al*. (2001) and Konow and Earley (1999). As Easterlin suggests, this might be because it is mostly relative income, not absolute income, which matters. See Clark and Oswald (1996) for a test using the BHPS data. Tests with a wide variety of non-linear specifications failed to find any significant effects.

8. Clark (1997) discusses the general finding that, on the other hand, women report higher levels of job satisfaction than do men.

9. This education result is not unusual in the empirical literature: see Warr (1992), Shields and Wailoo (1999), and Woittiez and Theeuwes (1997). Hagenaars (1986, chapter 10) shows that, in a multi-country study, those with a higher level of education need higher levels of income to attain certain verbal levels of well-being (such as "excellent" or "good"). More generally, literature reviews, such as Diener *et al*. (1999), conclude that education has only small positive or insignificant effects on well-being.

10. Alternatively, it is commonly found that retirement is not associated with any significant change in happiness. As worklessness is the norm for their reference group, in this sense retirees are like the co-unemployed. Table 3's estimates imply that (taking the main effect of regional unemployment to be statistically zero) employment and unemployment have equal well-being effects at a regional unemployment rate of around 15%.

11. One argument is that, as unemployment rises, relatively happier people are moving into unemployment, raising the average well-being of the unemployed (which can only be true if the employed's average well-being is less affected by this transition than is the unemployed's average well-being). In this data, there is no relationship between the initial GHQ score of those moving into unemployment and the regional unemployment rate. In addition, transition matrices shows that the fall in GHQ for those moving into unemployment is very similar to the average GHQ difference between the employed and the unemployed.

12. All of the comparison results in this paper are stronger for men than for women.

13. One interpretation is that looking for work is inherently unpleasant, so the GHQ scores of those currently searching are lower. As a test, job search by the unemployed at $t+2$ was regressed on their change in GHQ upon becoming unemployed between t and $t+1$. Despite the small number of observations, significant correlations were still found: those hurt the most by unemployment were more likely to search for a new job.

14. Alternatively, those who know that they will soon find another job may be less unhappy about their unemployment. However, this implies a positive correlation between the effect of unemployment and the latter's duration (those who unemployment hurts least leave soonest), the opposite of that found in Table 5.

Appendix

The twelve questions used to create the GHQ-12 measure appear in the BHPS questionnaire as follows:

1. Here are some questions regarding the way you have been feeling over the last few weeks. For each question please ring the number next to the answer that best suits the way you have felt.

Have you recently....

a) been able to concentrate on whatever you're doing ?

Better than usual 1
Same as usual 2
Less than usual 3
Much less than usual 4

then

b) lost much sleep over worry ?
e) felt constantly under strain ?
f) felt you couldn't overcome your difficulties ?
i) been feeling unhappy or depressed ?
j) been losing confidence in yourself ?
k) been thinking of yourself as a worthless person ?

with the responses:

Not at all 1
No more than usual 2
Rather more than usual 3
Much more than usual 4

then

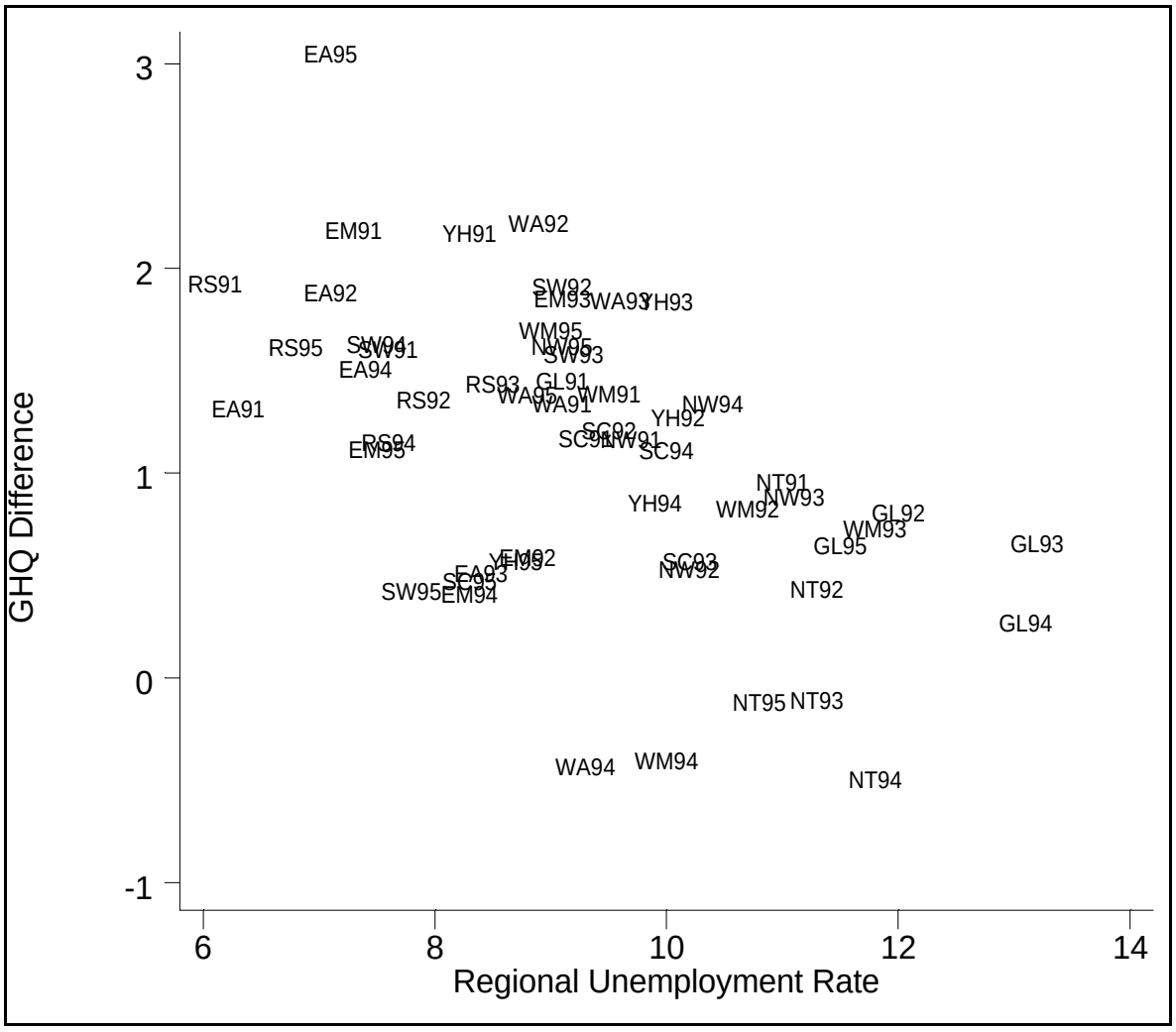
c) felt that you were playing a useful part in things ?
d) felt capable of making decisions about things ?
g) been able to enjoy your normal day-to-day activities ?
h) been able to face up to problems ?
l) been feeling reasonably happy, all things considered ?

with the responses:

More so than usual 1
About same as usual 2
Less so than usual 3
Much less than usual 4

Figure 1. The Difference in Well-Being between those in Work and the Unemployed (GHQ_E-GHQ_U) and Regional Unemployment Rates

BHPS Waves One to Five (Eleven Regions)



Note. GL = Greater London, RS = Rest of the South East, SW = South West, EA = East Anglia, EM = East Midlands, WM = West Midlands, NW = North West, YH = Yorkshire and Humberside, NT = North, WA = Wales, SC = Scotland.

OLS Regressions: Regional Level Data

	Regional unemployment rate (55 obs.)		*Regional unemployment rate by sex (110 obs.)*		
Regional Unemployment Rate	-0.218	-0.284	-0.122	-0.115	-0.306
	(0.053)	(0.166)	(0.030)	(0.037)	(0.077)
Male					0.929
					(0.313)
Regional dummies		Yes		Yes	Yes
Wave dummies		Yes		Yes	Yes
Constant	3.144	3.710	2.314	2.526	3.305
	(0.504)	(1.127)	(0.287)	(0.374)	(0.453)

TABLE 3. WELL-BEING, OWN UNEMPLOYMENT AND REGIONAL UNEMPLOYMENT: ORDERED PROBIT REGRESSIONS. BHPS WAVES 1 TO 5 POOLED

	GHQ-12 (0-12)		***Happiness (1-4)***	
Self-employed	-0.077	-0.078	-0.016	-0.016
	(.022)	(.022)	(.023)	(.023)
Unemployed	-0.451	-1.253	-0.293	-0.769
	(.025)	(.135)	(.026)	(.146)
Regional unemployment rate	-0.016	-0.024	-0.018	-0.022
	(.014)	(.014)	(.015)	(.015)
Regional unemployment rate *x* Respondent unemployed		0.084		0.050
		(.014)		(.015)
Yearly Income (£0000)	-0.011	-0.010	-0.012	-0.011
	(.007)	(.007)	(.008)	(.008)
Male	0.220	0.218	0.084	0.083
	(.015)	(.015)	(.015)	(.015)
Age	-0.036	-0.037	-0.056	-0.056
	(.004)	(.005)	(.005)	(.005)
Age-squared/1000	0.495	0.499	0.605	0.607
	(.056)	(.056)	(.058)	(.058)
Education: High	-0.183	-0.183	-0.022	-0.022
	(.019)	(.019)	(.019)	(.019)
Education: A/O/Nursing	-0.072	-0.072	-0.042	-0.041
	(.017)	(.017)	(.018)	(.018)
Health: Excellent	0.700	0.701	0.422	0.423
	(.020)	(.020)	(.021)	(.021)
Health: Good	0.467	0.469	0.268	0.269
	(.017)	(.017)	(.019)	(.019)
Married	0.027	0.027	0.065	0.064
	(.022)	(.022)	(.023)	(.023)
Separated	-0.305	-0.309	0.028	0.026
	(.048)	(.048)	(.051)	(.051)
Divorced	-0.064	-0.066	0.140	0.138
	(.031)	(.031)	(.033)	(.033)
Widowed	-0.150	-0.154	-0.062	-0.064
	(.063)	(.063)	(.067)	(.067)
One Child	-0.048	-0.048	-0.031	-0.031
	(.021)	(.021)	(.022)	(.022)
Two Children	0.028	0.028	-0.025	-0.025
	(.022)	(.022)	(.023)	(.023)
Three+ Children	0.032	0.029	-0.028	-0.030
	(.032)	(.032)	(.034)	(.034)
Wave 2	-0.051	-0.051	-0.012	-0.012
	(.025)	(.025)	(.027)	(.027)
Wave 3	-0.012	-0.013	0.053	0.052
	(.031)	(.031)	(.033)	(.033)
Wave 4	-0.019	-0.020	0.039	0.039
	(.025)	(.025)	(.026)	(.026)

Wave 5		-0.044	-0.011	
	(.021)	(.021)		(.022)
Regional Dummies		Yes	Yes	
Mu(1)	-2.783		-3.166	-3.211
	(.130)	(.130)		(.136)
Mu(2)		-2.562	-2.103	
	(.129)		(.134)	(.135)
	-2.257	-2.337		0.056
		(.129)		(.134)
	-2.077			
		(.129)		
	-1.899			
	(.128)			
Mu(6)	-1.737			
	(.128)			
Mu(7)	-1.563			
	(.128)			
Mu(8)	-1.389			
	(.127)			
Mu(9)	-1.202			
	(.127)			
Mu(10)	-0.989			
	(.127)			
Mu(11)	-0.719			
	(.127)			
Mu(12)	-0.315			
	(.127)	(.128)		
	27717	27717		27855
Log Likelihood		-46072.2	-22930.7	
Log Likelihood at Zero	-47239.3		-23383.8	-23383.8

____: Standard errors in parentheses.

TABLE 4. WELL-BEING AND PARTNER/HOUSEHOLD UNEMPLOYMENT: BHPS WAVES 1 TO 5 POOLED

	GHQ-12 (0-12)		***Happiness (1-4)***	
Self-employed	-0.094	-0.092	-0.025	-0.025
	(.025)	(.025)	(.027)	(.027)
Unemployed	-0.473	-0.636	-0.288	-0.382
	(.035)	(.049)	(.038)	(.054)
Partner Unemployed	-0.124	-0.152	-0.125	-0.163
	(.046)	(.050)	(.049)	(.054)
Partner NLF	-0.015	-0.050	0.028	0.014
	(.024)	(.025)	(.025)	(.026)
Partner Unemployed and		0.278		0.282
Respondent Unemployed		(.123)		(.134)
Partner NLF and		0.335		0.163
Respondent Unemployed		(.072)		(.078)
Self-employed	-0.080	-0.082	-0.008	-0.010
	(.026)	(.026)	(.028)	(.028)
Unemployed	-0.490	-0.555	-0.349	-0.401
	(.032)	(.036)	(.035)	(.039)
Others' household unemployment	-0.090	-0.163	-0.061	-0.116
rate	(.035)	(.039)	(.037)	(.042)
Others' household unemployment		0.353		0.278
rate *x* Respondent unemployed		(.086)		(.093)

Notes: Other control variables: Yearly income, age, age-squared, education, health, marital status, number of children, wave, and region. Standard errors in parentheses.

TABLE 5. LABOUR MARKET BEHAVIOUR AND THE FALL IN WELL-BEING FROM BECOMING UNEMPLOYED

	Job Search in past week Probit		*Remain Unemployed Probit*	
GHQ fell > 2 points	0.105	0.125	-0.196	-0.240
	(.058)	(.059)	(.071)	(.070)
GHQ fell <= 2 points	0.074	0.076	-0.066	-0.089
	(.063)	(.064)	(.083)	(.082)
GHQ unchanged	0.056	0.040	-0.002	-0.045
	(.059)	(.062)	(.077)	(.079)
Regional unemployment rate				0.026
				(.017)
Male		0.144		0.117
		(.049)		(.062)
Age		-0.004		
		(.002)		
Education: High		0.038		-0.191
		(.056)		(.067)
Education: A/O/Nursing		0.158		-0.160
		(.050)		(.067)
Health: Excellent		0.117		
		(.059)		
Health: Good		0.053		
		(.055)		
N	458	455	285	284
Log Likelihood	-293.5	-275.7	-182.5	-175.3
Log Likelihood at zero	-295.1	-292.5	-187.0	-186.6

Notes: Estimates shown are marginal effects; Standard errors in parentheses.

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