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ARE THERE GEOGRAPHICAL VARIATIONS IN THE PSYCHOLOGICAL COST OF UNEMPLOYMENT IN SOUTH AFRICA?

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ABSTRACT. Are certain groups of unemployed individuals hurt less by unemployment than others? This paper is an attempt to test the hypothesis that non-pecuniary costs of unemployment may vary between societies with different unemployment rates. Using cross-sectional data from the SALDRU93 survey, I show that households' perceptions of life satisfaction are inversely related to household unemployment for South Africa as to be expected in richer countries. Reported well-being levels are shown to be associated negatively with others' unemployment at the geographical cluster level for the employed. However, unemployment appears to hurt less for the household if unemployment rates in the local labour market are high.

KEYWORDS: quality of life, unemployment, social norm, South Africa

1. INTRODUCTION

Recent research on the link between unemployment and measures of subjective well-being has generated some growing interest from economists and social scientists alike. A common result of studies on the psychological effects of joblessness on individuals in advanced western economies (Fryer and Payne, 1986; War et al., 1988; Clark and Oswald, 1994; Darity and Goldsmith, 1996; Theodossiou, 1998; Winkelmann and Winkelmann, 1998; Frey and Stutzer, 2000; Di Tella et al., 2003; Blanchflower and Oswald, 2004) is that unemployment is significantly correlated with lower levels of reported well-being, even when controlling for the effects of income. Similar results are also obtained for transitional economies (Namazie and Sanfey, 2001 for Kyrgzstan; Lelkes, 2002 for Hungary) and other less-developed countries (Graham and Pettinato, 2001 for Latin Americas, and Kingdon and Knight, 2003, 2004 for South Africa).

However, less attention has been paid to the question of whether certain groups of individuals are hurt less by unemployment than others. One of the potential concerns is on the extent to which people suffer from their own unemployment when a large proportion of other people living in the region are also out of work. The current proposition suggested in the literature of economic psychology is that stigma of joblessness is abated when there is more of it around, partly because social disapproval of the unemployed will be less prevalent if unemployment hits many other people at the same time. Early evidence of positive externality from others' unemployment on the psychological well-being of the unemployed comes from the medical literature's findings of better mental health (Jackson and Warr, 1987) and fewer suicide attempts (Platt and Kreitman, 1990; Platt et al., 1992) by the unemployed in high unemployment regions. Clark (2003) tested the idea of unemployment as a norm on the reported mental well-being of the unemployed across different parts of the UK, using a rich panel data from the British Household Panel Survey (BHPS). Through a multivariate analysis, he is able to show that others' unemployment at the cluster level, as well as partner and household levels, is significantly and positively correlated with the well-being of the unemployed. Given the importance of behavior models, where individual's behavior is typically derived from utility maximisation, to economists, the varying incidence of unemployment across different regions can have important psychological implications for regional labour market hysteresis. This is because, as is also the case for the unemployed individuals in the UK, a smaller well-being gap between the employed and the unemployed (when unemployment rate for other people in the area is higher) may provide a reduced incentive for the unemployed to find work. According to Clark's final results, those who were hurt less by unemployment were also less likely to look for a new job, and one wave into the future, were more likely to remain unemployed.[1]

In this paper I follow Clark's studies on the unemployed's well-being in the UK and explore a similar question to a different data set. The main motivation of this study is to investigate possible geographical variations in the "psychological cost" of unemployment at the household level in South Africa, using a cross-sectional data set from the South African Labour and Development Research Unit (SALDRU) of 1993.[2] I find strong evidence of positive externality from others' unemployment on the overall well-being of the unemployed household. I find that (i) measures of household unemployment are negatively correlated with the perceptions of subjective household welfare, (ii) the well-being of the employed household is often lower when the unemployment rate of others in the geographical cluster is

high,[3] and (iii) household unemployment hurts less when there is a large proportion of other people who are also out of work in the cluster is not rejected by the data. Nevertheless, a closer examination reveals the correlation between measures of unemployment at the household level and subjective household welfare to be significant only for the urban black sample, indicating that people of different race and regional settings may interpret the term 'employment' differently in South Africa (i.e. individuals in the rural setting may not have a different view between working in their own land and being employed full-time in the formal sector).

This paper is structured as follows. Section 'Data and measure of subjective well-being' describes the data and how subjective well-being is measured in South Africa. Section 'The correlation between measures of unemployment and the perceived quality of life' looks at the contemporaneous relationship between own unemployment status and reported well-being. Section 'The role of others' unemployment at the geographical level' presents the main empirical results on the role of others' unemployment in the regression, and examines other related issues, and Section 'Concluding remarks' concludes.

2. DATA AND MEASURE OF SUBJECTIVE WELL-BEING

This paper uses data from the national survey of South Africa, carried out jointly by the World Bank and the SALDRU in Cape Town, with approximately 8800 randomly selected households, from as many as 360 cluster areas, taking place in the survey. The data is of a cross-sectional nature, collected during the last 5 months of 1993 – just shortly before the election that made Nelson Mandela the South African president in 1994, and contains sets of information on household composition and personal socio-demographic status.

As part of the project, one representative from each household was asked to evaluate the overall well-being at the household-level. The Perceived Quality of Life (PQOL) question was *Taking everything into account, how satisfied is this household with the way it lives these days?* (Section 9, Question 1). The ordinal answers, ranking from being very satisfied (5) to very dissatisfied (1) with life, are used as proxy utility data in my analysis.

To consider the case for happiness regression equations, previous studies using the same set of proxy well-being data are examined in this section. Through general observation analyses, Klasen (1997) and Moller (1998) found unequivocal links between poor living conditions and low PQOL scores. A more formal investigation carried out by Kingdon and Knight

(2004) confirms some of the relationships between household's well-being levels and the aggregated household-level data found in previous literature. For instance, they find household unemployment levels to be negatively correlated with the reported well-being at the household-level, after controlling for income and other socio-demographic variables. Important for the discussion here, however, is that previous studies on the PQOL data have consistently suggested the structure of the well-being responses to be similar in South Africa as in the more advanced industrial economies.[4]

Table I displays the distribution of PQOL responses of the current sample. There is a high response rate to the PQOL question, yielding a total number of 8724 households, 3202 of which had at least one person of working-age (16–65) unemployed at the time of the interview. Further calculations suggest an average unemployment rate (measured as the ratio of all unemployed persons to the sample of working-age individuals) of around 17%. Taking unemployment rate by community cluster, and allowing it to vary across individuals, gives an average cluster unemployment rate of 18.7%, with a maximum rate of 53% for a single cluster.

3. THE CORRELATION BETWEEN MEASURES OF UNEMPLOYMENT AND THE PQOL

I begin my analysis for South Africa in the same vein as that of other scholars by asking whether the unemployed people are on average significantly less dissatisfied with life than the employed with regular wages. Unemployment is defined here as working-age individuals who are active in the labour market, but are not employed in either the formal or informal sector. Note also that as I am dealing with a slightly different measure of

TABLE I

The distribution of PQOL responses in South Africa (1993)

PQOL	Observations	Percentage (%)	Cumulation (%)
Very dissatisfied	2049	23.49	23.49
Dissatisfied	2882	33.04	56.52
Neither	815	9.34	65.86
Satisfied	2312	26.50	92.37
Very satisfied	666	7.63	100.00
Total	8724	100.00	

Source: SALDRU, 1993.

subjective welfare (one that measures well-being at the household level) my analysis will be on the correlations between the reported well-being and household unemployment rate only, and not on the welfare impacts of unemployment at the individual level.

To provide some information about the correlations in the raw data, Figure 1 summarises the relationship between PQOL and the proportion of unemployed members in the household. In consonance with other happiness studies, people living in households with higher proportion of unemployed members tended to report a lower well-being score compared to those living in households with lower unemployment rates. Further checks – though not reported here – show that I can reject the null hypothesis that the means of PQOL between households with at least one unemployed member and households with no unemployed members are equal at the 1% level.

I consider the well-being function of the following form

$$(1) \qquad W_b = W(U_{e_b}, \ldots)$$

where W_b is the well-being index at the household level of some description, and U_{e_b} is the number of unemployed members as a proportion of working-

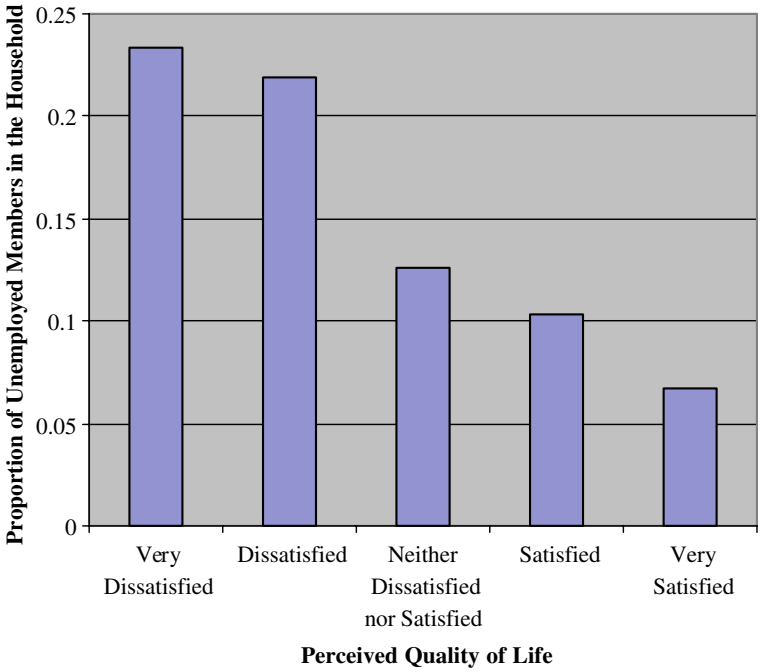

Fig. 1. Comparison of household unemployment and PQOL for South Africa, 1993.

age individuals in the household. I assume that, holding everything else constant, a higher proportion of unemployed members is associated with lower levels of PQOL, via their effect on expected future household income, or through the effect of unemployment on the overall self-esteem for all household members. The well-being index at the household level, W_b is thought to be captured by responses to the question on quality of life, PQOL, on a scale of 1–5. As PQOL score is measured ordinally, not cardinally, the ordered probit model is used to estimate the empirical counterpart to the well-being equation (1). To correct the correlated errors, I include in the estimation cluster controls at the community level to capture any grouping effects present in the data set (Moulton, 1990).

Table II reports the results of happiness regressions using the SALDRU data. Panel A presents a simple specification that includes only the proportions of household members who fall within each of the labour force category, with the omitted group being the proportion of those members in regular wage employment. Household unemployment rate enters the well-being equation with a negative and significant coefficient, with a z-statistic of −11.

Without additional controls, people living in households with higher proportions of informal workers (the self-employed and casual wage employment) or non-participants in the labour market (housewives, students, the disabled, and the retired) tended to report lower well-being compared to those living in households with higher proportions of employed with regular wages member.

Panel B controls for a number of household characteristics and socio-demographic status of householders, adding log of household expenditure per capita, household race, homeowner status, location (rural/urban/metropolitan) and internal wealth comparison,[5] as well as mean variables for age and gender, marital status, education, and health variable. I also include a vector of geographical variables, adding relative expenditure variable – defined as the ratio of household monthly expenditure per capita over the average household monthly expenditure per capita in the cluster, cluster food price, crime and unemployment rate at the community level, as well as control variables for the language spoken at home, and the relationship of the PQOL respondent to the head of the household. With this broad specification, the estimated coefficient on household unemployment rate continues to be negative and well-defined. Regarding other non-unemployment variables, only the coefficients on employment with casual wages and student category have remained negative and significant at the 1% level.

TABLE II

Well-being regressions and household unemployment for South Africa, 1993 (ordered probit)

	Panel A			Panel B			Panel C		
	Coeff.	S.E.		Coeff.	S.E.		Coeff.	S.E.	
Employment status									
Proportion of household members unemployed	−1.087	(0.100)	***	−0.527	(0.068)	***	−0.351	(0.096)	***
Unemployed people in the household dummy							−0.122	(0.053)	**
Proportion of employed members with casual wages	−0.839	(0.133)	***	−0.461	(0.099)	***	−0.458	(0.100)	***
Proportion of self-employed members	−0.170	(0.102)	*	−0.096	(0.077)		−0.096	(0.077)	
Proportion of students	−0.598	(0.111)	***	−0.223	(0.084)	***	−0.219	(0.084)	**
Proportion of house-keepers	−0.405	(0.111)	***	−0.117	(0.071)		−0.120	(0.071)	*
Proportion of retired household members	−0.168	(0.096)	**	−0.154	(0.082)	*	−0.150	(0.082)	*
Proportion of disabled members	−0.776	(0.195)	***	−0.268	(0.193)		−0.251	(0.192)	
Household variables									
Coloured				0.387	(0.149)	***	0.392	(0.148)	***
Indian				0.546	(0.171)	***	0.548	(0.170)	***
White				0.724	(0.170)	***	0.722	(0.169)	***
Own house outright? (yes = 1)				0.094	(0.043)	**	0.096	(0.043)	**
Urban				−0.258	(0.098)	***	−0.256	(0.098)	***
Metropolitan				−0.465	(0.118)	***	−0.462	(0.118)	***
Household size				0.026	(0.008)	***	0.031	(0.007)	***
Log of household expenditure per capita				0.195	(0.045)	***	0.192	(0.045)	***
Same overall wealth as Parents				0.483	(0.040)	***	0.484	(0.040)	***
Richer in the overall wealth than Parents				0.486	(0.041)	***	0.486	(0.041)	***
Individual characteristics (in proportion)									
Small children				−0.415	(0.177)	**	−0.449	(0.178)	***
Older children				−0.342	(0.158)	**	−0.374	(0.158)	***
Adult female				−0.136	(0.121)		−0.140	(0.121)	

TABLE II
Continued

	Panel A		Panel B			Panel C		
	Coeff.	S.E.	Coeff.	S.E.		Coeff.	S.E.	
Adult male			−0.290	(0.117)	**	−0.292	(0.117)	**
Married individuals			0.072	(0.060)		0.072	(0.060)	
Primary/secondary education			0.035	(0.069)		0.031	(0.069)	
Tertiary education			0.018	(0.073)		0.020	(0.073)	
College/university education			0.315	(0.121)	***	0.313	(0.121)	***
Age (average across household)			−0.002	(0.002)		−0.002	(0.002)	
Number of still sick individuals			−0.052	(0.023)	**	−0.051	(0.023)	**
Cut points								
C(1)	−1.125	(0.087)	0.483	(0.389)		0.592	(0.386)	
C(2)	−0.213	(0.082)	1.536	(0.392)		1.645	(0.388)	
C(3)	0.051	(0.083)	1.849	(0.390)		1.956	(0.386)	
C(4)	1.110	(0.072)	3.115	(0.399)		3.223	(0.395)	
Geographical variables	No		Yes			Yes		
Provincial dummies	No		Yes			Yes		
Language dummies	No		Yes			Yes		
The relationship to head of the household dummies	No		Yes			Yes		
N	8717		8510			8510		
Pseudo R^2	0.0264		0.1098			0.1101		

Note: *Significant at 10%, **significant at 5%, ***significant at 1%. Unemployment in the household dummy represents whether there is at least one member unemployed in the household. Geographical variables include expenditure rank in the community (i.e. Household expenditure per capita/average household expenditure per capita in the cluster), average cluster crime rate, and cluster food price. The exact question for the dependent variable is: "*Taking everything into account, how satisfied is this household with the way it lives today?*" Reference variables are proportion of employed members with regular wages (employment status), black (race), rural (region), poorer than parents (internal comparison of wealth), proportion of pensioners (household composition), non-marital group (marital status), and no formal education (completed education level).

Panel C extends the analysis to examine the well-being gap of households with no unemployed member and those with at least one member unemployed, adding a dummy variable with a value of 1 if there is at least one person unemployed in the household and 0 otherwise. The unemployed dummy and household unemployment rate variable are both highly significant; respondents living in households with at least one unemployed member tended to say that they are less satisfied with life compared to the people living in households with no unemployment, while higher proportions of unemployed members are still associated negatively with the PQOL for the unemployed households.

In addition, Table II's other results show a positive correlation between log of household expenditure per capita and the reported well-being levels, whilst Black African households are more likely to report, on average, a much lower PQOL score than any other race, *ceteris paribus*. Reported well-being is high among those people living in households with higher proportions of pensioners (age 65 and over), married couples, healthy individuals, and the well-educated, as well as people living in the rural area, and those looking after home.

The coefficients on unemployment variables are also sizeable as well as significant. Since the coefficients from ordered probits cannot be interpreted directly as marginal effects, 'compensating expenditure variations' can be calculated instead to illustrate the size of the estimated psychological effect of unemployment on households. Given that the expenditure variable is in terms of log household expenditure, compensating expenditure variations (CEV) equation can be written as follows:

$$(2) \qquad \mathrm{CEV} = \mathrm{EP} \times \left(\exp \frac{\beta_1 - \beta_0}{\lambda_{\ln \mathrm{EP}}} - 1 \right),$$

where CEV refers to compensating expenditure variations, i.e. expenditure required to compensate an average household for a drop in psychological well-being resulting from unemployment, EP is current household expenditure, β_1 represents the reference coefficient for the non-unemployed household, β_0 as the coefficient for a dummy representing whether there is at least one unemployed member in the household, and λ is the estimated coefficient on log household expenditure. Based on an average cluster unemployment rate of 18.7%, the calculation suggests that it would take an extra household expenditure of around R18,341 per annum to compensate for having at least one unemployed member, for an average household spending of R20,659 per annum. Controlling for the number of unemployed people in the household as a proportion of the household size, the estimated

compensation expenditure variation of having at least one member unemployed is roughly equal to that of losing the homeowner status (R13,402), one-half of migrating from the rural area to the urban area (R57,714), and one-tenth of switching household race from being white to being black (R866,982).

4. THE ROLE OF OTHERS' UNEMPLOYMENT AT THE GEOGRAPHICAL LEVEL

4.1. *Raw Data Evidence*

I investigate in this section the role of cluster unemployment rate on the reported well-being of the unemployed household. The first and standard externality from the local unemployment rate is negative: e.g. the higher the cluster unemployment rate, the lower the chance of becoming re-employed again if I am myself unemployed. I am also more likely to be more discouraged about my job prospects if I am unemployed in higher unemployment areas. On the other hand, the stigmatizing effect of unemployment is thought to be less prevalent when there is more of it around. With less social disapproval in high unemployment areas, the externality from others' unemployment on the unemployed's well-being can be positive as well as negative: e.g. the higher the cluster unemployment rate, the less worse I feel about myself for being out of work.

The two opposing effects from others' unemployment on the unemployed's well-being are difficult to untangle in theory, making the question on whether which type of externality affects the unemployed more of an empirical question. However, recent evidence suggests that the correlation between cluster unemployment rate and psychological well-being might be positive, rather than negative, for the unemployed (Clark and Oswald, 1994; Clark, 2003[6]). This paper is one of the first to use a less-developed country data to test the importance of others' unemployment on the unemployed's well-being.

Table III updates the above analysis using the South African data set. Here, the average PQOL score of households with no unemployed member and those with all members unemployed is calculated by old South African province. I then perform a cross-tabulation between the difference in the reported well-being and the average cluster unemployment rate (measured as the ratio of unemployed individuals to all working-age individuals in a given community cluster) calculated for each of the four provinces (Cape, Natal, Orange Free State, and Transvaal). The last two columns of

TABLE III

Comparison of cluster unemployment and well-being gap between no unemployment and full unemployment households by Old South African Province, 1993

Old Provinces	Unemployment at he cluster level	PQOL difference	Rank of cluster unemployment rate (highest to lowest)	Rank of Cluster PQOL difference (highest to lowest)
Cape of good hope	0.164	0.766	1	2
Natal	0.128	0.602	4	3
Transvaal	0.132	1.033	3	1
Orange free state	0.158	0.548	2	4

Note: PQOL difference = (average PQOL of households with no unemployment – average PQOL of households with full unemployment) by old South African province. Only the well-being gaps between households with all members unemployed and households with no members in unemployment are examined.

Table III show a negative correlation between this well-being gap and the cluster unemployment rate. For instance, while the Transvaal province has one of the lowest average rates of cluster unemployment in the sample at 13.2%, it also has one of the largest average well-being gaps of 1.033. On the other hand, the Orange Free State province, with the second highest ranking in the cluster unemployment rate with 16.4%, has the smallest average well-being gaps in the sample with 0.548.

Figure 2 illustrates the above relationship by plotting the well-being gap against the cluster unemployment rate by old South African province; there seems to be a notable trade-off between the PQOL difference and the cluster unemployment rate. Thus, the results provide some of the first raw data evidence that cluster unemployment rate correlates negatively with the well-being of the employed household but is positively correlated with the well-being of the unemployed household in South Africa.

4.2. *Empirical Strategy and Main Results*

The preliminary evidence of a positive relationship between others' unemployment at the cluster level and the unemployed's well-being can be explained using Akerlof's (1980) social norm model. Here, an individual's well-being function, W_i is

$$(3) \qquad W_i = W(R, A, d^c, X),$$

where R is the reputation in the community, A is a dummy variable for obedience or disobedience of the code, d^c is belief or disbelief of the com-

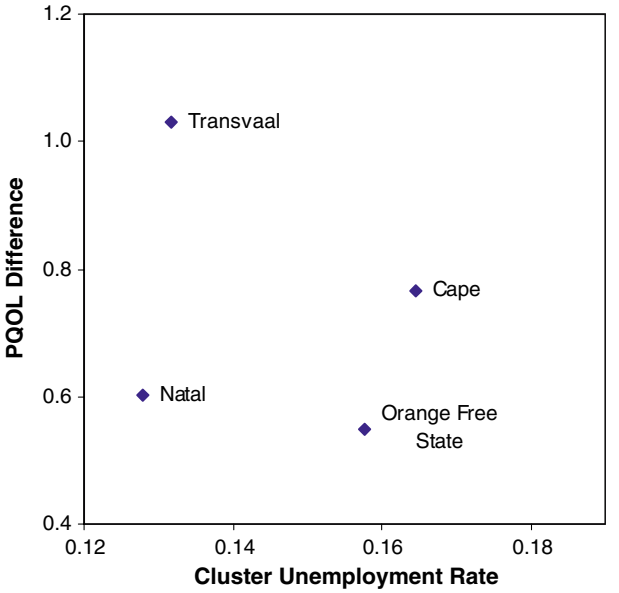

Fig. 2. PQOL difference against cluster unemployment rate by Old South African Province, 1993.

munity code, and X is personal tastes. Reputation is a function of both individual's own action, A, and the proportion of population believing in the code, μ: $R = R(A, \mu)$. By this definition, R is equal to zero if the individual follows the code ($A = 1$) but is negative if $A = 0$.

Let the community code, A, be employment in this case. As in Clark (2003), the d^c variable is dropped because I have no way of measuring individual's belief, and identify μ with the proportion of the population who actually follow the code, that is, the cluster employment rate. Since the PQOL is measured at the household level, the welfare function-equation can be written as:

$$W_h = W(R, 1 - Ue_h^d, 1 - Ue_h, X), \tag{4}$$

where Ue_h^d is a dummy for whether there is at least one unemployed person in the household or not. A linear form is used for $R = -Ue_h^d(1 - OTHERUe_h)$, where $OTHERUe_h$ is reference unemployment. This follows Akerlof's (1980) criteria of no reputation effect if the employment code is followed $(Ue_h^d = 0)$, but a negative effect of $(1 - OTHERUe_h)$. if the code is respected.[7] The reputation effect from not following the code diminishes as the proportion of the population not following the code $(OTHERUe_h)$ increases. In addition, the well-being func-

tion at the household level is assumed to be increasing with household employment rate, $(1 - Ue_h^d)$, as discussed in the previous section. Substituting R into W produces

$$W_h = W(-Ue_h^d(1 - OTHERUe_h), 1 - Ue_h^d, 1 - Ue_h, X), \quad (5)$$

which suggests that respondents from unemployed households will be less satisfied with their lives compared to people living in households with no unemployed members, through the first and second term, and that higher proportions of members unemployed reduce well-being at the household level, through the third term. However, equation (5) also implies that well-being of the respondents from unemployed households is increasing with others' unemployment at the cluster level. One empirical counterpart to equation (5) is

$$W_h = \beta_1 Ue_h^d + \beta_2 OTHERUe_h + \beta_3(Ue_h^d \times OTHERUe_h) + \beta_4 Ue_h + X'\lambda + \varepsilon_h,$$

where W_h is the self-rated PQOL for household h, Ue_h^d is a dummy variable with a value of 1 if there is at least one person unemployed in the household and 0 otherwise, while $OTHERUe_h$ is others' unemployment at the cluster level. This proxy cluster unemployment rate comes from within-sample, measured as the ratio of unemployed individuals to all working-age individuals in a given community cluster. It is also based on a reasonable sample size with an average of 78.61 active individuals per community cluster (over 350 data points on cluster unemployment rate), and is allowed to vary across households.[8] The variable Ue_h is the proportion of unemployed members in the household (measured as the ratio of active members who do not hold a job in either the formal or informal sector to all active members in the household), X is a vector of aggregated personal and other household and community characteristics affecting well-being, whereas ε_h is the error term. I also include in the regression a dummy variable for informal workers and non-participating members in the labour market (IWNP) and its interaction with the cluster unemployment rate, so that β_2 represents the estimated impact of others' unemployment on the welfare of those people living in households with all members in full-time employment. The specification of (6) thus allows me to test the hypothesis that, holding other things equal, unemployed households will tend to report lower subjective welfare at the household level compared to households with no unemployment (or, $\beta_1 < 0$), and that others' unemployment at the cluster level hurts for those respondents living in households with all members in full-

time employment (or, $\beta_2 < 0$), through their effect on the expected job loss for the employed in the area. However, the well-being gap between respondents living in households with all members unemployed and those living in households with all members in full-time employment will be smaller when the cluster unemployment rate is higher (or, $\beta_3 > 0$).

Table IV reports some preliminary evidence on the interaction between the unemployed dummy and others' unemployment at the cluster level for South Africa. The estimated coefficient on the interaction term, as in equation (6), is strong and positive, while the main effect of the unemployed dummy continues to be negative and significant at the 1% level. As in Figure 1, the well-being gap between the employed household and the unemployed household is smaller in higher unemployment regions. Higher proportions of unemployed members in the household continue to attract a negative and significant coefficient. The variable for cluster unemployment rate enters the well-being equation with a strong and negative coefficient, indicating that the employed households in higher unemployment regions are recording a lower well-being score on average. While respondents living in unemployed households tended to report higher well-being when the cluster unemployment rate is higher, the null hypothesis that the raw sum of "cluster unemployment rate" and "cluster unemployment rate and the unemployed dummy" is positive ($-2.259 + 0.939 > 0$) can nevertheless be rejected at the 1% level.

Of particular interest is the finding on the interaction between the IWNP dummy and the unemployment of relevant others in the region in Table IV's regression; the interaction term yields a positive coefficient of 1.060 (with the z-statistic of 2.50). Respondents living in households with only informal workers or non-participants in the labour market tended to report higher well-being in higher unemployment regions. One explanation for this is that the IWNP group may identify themselves as one with the unemployed group. Given the labour market conditions in South Africa where jobs with regular wages are typically scarce, it is possible that people of working-age may not have entered the informal sector or become inactive by choice but rather are forced into it because there are no jobs available in the formal sector. The interpretation is consistent to Graham and Pettinato's (2001) findings of lower life satisfaction among the self-employed and the retired in Latin America and Russia. While higher cluster unemployment rates lower individuals' chances of being re-employed again, respondents from IWNP households may also feel less bad about themselves for not having a job in the formal sector when unemployment rate in the area is also high.

TABLE IV

Well-being regressions and interactions with regional unemployment rate for South Africa, 1993 (ordered probit)

	Coeff.	S.E.	
Employment status			
Unemployed people in the household dummy	−0.344	(0.102)	***
Proportion of household members unemployed	−0.176	(0.103)	*
Cluster unemployment rate	−2.277	(0.478)	***
Unemployed dummy*Cluster unemployment rate	0.934	(0.372)	**
Proportion of employed members with casual wages	−0.356	(0.099)	***
Proportion of self-employed members	−0.010	(0.077)	
Proportion of students	−0.249	(0.104)	***
Proportion of house-keepers	−0.143	(0.100)	**
Proportion of retired household members	−0.169	(0.098)	**
Proportion of disabled members	−0.235	(0.206)	
IWNP in the household dummy	−0.012	(0.084)	
IWNP*Cluster unemployment rate	0.666	(0.333)	***
Household variables			
Coloured	0.393	(0.143)	***
Indian	0.503	(0.163)	***
White	0.577	(0.163)	***
Own house outright? (yes = 1)	0.114	(0.044)	***
Urban	−0.148	(0.089)	*
Metropolitan	−0.332	(0.104)	***
Household size	0.023	(0.007)	***
Log of household expenditure per capita	0.148	(0.045)	***
Same overall wealth as Parents	0.475	(0.039)	***
Richer in the overall wealth than parents	0.475	(0.041)	***
Individual characteristics (in proportion)			
Small children	−0.385	(0.178)	**

TABLE IV
Continued

	Coeff.	S.E.	
Older children	−0.293	(0.158)	*
Adult female	−0.134	(0.120)	
Adult male	−0.294	(0.117)	**
Married individuals	0.115	(0.055)	**
Primary/secondary education	0.015	(0.068)	
Tertiary education	0.032	(0.072)	
College/university education	0.328	(0.123)	***
Age (average across household)	−0.002	(0.002)	
Number of still sick individuals	−0.053	(0.023)	**
Cut points			
C(1)	0.038	(0.401)	
C(2)	1.101	(0.406)	
C(3)	1.415	(0.403)	
C(4)	2.690	(0.411)	
Geographical variables	Yes		
Provincial dummies	Yes		
Language dummies	Yes		
The relationship to head of the household dummies	Yes		
N	8510		
Pseudo R^2	0.1149		

Note:*Significant at 10%, **significant at 5%, ***significant at 1%. Cluster unemployment rate is defined as the ratio of the unemployed others as a proportion to the working-age individuals in a given community cluster, and is allowed to vary across households. Informal workers and non-participants (IWNP) dummy represents those who classified themselves as either self-employed, or employed with casual wages, as well as student, housekeeper, retired, or disabled member.

4.3. *Further Results by Race and Region*

One question of interest is whether these interactions with others' unemployment at the cluster level hold more strongly for certain groups of unemployed individuals than for others. I investigate this possibility in Table V by separating the data into black and non-black households. For the non-black sample, Column (1) reveals a negative and insignificant correlation between the reported well-being and the unemployed variables, while higher proportions of inactive members in the household are not associated significantly with the perceptions of welfare at the household level. The interaction between the unemployed dummy and the cluster unemployment rate attracts a positive coefficient, though with a highly insignificant z-statistic of 0.43. The well-being of the employed household, on the other hand, is shown to be strongly negatively correlated with

TABLE V

Well-being regressions by race in South Africa, 1993

	Non-black	Black African
	Coeff. S.E.	Coeff. S.E.
Employment status		
Unemployed people in the household dummy	−0.109 (0.162)	−0.358 (0.130) ***
Proportion of household members unemployed	−0.084 (0.265)	−0.240 (0.111) **
Cluster unemployment rate	−2.183 (0.581) ***	−2.339 (0.617) ***
Unemployed dummy*Cluster unemployment rate	0.334 (0.771)	0.894 (0.456) **
Proportion of employed members with casual wages	0.256 (0.190)	−0.539 (0.105) ***
Proportion of self-employed members	−0.131 (0.152)	−0.020 (0.092)
Proportion of students	−0.091 (0.265)	−0.313 (0.111) ***
Proportion of house-keepers	0.180 (0.253)	−0.246 (0.108) ***
Proportion of retired household members	0.370 (0.229)	−0.359 (0.109) ***
Proportion of disabled members	0.316 (0.484)	−0.393 (0.236) **
IWNP in the household dummy	−0.033 (0.143)	−0.157 (0.144)
IWNP*Cluster unemployment rate	0.897 (0.523) *	1.200 (0.529) **
Household variables	Yes	Yes
Individual characteristics (in proportion)	Yes	Yes
Geographical variables	Yes	Yes
Provincial dummies	Yes	Yes
Language dummies	Yes	Yes
N	2247	6263
Pseudo R^2	0.0951	0.0629

Note: *Significant at 10%, **significant at 5%, ***significant at 1%. Cut points for Non-black are: C(1) = 2.307, C(2) = 3.092, C(3) = 3.446, C(4) = 5.025. Cut points for Black African are: C(1) = −0.526, C(2) = 0.607, C(3) = 0.916, C(4) = 1.992.

reference group unemployment at the cluster level for the non-black sample. This suggests that higher cluster unemployment rates may reduce the well-being for the employed households with non-black members, but are not associated positively with higher well-being for the non-black households with all members in unemployment. The estimated coefficient on the interaction between the IWNP dummy and others' unemployment rate at the cluster level is positive, but is only significant at the 10% level.

Column (2) reports the results for the black sample; the unemployed dummy continues to have a well-defined negative relationship with the reported PQOL among black households (the estimated coefficient on the unemployed dummy is −0.358, with a standard error of 0.130). Black respondents living in households with higher proportions of unemployed members, as well as informal workers and inactive members in the labour force, also tended to say that they are less satisfied with the way they live today. Reference group unemployment enters the well-being equation with a well-defined negative coefficient, while the interaction between the unemployed dummy and others' unemployment at the cluster level is positive and significant at the 1% level. In other words, a higher proportion of cluster unemployment rate is significantly negatively correlated with the well-being of employed black households but is significantly positively correlated with the well-being of unemployed black households. Nevertheless, the test that $(-2.339 + 0.894 > 0)$ is rejected by the data at conventional significance levels. With respect to inactivity and those working in the informal sector, the estimated coefficient on the interaction between the IWNP dummy and cluster unemployment rate is also positive with a robust z-statistic of 2.27; although I can also reject the null hypothesis that the raw sum of the ''cluster unemployment rate'' and ''cluster unemployment rate and the IWNP dummy'' is positive at the 1% level.

It is also of interest to check whether these interactions are the same across different geographical settings in South Africa. The reason for this is because rural South Africa may represent economic developing conditions more so than urban South Africa. To test this, Columns (1) and (2) of Table VI split the data according to cluster context – with the rural area as one category, while the other category combines people from the urban area with those living in the metropolitan area. Since the unemployed dummy and its interaction with others' unemployment are significant in the black sample and not in the non-black sample regressions (as reported above), only those respondents living in households with black members are used in Table VI. For the rural sample, Column (1) reveals that only higher proportions of casual workers, students, and retired members are negatively

TABLE VI

Well-being regressions for Black Africans in South Africa, 1993: rural blacks versus urban/metro blacks

	Black (rural)		Black (urban/metro)	
	Coeff.	S.E.	Coeff.	S.E.
Employment status				
Unemployed people in the household dummy	-0.136	(0.153)	-0.466	(0.188) **
Proportion of household members unemployed	-0.149	(0.155)	-0.323	(0.165) **
Cluster unemployment rate	-0.561	(0.730)	-3.048	(0.584) ***
Unemployed dummy*Cluster unemployment rate	-0.073	(0.543)	1.400	(0.645) **
Proportion of employed members with casual wages	-0.484	(0.173) ***	-0.499	(0.130) ***
Proportion of self-employed members	-0.035	(0.138)	0.051	(0.123)
Proportion of students	-0.329	(0.117) ***	-0.071	(0.245)
Proportion of house-keepers	-0.239	(0.139)	0.033	(0.214)
Proportion of retired household members	-0.316	(0.131) **	-0.376	(0.238)
Proportion of disabled members	-0.311	(0.287)	-0.471	(0.372)
IWNP in the household dummy	0.239	(0.157)	-0.492	(0.185) ***
IWNP*Cluster unemployment rate	−0.194	(0.611)	1.928	(0.652) ***
Household Variables	Yes		Yes	
Individual characteristics (in proportion)	Yes		Yes	
Geographical variables	Yes		Yes	
Provincial dummies	Yes		Yes	
Language dummies	Yes		Yes	
N	4021		2242	
Pseudo R^2	0.0672		0.0752	

Note: *Significant at 10%, **significant at 5%, ***significant at 1%. Cut points for rural Black African are: C(1) = 0.719, C(2) = 1.923, C(3) = 2.267, C(4) = 3.454. Cut points for urban/metro Black African are: C(1) = −1.239, C(2) = −0.164, C(3) = 0.099, C(4) = 1.061.

and significantly correlated with the reported well-being at the household level, *ceteris paribus*. One interpretation is that the idea of unemployment in the rural area may not be as clearly defined as in the urban area. With approximately 22% of a labour force unemployed, there must be non-formal ways by which these unemployed people engage in some sort of productive activity in the rural sample that does not fall within the 'informal workers', i.e. employment with casual wages or self-employment, category.

Column (2) of Table VI reports the results for the urban black sample; the unemployed dummy continues to enter well-being equation with a negative and significant coefficient, whilst a higher proportion of unemployed members in the household is associated with a lower level of reported

household welfare. A higher cluster unemployment rate is significantly negatively correlated with the well-being of employed households, *ceteris paribus*. However, the unemployed's well-being is shown to be strongly positively correlated with others' unemployment at the cluster level for the urban black group.

The estimated coefficients from ordered probits are difficult to interpret. By way of illustrations, Figure 3 therefore plots the estimated effects of the unemployed dummy on the probability of reporting a PQOL score of 5 (very satisfied category) against others' unemployment at the cluster level. These welfare impacts of unemployment are based on the estimated coefficients taken from Column (2) of Table VI's ordered probit regression for the urban black sample. Note that all other non-unemployment variables are held at the respective sample means for these calculations.

It can be seen from Figure 3 how the gap between the employed and the unemployed in the probability of reporting a well-being score of 5 (maximum well-being possible) decreases as cluster unemployment rate rises. For an 'average' urban black household,[9] an increase in the cluster unemployment rate from 5 to 10% reduces this difference from around 3.89 to 2.64%, while a further 5% rise in the percentage point in the cluster unemployment rate takes this difference down from 2.64 to 1.71%. The estimates also imply that,

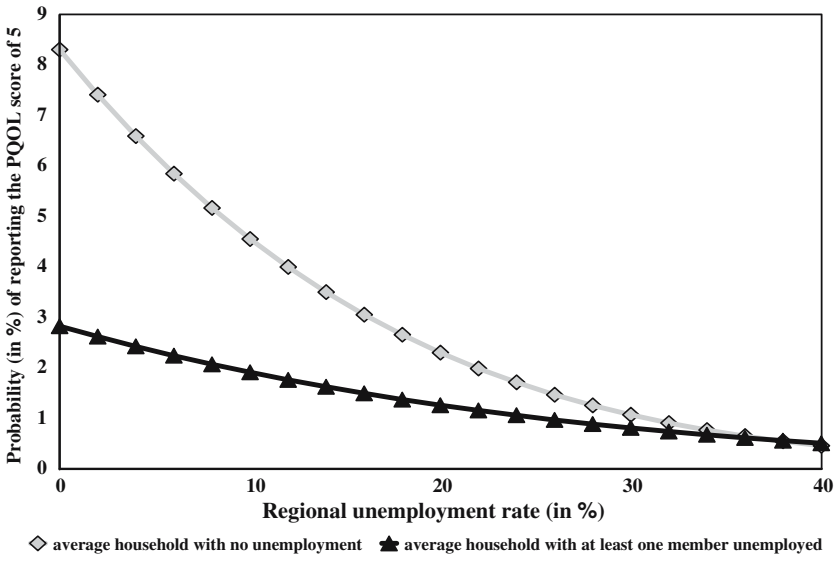

Fig. 3. Predicted probabilities: probability (%) of PQOL score of 5 (highest level) for Black South Africans in urban/metropolitan sample.

controlling for other relevant factors, employed and unemployed households have equal well-being at a cluster unemployment rate of around 33% (the coefficient of unemployed dummy + the coefficient of cluster unemployment rate×average cluster unemployment rate: $-0.466 + 1.400 \times 0.33 = 0$), which accounts for more than 13% of the unemployed households in the urban black sample. Therefore, the estimated coefficient on others' unemployment at the cluster level is not only statistically well-defined, it is also sizeable as well.

5. CONCLUDING REMARKS

This paper uses subjective well-being data to test whether there are significant cluster variations in the psychological cost of unemployment in South Africa. The hypothesis is that the negative welfare impact of unemployment will be reduced by a higher level of unemployment among relevant others in the region via social comparison effects, as in Akerlof (1980). I find that, over all respondents in the data, self-rated household welfare is typically negatively correlated with measures of unemployment at the household level for South Africa in 1993. Second, while others' unemployment at the cluster level is negatively correlated with the well-being of the employed household, there is strong evidence of a positive correlation with the well-being of the unemployed household in the full sample analysis. In other words, the data supports my earlier hypothesis that it may be psychologically easier to be unemployed in a region with high level of joblessness. Third, I show in the well-being regression equations that not only the unemployed benefits from the presence of externality linked to others' unemployment in the region, but so do the employed in the informal sector as well as the non-participants in the labour market. Like the unemployed group, people who fall within the IWNP category may also feel less worse about themselves for not holding a job in the formal sector when cluster unemployment rate among relevant others is high.

However, a closer examination on different groups of the unemployed household reveals a distinct pattern in the psychological cost of unemployment by race and cluster setting. Sub-sample analysis shows strong evidence of a positive correlation between the well-being of the unemployed and others' unemployment for the urban black group, whilst measures of unemployment are found to be typically insignificantly related to the reported well-being for the non-black sample and for the black sample living in rural areas of South Africa. The effect of others' unemployment on the well-being of the unemployed is also sizeable as well as statistically significant; the estimated

coefficients from the urban black sample regression suggesting that the employed and the unemployed have equal well-being at a cluster unemployment rate of around 33%.

I provide in this paper some preliminary evidence of a positive externality of others' unemployment on the well-being of some groups of the unemployed in a developing country setting such as that of South Africa. Given that a smaller well-being gap between the employed and the unemployed may provide a reduced incentive for the unemployed to find work, via the utility effects of a changing employment norm in the area, this study may help to explain why unemployment is more persistent for some parts of South Africa than for others. It is worth noting here, however, that the results may not be robust over time. It is possible that the imminent elections raises the sense of well-being of some households, and if there is a significant variation of this effect across different local labour markets, then the unemployment results are sensitive to this specific historical time period. This calls for the same well-being equation regressions to be run on a more sophisticated panel survey, with preferably information about the individual's psychological well-being and future employment status, in order to make a proper test of the hypotheses of social norm and unemployment hysteresis in South Africa.

NOTES

[1] It is worth noting that job seekers may also become more and more discouraged about their job prospects as others' unemployment in the area increases (see Kingdon and Knight, 2004). The discouraged job seekers are also more likely to give up the job search as the number of unemployed others in the area goes up, leading to an alternative explanation of geographical variation of unemployment hysteresis.

[2] Although I recognise that panel data would be better, it is still interesting to look at a cross-section in an unusual country like South Africa.

[3] The unit of relevant local labour market used in this analysis is the geographical cluster. Each cluster unit contains a random sample of households in the local labour market, with an average of 78.61 (30.60) active individuals (households) per cluster.

[4] See Easterlin (1974, 1995), Oswald (1997), Frey and Stutzer (2000), Gerdtham and Johannesson (2001), Di Tella et al (2003), Blanchflower and Oswald (2004) for some examples of happiness research in the advanced industrial economies.

[5] This internal wealth comparison variable measures a personal consumption experience and is represented by a dummy variable containing information as to whether the individual thinks that the financial position of his household today is better, the same, or worse off when compared with that of his parents when they were at the same point in their lives.

[6] According to Clark (2003: p. 338), explanations other than reduced stigmatising effects from higher regional unemployment are possible. An alternative is that, as unemployment in the area rises, relatively happier people are moving into unemployment. This will raise the unemployed's average well-being, providing that they are less affected by this transition than others. However,

he finds no significant correlation between the initial well-being score of those moving into unemployment and the regional unemployment rate for the UK sample, suggesting that a shift-share argument is unlikely to be behind the regional patterns.

[7] Note that Akerlof's model is originally referred to unemployment at the individual level, and not at the household level.

[8] Each particular household is excluded from the calculation of each cluster's unemployment rate, i.e. there will be a difference in the unemployment rate within cluster).

[9] The average urban/metropolitan black household has five household members with an annual expenditure per capita of R1721.602. The household unemployment rate is 17% for an average household with at least one member unemployed.

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