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SUBJECTIVE MEASURES OF QUALITY OF LIFE

THE RELATIONSHIP BETWEEN OBJECTIVE AND SUBJECTIVE INDICATORS OF INDIVIDUAL WELL-BEING: A LINEAR MODELLING APPROACH

John Hall January 1976

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"The relationship between subjective and objective indicators of individual well-being - a linear modelling approach."

John Hall, Survey Unit, Social Science Research Council, London.

The conceptual universe of subjective and objective indicators

To make meaningful statements concerning subjective and objective social indicators, free of confusion or ambiguity, it is necessary to be more precise in our terminology and to postulate a framework with specific parameters. At least three parameters need to be distinguished which define the universe of subjective indicators.

First, we must define the phenomena to be studied, second, the instruments by which these phenomena are to be measured and, third, the levels at which these phenomena and instruments apply.

The phenomena of the natural sciences are for the most part directly observable, but many of those studied by the social sciences are not. They have to be deduced or inferred from other phenomena. Those phenomena capable of direct observation may be labelled "objective"; those which must be inferred through indirect observation may be labelled "subjective" when they refer to values, attitudes and opinions, or to feelings, or to perceptual phenomena.

The instruments by which phenomena are measured or observed can vary in terms of their reliability and validity. The instruments of the natural sciences have high levels of precision and calibration and can be relied on to produce the same measurements when used to observe the same phenomena; whilst some conceptual tools of the social sciences are precise, many of the instruments are less precise, and can give different results even when measuring the same phenomena. As with the phenomena of study, the instruments can also be labelled "objective" and "subjective". Thus four types of observations are possible.

(i) Objective measures of objective phenomena
(ii) Subjective measures of objective phenomena
(iii) Objective measures of subjective phenomena
(iv) Subjective measures of subjective phenomena

Finally it is important to specify the scale or level at which we are measuring, that is, to specify our unit of analysis. We may be referring to individual human beings, to groups of individuals, to institutions or organisations or even to whole communities or societies. This dimension varies from "individual" to "collective".

A fourth dimension is always implicit: that of time: Comparisons are made between units of analysis at the same time, or of units with themselves at different times. One may postulate even more parameters, but these four will more than suffice the present research effort for many years to come. It may be that the term "subjective" is not appropriate and should be substituted by some such term as "perceptual" for either the instrumental or the phenomenological dimension. (and "factual" instead of "objective"). There remains the not-so-philosophical problem that at the levels of precision to be achieved in our work the "subjective" ceases to be so.

However, work in subjective indicators forges ahead, notwithstanding the lack of a formal terminology or of formal theories relating the postulated variables. In the years to come these initial efforts will appear clumsy and fumbling, yet hopefully they will contribute at least in part to the development of a truly scientific method for social research and social action.

mechanical
experiential / perceptual

This paper

The data used for analysis in this paper came from three surveys. Two were the national surveys of Quality of Life conducted in Oct-Dec. 1973 (QL3) and March-May 1975 (QL4) in urban areas of Great Britain. Both surveys were conducted in the same primary sampling units, but with a different sample of individuals. Some questions were replicated in both surveys. The third survey was a study of Sunderland, using the same questionnaire, and conducted at the same time, as the national 1973 survey. This latter is interesting because we were able to relate subjective data from individual respondents to census and similar official data on the wards in which respondents lived. A fourth survey conducted simultaneously in Stoke-on-Trent awaits detailed analysis and the addition of census data. Models developed on the Sunderland data can be tested on the Stoke data.

Some of the subjective measures used have been shown to be highly sensitive to differences in individual circumstances. This is true especially of housing and health. What is not always easy to demonstrate is any strong direct relationship of global subjective measures of well-being to differences in objective circumstances. Such sensitivity as can be shown is in many cases slight, and may even, perversely, be the opposite of what might be expected. It is by no means unusual to find people in quite disadvantaged circumstances reporting higher than average levels of satisfaction and happiness. If subjective indicators are to be used in policy formulation or evaluation, there is surely a dilemma here for the interventionism of welfare economics.

Defining "Quality of Life"

Tom Harrisson, founder of Mass Observation, once wrote, "You cannot, yet, take a census of love in Liverpool, or random sample the effect that fear of the future has on the total pattern of contemporary life in Leeds." For several years now a number of researchers on both sides of the Atlantic have been trying to do precisely that. Bradburn in Chicago; Campbell, Converse and Rodgers in Michigan; Allardt in Helsinki; Abrams and Hall in London: all have severally and jointly been working towards the definition and measurement of "quality of life" as experienced by individual human beings rather than as indexed by some cash value such as G.N.P. The work has had a distinctly psychological flavour, at times openly Maslovian, venturing into such realms as music, love, fresh air and sunshine, being with or near nature. The London work has tended more towards social policy areas, since, although we are aware that the non-policy areas may be better determinants of a sense of well-being, it is the policy areas which allow of intervention to correct glaring inequalities and injustices.

The research programme started with a review of available empirical literature, notably Campbell and Converse (1970), Bradburn (1969), Robinson (1970) and McKennell (1974). This reading was supplemented by a number of free-ranging interviews with members of the public, and a handful of sociologist colleagues, all of which were tape-recorded. A number of teenage-pupils in a London secondary school were asked to write essays on the subject of "Happiness". Content analysis of the interview transcripts (expletives deleted) and of the essays produced a huge pool of possible 'Quality of Life' dimensions to be measured. These were reduced to a usable list of 'Life-domains' which would be common to most people and for which they could reasonably be asked to give satisfaction ratings. We are not convinced that any of the lists we have produced, whether used in the field or not, is exhaustive of the underlying dimensions of psychological well-being or is ideally suited to the survey research approach. However, the respondents' own definitions of quality of life (1975:QL4) would indicate that we are on the right track.

Domains crucial to a psychological or sociological approach, (Family life, Friendships, Religion) were used in the pilot surveys, were dropped from QL3, and only lightly referred to in QL4; domains we are aware of, but have yet to use in the U.K., (Role-performance, Appreciation of Beauty, Communion with Nature, Sex-life) have been covered by research elsewhere (Ann Arbor, Helsinki); domains which have yet to be operationalised, but evident from the content analysis of all the earlier work, (Need for life to appear integrated rather than fragmented, need for novelty or variety, and need for freedom from constraints of clockwatching, social mores and obligations to others) will provide work for the future. Other kinds of variables are also relevant (Personality syndromes, Psychiatric malfunctions, Stereotypes, Stress) but again indicators either exist already or are being developed elsewhere (Ann Arbor, NORC, Edinburgh). Hopefully, when we have isolated and refined reliable and valid measures of individual subjective well-being, we will attain convergence of measures of all the above dimensions in the same study.

Another problem, apart from that of deciding which domains to include, has been that of psychological measurement. Debate centred on distinguishing between cognition and affect in measures of well-being, and consequently on the vocabulary to be used in questions. Should we ask whether people are happy, or contented, or satisfied? Andrews and Withey (1974) got round the problem by including 'happy' and 'satisfied' on the same verbal rating scale and got results very similar to our own. McKennell (1973) reports an exhaustive and detailed examination of the questions common to the ISR survey in the USA and our own second pilot survey. Our own QL4 may help to answer some of these questions since we included Bradburn's measures of affect and designed a short scale to measure sense of well-being along a variety of possible underlying reference dimensions. The concept "happy" was used four times - once with reference to childhood and three times with reference to present life.

The original draft for QL4 had included replication of part of the QL3 section on job-satisfaction and a new expanded section on family relationships and activities based on ISR and NORC work. However, because of the referendum campaign and because of the cross-national nature of the research we decided to replace these with a new section on perceived quality of life in Britain and in other countries. This data would hopefully provide comparisons across countries and also a baseline

for time trends. As a prelude to the section, and as a check on our earlier classification of life-domains, we asked a fully-probed open-ended question to elicit respondents' own definitions of "quality of life". ("There's a lot of talk these days about the Quality of Life in Britain and in other countries. Of course, "Quality of Life" means different things to different people. What does it mean to you? - What sort of things do you think of now when you hear the words Quality of Life?")

Definitions of "quality of life" offered no particular problems of coding and ranged from single answers to philosophical treatises. The content offered no surprises and seems to vindicate the life-domains approach adopted in the pilot studies and continued in QL3. The largest single category of references was to family, home-life, marriage etc. (23%). A large number of respondents (19%) were unable to be specific and referred to simply being contented, happy or "being satisfied inside yourself". Money and prices were specifically mentioned (18%) as also was standard of living or decent conditions of life (17%). Of these latter, a strikingly large number of answers specifically excluded luxuries. Social values, social mores and decent standards of behaviour (16%) was the only other answer mentioned by more than 15% of respondents. At the other end of the scale the fewest replies went to social equality and social justice (2%) altruistic replies (2%) complaints and negative statements about others (2%) and mentions of worries, cares or mental health (2%). Other replies in descending order of frequency of mention were: religion and personal philosophies of life (11%) social life and friendships (10%) housing (10%) health and medical (10%) work, employment and job satisfaction (9%) freedom of speech, travel, information etc. (7%) leisure, holidays and travel (6%) environment, nature, gardens and sunshine (4%) education, culture and consumer fulfilment (4%) comparisons of Britain with past or with other countries (4%) consumer activities, luxuries, durables, hedonism (3%).

Table 1 here

Men and women tend to give similar replies, but there are some notable differences. Women are more likely to mention home-life and health, and to give the generalised non-specific answer. Men are more likely to mention living standards, work, and freedom. Younger people are more likely to mention money, living standards and work, whilst older people refer more to values, and to the past. Middle class people tend to think of social relationships, living standards, environment, freedom, leisure, and tend to give more answers than do working class people, who are more likely to refer to money, or to give 'don't know' replies. On all other replies there does not appear to be a clear relationship to social class.

Table 2 here

After defining their own meanings for "quality of life" respondents were asked to rate the quality of life in different countries using an eleven-point scale on which '0' represented the "lowest possible" and '10' represented "highest possible".

The idea of rating different countries for quality of life is an appealing one, and there was certainly a temptation to use a long list of countries. However, cost is always a consideration, and the list was eventually trimmed to 9 countries representing third world (India) other E.E.C. (France, Germany, Holland) a stereotype social democracy with a high standard of living (Sweden) Eastern Europe (Russia) North America (U.S.A.) and the Old Commonwealth (Australia), plus, of course, Britain. Australia was ranked the highest, both by mean score (7.7) and by proportion scoring 10 (11%) and India was ranked lowest (2.5 and 0.5%) Second and third ranked by means were Sweden (7.5) and Germany (7.4) but by proportion on 10 the honours would go to Britain (11%) and the USA (10%). Second and third lowest, whichever ranking method is used, were Russia (4.9 and 2%) and France (6.4 and 3%). On reflection, we feel we should have left in the list of countries at least Canada, China, Italy and Spain.

Table 3 here

As well as rating the quality of life in Britain now, respondents also gave ratings for where it was 5 years ago, where it would be in 5 years time and where they thought it was entitled to be. The general picture is of a country sliding rapidly down the scale from 8.0 5 years ago through 7.2 now to 6.0 in 5 years time. This contrasts with individual respondents' estimation of their personal standard of living and life-satisfaction which are all perceived to be on the increase.

Table 4 here

We then asked respondents what was the single thing they would most like to change to improve the quality of life in Britain today. Prices and inflation (11%) closely followed by government and politics (10%) were clear leaders. Trade unions could claim third place since 6% thought there were too many strikes and 3% thought the Unions had too much power. 7% thought people should be made to work and 6% that people were too greedy or selfish. A further 6% wished to reduce levels of crime and violence. Whatever the others thought, 6% wanted to change nothing: for them Britain was definitely best.

Table 5 here

One temptation we were unable to resist. Just before the questionnaire went to press, we inserted, in a fortuitously provided blank space, the words "Do you think Britain should stay in the Common Market, or not?" Of those who felt able to reply 66.7% wanted to stay in, 33.3% wanted out. As it happens this is precisely the way the people of Britain eventually voted!

Self-reported satisfaction

The list of domains for which global satisfaction ratings were obtained on the 0-10 scale was extended for QL4 so that the following domains were used.

Your (house/flat)
This local district as a place to live in
(Name of town) as a place to live
Your family life
The quality of life in Britain today. (1)
The level of freedom and democracy in Britain today
Your standard of living
Your general financial situation
The education you (had/are having)
Your job
Being a housewife (2)
The way you spend your leisure time
Your present state of health

Footnote.

1: Not asked in QL3

2: Asked of all women, whether working or not

The highest mean satisfaction was with being a housewife (9.1) followed by "family life" (8.8) "town" (8.1) and "job" (8.0). The highest proportion gave complete satisfaction (point 10 on scale) to family life (55%) followed by "being a housewife" and "town" (37%). The highest correlation between satisfaction with a domain and satisfaction with life as a whole was 0.53 for "standard of living" followed by 0.52 for "general financial situation" and "the way you spend your leisure time". Lowest levels of mean satisfaction were for "quality of life in Britain today" (6.5) and for "education" (6.9). Highest proportions of dissatisfaction (points 0 to 4 on the scale) were with life in Britain today (15%) education (13%) and "general financial situation" (10%). The lowest correlations with overall satisfaction were found for education (0.23) freedom and democracy (0.23) and "town" (0.25).

Table 6 here

It is interesting to compare the ratings obtained in 1975 with those obtained in 1973 from a different sample of individuals drawn from the same primary sampling units (wards). In all domains except house, job and health, higher proportions claim to be completely satisfied in 1975. In all domains except house and education, fewer respondents claim any degree of dissatisfaction in 1975. In all domains except housing the mean satisfaction scores are also higher. However, most of these differences are not large and may be due to the slightly higher proportion of women and older people in the 1975 sample. They cannot, by themselves, be taken to indicate genuine shifts in levels of satisfaction. That said, it is likely that the large shift in satisfaction with financial situation is genuine, as is possibly the shift in satisfaction with the level of freedom and democracy. It should be remembered that incomes in Britain had increased substantially between the two surveys and there had also been a change of Government from Conservative to Labour.

Table 7

There has been a ~~big~~ drop in the zero-order correlation between 'education' and 'life as a whole' between the surveys and a~~n large~~ increase in that between 'leisure' and 'life as a whole'. If the leisure change is genuine, it is simply restoring leisure to the level it had in the pilot work. It may also reflect the general increase in disposable incomes enjoyed by most people in Britain during the intervening months. The full matrix of correlations between QL4 domain satisfactions seems to have the same kind of underlying structure as for QL3, but further analysis is necessary to check this.

Table 8 here

Other psychological measures

To enable us to answer questions about the nature of the measures obtained as 'satisfaction' ratings, we included items in our questionnaire used many times over a long period in the USA, but used in the UK for the first time. One of these was the ten item scale described by Bradburn (1969) as the Affect Balance Scale. The others were the three-item scale to measure "Trust in others" and four of the eight items to measure "personal competence" used by Campbell in the 1971 USA study. One possibility is to use Affect Balance as a dependent variable in modelling perceived quality of life, but our main purpose was to test the effects of positive and negative affect in accounting for variation in our global life-satisfaction measure.

Table 9 here

One finding reported in Bradburn (1969), and replicated many times since, is the zero correlation between scores on the two separate halves of the Affect Balance Scale. The correlation we obtain is 0.002. One reason for expecting a low correlation would be that the distribution of scores for positive affect is very flat, but that for negative affect resembles a Poisson distribution. No less than 45% of urban adult Britons report experiencing none of the five negative feelings, and a mere one per cent report all five, whereas 15% report no positive feelings and 12% all five. Young people report higher levels of positive affect regardless of sex, but whilst women aged 18-29 report more than men of the same age group it is the men in the other age- groups who report more than the women. Middle class people report more positive affect than do working class people. Negative affect is higher for the 18-29 age-groups, more so for women than for men. There appears to be no relationship between class and negative affect for men, but an increase for the lower social classes amongst women. For affect balance, men score higher than women; within sex there is no relationship with age for men, but a clear one for women; within class there is a clear relationship for men and an enormous one for women.

Table 10 here

The ISR measures of personal competence and distrust of others were included as measures of possible personality syndromes which might determine all satisfaction ratings. There is some evidence that whatever is tapped by the scales is related to higher scores on satisfaction and better living conditions generally.

[Additional section here showing relationship of differences in trust and efficacy to satisfaction and other psychological measures. Also affect balance etc. to other differences.]

Tables II(a-c)

Trust x Sats (means) (a)

Effic x Sats (means) (b)

Affbal x Sats (means) (c)

Relationship between objective and subjective measures

This section is intended to give some idea of the relationship of subjective satisfaction measures to actual or reported differences in objective circumstances. Any strong and systematic linear relationships should be revealed by differences in mean scores in that we would expect higher scores for 'better', advantageous or desirable circumstances and lower scores for the less advantageous or desirable. A later section will include objective and subjective measures in models to predict variation in satisfaction with housing, local district and life as a whole.

At sub-domain levels there is a high degree of sensitivity of reported satisfaction with a specific aspect of a domain to measurable differences in that aspect. At the global level of domain satisfaction these differences remain, but tend to be smaller and at the level of satisfaction with life as a whole they may disappear altogether. A question for researchers would be to ask whether there exists a set of objective circumstances which will give the enormous differences in reported satisfaction with life as a whole as, for instance, not having a bath in the house makes to reported satisfaction with facilities for baths. Whilst we ourselves have not yet mounted a search for such objective measures, we doubt that we shall find them in our data.

What does make for big differences in life satisfaction is large differences in subjective measures. It may well be that subjective measures are as objective as 'objective' measures and can be used in the same way by policy makers and policy-evaluators. But if not, at least subjective indicators may be used to weight objective indicators when decisions need to be made in a 'ceteris paribus' situation. A crude example would be that, subjectively, it is much worse not to have a bath at all than to have to share one, but sharing a kitchen is just as bad, subjectively, as not having a kitchen at all. A more complex example might indicate that expensive improvements to immediate environment will make no difference to community satisfaction if every other house in the neighbourhood has 3 children under 5 years old living in it. Whilst it may be difficult to attach a money cost to these situations, it seems plausible to attach a satisfaction or distress cost.

In addition to the global measures of satisfaction with house and "local district" and other domains we obtained satisfaction ratings with a number of aspects of each, some specific, some more generalised. The aspects chosen for study were mostly derived from the more frequent responses to open-ended questions in the pilot studies, but we also deliberately constructed items to represent the various need-levels outlined by Maslow (1954) even if these may not have been present in earlier responses. Respondents were thus encouraged to think of their housing and their immediate local environment in wider terms than might have been the case. The 1975 survey was deliberately used to collect substantial and detailed information on housing and health with the specific intention of investigating the relationship of objective and subjective measures within these two domains.

Housing

The items eventually used in the list for housing satisfaction were as follows:

(* = 1975 study only)

The kitchen
The number of rooms you have
*The size and shape of the rooms
Keeping it warm in winter
Keeping it clean and tidy
Facilities for baths or showers
Freedom from noise
Freedom from damp and condensation
The view from your windows
Privacy from neighbours
The cost of (rent/mortgage) rates, repairs, etc.
*The general state of repair and decoration inside
*Its appearance from the outside

In both 1973 and 1975 the average house-satisfaction rating for the whole sample was 7.8 with 28% indicating complete satisfaction. In addition to the subjective satisfaction ratings for the various aspects of housing, we have hard data relating to the dwelling itself. These data, together with multivariate analysis, offer some validation of the subjective measures and also of the final global rating as an overall measure of housing satisfaction. The hard measures show expected association with both the overall satisfaction with dwelling and also, where obtained, satisfaction with the relevant aspect. Those who do not have, or have to share, a bath, toilet or kitchen, are much less satisfied with their dwelling than those who have exclusive use. Sharing a toilet or kitchen, or not having a separate kitchen, is associated with particularly low levels of dwelling satisfaction. Those who have a garden, garage or central heating are more satisfied than those who have not. The more (bed) rooms people have, the more satisfied they are. Owner-occupiers are more satisfied than council tenants who in turn are more satisfied than private tenants. Occupants of detached houses score higher than those in semi-detached, who in turn score higher than those in terraced houses, and these latter are more satisfied than people who live in flats or maisonettes.

More internal evidence of validity is given by the enormous differences in satisfaction with particular aspects of their housing of those for whom the relevant objective condition differs. In houses where there is no fixed bath or shower, satisfaction with facilities for baths or showers falls to 1.5 for QL3 and 2.2 for QL4 as against 8.5 and 8.7 in houses with baths, whether shared or not. In houses without inside flush w.c.'s the figures are 3.3, 4.5 as against 8.5 and 8.7.*

* See tables 12, 13, 14 for detailed results.

Neighbourhood

Hall and Ring (1974) appealed for survey interviews to be coded by geographical location so that sociological and psychological measures could be mapped in space and related to other variables. Whilst they did not expect the 1- metre accuracy already practised by the City of Newcastle-upon-Tyne, they did suggest a practicable goal of always coding the wards of local authorities in which the interviews were conducted.

An advantage of this is that in those areas where government and local authorities collect and publish statistics at ward level, every survey is immediately open to enrichment by the addition of known data about the locality in which it took place. Moreover, it also enriches the stock of data on wards themselves which can then become units of analysis. Implications for social policy formulation and monitoring are enormous. Localised social indicators are already submitted to regression analysis to determine the rate-equalisation for the Greater London Boroughs, and subjective indicators are being used in Cleveland and Thamesdown.

The 1973-4 Sunderland quality of life survey* was enriched in this way by the addition of census and planning data available at ward level. Whilst there is a problem that wards tend to be quite large in area and that we have no smaller sub-divisions for which data are available, it is encouraging that, even at this crude level of precision, the relationships which emerge between hard measures and subjective survey responses, though unsurprising, are quite striking.

Ward census statistics which are consistently correlated with satisfaction ratings are: proportion of households in owner-occupation, proportion of households with access to a car, % of population aged 0-14, % of population aged 60 or over. The 1971 census data on social class was not available at the time, but has subsequently been added to the data file. We have not yet used social class in any analysis of Sunderland data: we hope eventually to add the 1971 census data for the national surveys, but this will take some time to achieve.

Table 15 here

* Carried out under contract DGR/B/44 for the Dept. of the Environment (PUP/LE).

Text re Table 15 needed here.

Health

A third area in which we can compare objective and subjective indicators is that of health.

The 1975 survey included a battery of health symptoms taken from Bradburn (1969) with three extra items added by the Unit. The total list of fourteen items was read out one by one to respondents who used a show card with four response categories ("Not at all" "A little" "Quite a lot" "A great deal") to answer the question 'To what extent, if any, have you been bothered by ..... during the past few weeks?'

Table 16 here

This list was included partly on the grounds of providing more "objective" measures of health, and partly as a means of measuring stress * since a great deal of work in the mental health field purports to show high diagnostic value of scores on such scales for identifying persons possibly in need of psychiatric help. If such a scale turns out to be valid and reliable, it should provide a major 'objective' tool for the measurement of quality of life.

As in the case of housing the single item measuring satisfaction with health is sensitive to differences in the number of symptoms admitted and on indices derived from the symptoms. Differences in objective health are also associated, but less strongly, with differences in self-reported life-satisfaction. Respondents with high levels of symptom admission are more likely to have consulted their doctors within the last four weeks.

Tables 17(a)-(d) here

The highly skewed distributions of admission to symptoms will put a lower upper limit to the correlations between some items, but some idea of any underlying structure can be gained by correlational analysis. The correlations in Table 18 have been submitted to factor analysis and the resulting factors appear to confirm the two indices used by Bradburn (1969) as measures of general ill-health and of anxiety.

Table 18 here

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* The growing feeling from the research that measures of stress, distress and dissatisfaction are more 'valid' than those of happiness or satisfaction was reinforced by Ian Miles' comment that high satisfaction scores may be obtained from people who are not dissatisfied, but for whom a particular domain may not be salient.

The relationship of the number of symptoms admitted to other variables when path models are used is discussed later: it can be pointed out here that the variable (SYMPTØMS) has a strong path to specific domain satisfactions, but a weak one to overall life-satisfaction, when domain satisfactions are included as predictors. However, it appears to be a good measure of health and could be substituted for health-satisfaction in policy surveys.

Subjective indicators over time.

An extremely important application for subjective indicators is that of measuring change over time. One of the major justifications cited by Campbell for this kind of work was to measure the "psychological correlates of social change." It is relatively easy to demonstrate a stable relationship between a subjective measure and a related objective condition for certain specific domains such as housing, environment and health.

To some extent, the same kinds of relationships can be demonstrated in domains where objective indicators are more difficult to define and measure (e.g. education, leisure and work). The really difficult task is to determine such relationships when the relevant domain is intangible. We have no difficulty in obtaining satisfaction ratings with the "level of freedom and democracy" in a country, but we face practically insuperable problems, either of measurement when there is consensus of definition, or of definition when there is dissensus, often emotive and violent, of what constitutes equity or tolerance or acceptable censorship and coercion. ~~What is more difficult is to define such relationships when the referent is less tangible.~~ Again, we may have no difficulty obtaining satisfaction ~~with~~ ratings for "equality" or ~~democracy~~ "tolerance", but how does one measure the amount of justice or tolerance in a society, or the equity of pay differentials? If there are measurable objective changes in a country's social or economic conditions, how does one determine whether changes in subjective measures are related to these changed conditions? And if a relationship can be demonstrated, can a directional causality be determined? It is not proposed to answer such questions in this paper, but some data collected at two points in time will illustrate the point.

[illegible] furniture, food, [illegible], [illegible] their standard of living."

Perceived equity in standard of living

Instead of attempting to measure evaluations directly, it is sometimes useful to measure indirectly by obtaining some measure of distance from a desired or ideal condition. We have used this technique in two separate applications. Using the 0-10 scale so that the top represented "highest possible" and the bottom "lowest possible" we asked respondents in both 1973 and 1975 to estimate the present and deserved standard of living* of fourteen broadly defined occupational groups and one ethnic group. This measure gives a comparative ranking of public perception of each group's present standard of living and a ranking of its perceived comparative deprivation. The scale was also used to obtain ratings of the respondents' perceptions of their own standard of living, not only present and deserved, but also past and anticipated. From these data all manner of relative deprivations and advantages can be calculated, and changes in rank over time can be measured. Since we also asked respondents which of the groups they themselves came in, or were closest to, we can obtain a measure of how closely they identify themselves with the fortunes of the group they say they are in.

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*"Standard of living" had been defined earlier in the statement "The things that people can buy and do - their housing, furniture, food, cars, recreation and travel - make up their standard of living."

The full list of groups was as follows:

Labourers and unskilled manual workers
Skilled workers
Professional people such as doctors and lawyers
Investors and Shareholders (that is, people living mainly on profits and dividends from investment)
Company directors and business executives
Ship assistants, catering and personal service workers
Clerks and similar office workers
Civil servants, Council officers and other higher level office workers
Policemen, postmen, firemen and the like
Old age pensioners
School teachers
Students
People living on Social Security payments
Coloured people living in this country

Comparing the 1973 and 1975 results, most groups appear to be nearer to their entitlement either through an increase in perceived standard of living or a decrease in attributed deserts. The exceptions are professional people (doctors and lawyers) and proprietors of shops and small businesses, the latter through ascribed drop in living standards, the former through an ascribed increase in deserts (During fieldwork the media were full of news of the consultants' work-to-rule in hospitals). The only three groups to suffer a downgrading of their deserved standard of living by 0.2 of a scale point or more were students, welfare recipients and coloured people. In 1973 the only groups to be given negative shortfalls by other groups were investors and company directors. In 1975, they were joined by welfare recipients (thought to deserve less by company executives, small proprietors, civil servants and policemen), civil servants (downgraded by labourers, company executives, professional people, policemen and welfare recipients) and coloured people (downgraded by labourers and policemen).

Table 19 here

Extra table showing detailed changes?

Perceived political equity

A similar idea was used to measure levels and shortfalls of various aspects of political life in Britain. Using the 0-10 scale so that 0 represented "none" or "not at all" and 10 "a very great deal" we asked respondents how much freedom of speech, tolerance, etc. there was in Britain today, and how much they thought there ought to be.
The full set of items was as follows:

How much freedom of speech is there in Britain today?
How much tolerance is there by the general public towards people who want to live differently from the way most people do?
How democratic is Britain?
How easy is it for people like yourself to understand what's going on in politics and government these days?
How much influence do voters have on the way the country is governed?
How much social equality is there in Britain today?
* How much respect do you think people have for law and order these days?
* How much pride do you think people have in being British?
* How much censorship is there of the things people can see or read these days?
* How much equality is there for women in Britain today?
* How much personal information do you think the government collects and keeps about individual citizens?

(* - new items added in 1975)

Of the six measures used on both occasions, five have increased in perceived present level, with a consequent decrease in perceived shortfalls, and one has hardly moved at all. Even so, the shortfalls are still seen to be large. Five additional items were used in 1975, one of which has a negative shortfall (the amount of "individual information collected and kept by the Government") and one of which (censorship) appears to have a low shortfall (0.9), but this conceals a wide split on the issue. Britain in 1975 scores 8.3 for freedom of speech and 7.3 for being democratic but only 4.8 for respect for law and order, 5.2 for ease of understanding what goes on in politics and government, and 5.3 for voter influence and for censorship. The largest perceived shortfalls are 4.6 for lack of respect for law and order, and 3.7 for ease of understanding; the lowest is 0.8 for freedom of speech.

Table 20 here

Models of perceived well-being

In his review of Campbell and Converse (1970) McKennell (1974) hypothesised three simple models to explain life-satisfaction, assuming that it was possible to obtain a valid and reliable measure of such a notion. The simplest (Model (a)) states that overall life-satisfaction is a weighted sum of satisfactions with different aspects of life, which we term "domains" and that, in turn, these domain-satisfactions are weighted sums of specific satisfiers and dis-satisfiers. The second model introduces the concepts of negative and positive affect, as identified by Bradburn, stating that some domains will contribute to life-satisfaction more through positive than through negative affect, or vice versa. The same will apply to the contribution to domain satisfactions of their component sub-domains. The third model (Model (c)) allows for the possibility that all self-reported satisfactions, whether at global, domain or sub-domain level, are determined by some underlying social psychological syndrome or short term mood state. All three models should be seen in the context of background or stratification variables. More complex models would introduce Maslovian hierarchies of both subjective and objective measures.

Figure 1 here

Since the 1973 study was concerned primarily with social policy domains we did not include specific measures of affect or of personality, and so our measures of these were, to say the least, indirect. However, the 1975 study replicated Bradburn's measures of affect and Campbell's measures of "personal ~~competence~~ efficacy" and "trust in others." It ~~is~~ was therefore possible to test all three simple models and also some of their more complex variations. At the global ~~life~~ level, the dependent variable ~~will be~~ was the single overall rating of satisfaction with "your life as a whole these days". At the domain level, two models ~~will be~~ were tested: one for housing using the single satisfaction rating with "your (house/flat)" and one for neighbourhood using satisfaction with "this local district as a place to live in".

All models ~~will be~~ were tested on data from the whole relevant sample, using both objective and subjective measures as predictors. The district model ~~will~~ used data from Sunderland to which Census data from wards had been added. Most of the analysis about to be described was done interactively using a path analysis program written by James Ring of the Survey Unit. The neighbourhood models for Sunderland were tested using a special program also written by James Ring extending MCA to include ordered predictors. (Ring: 1974)

Linear models

Neighbourhood

Marans and Rodgers (1975) report analysis of USA data in which they tested MCA on three types of predictor of neighbourhood satisfaction. They show that it is the subjective assessments of neighbourhood which are the best predictors and that person variables and locality variables do not have much effect when they are included. We therefore set out to repeat their analysis on our data from Sunderland using the Census data from the local wards and with the advantage that all the data was from a single city. We first reduced an initial list of over 30 predictors by preliminary analysis to select the best ones using MCA and regression. Since some of the predictors are ordinal and since MCA assumes nominal categories, James Ring wrote an extended version (EMCA) to take account of ordered predictors and this was used to select the district items for the model. The main reason for amending MCA was that in preliminary runs there was a tendency for people scoring 2 on predictors to be less satisfied on the dependent variable than those scoring zero.
There is little difference in the beta-weights or in the proportion of explained variance between the multiple regression and the extended MCA and the addition of two house items ("privacy from neighbours" and "view from your windows") does not make any difference to the regression.

Table 21 here

Standard MCA was used on a selection of person variables and those with beta-weights of .10 or greater were included in the MCA model of the full set of predictors. Census variables were chosen on the basis of prima-facia relation to district satisfaction. The full model included eight satisfaction ratings, seven Census variables and five person variables, with district satisfaction as the dependent variable.
The MCA model was run seven times in all so that the three sets of predictors could be used separately and in all three pairings and finally all three together.

Table 22 here

Again, as with the Marans and Rodgers findings, the subjective assessments of district account for vastly more variation in district satisfaction than do Census or person variables. The multiple R^2 for the set of district satisfaction items is 0.60 on their own, rising insignificantly to 0.61 with the addition of either set of Census or person items, and to 0.62 with all three sets together. Sets of Census and person items separately have 0.12 and together they have 0.20. The highest beta-weights are for "sort of people" and for "general appearance" (0.38 and 0.30) followed by "view from your windows" (0.18) percentage of households with access to a car (0.16) and "freedom from crime" (0.15). We appreciate that the more generally worded phrases are the best predictors, but it does look as though policy makers will have to take some account of subjective assessments of environments as perceived by those who live in them since it is likely that even the "best" environments they devise may not meet with the approval of the people, especially if they perceive the other inhabitants as unsatisfactory. However this does not excuse inaction since some improvements in subjective assessment might be achieved through manipulation of objective conditions shown to be important in such models.

Housing

A similar model was tested on variables relevant to housing, using satisfaction with house as the dependent variable, and a mixture of objective and subjective predictor variables. Four types of variables were included: background variables related to the respondent (sex, age, class, income) situational measures related to the dwelling itself (year of construction, nature of immediate environment, an index of basic amenities, and type of structure) variables indicating the relationship of the respondent to the house (density of occupation, cost of maintenance, dampness as a problem, type of tenure, number of problems reported) and finally the full set of thirteen satisfaction ratings with specific aspects of the house. The four types of variables were used separately and in all combinations to yield fifteen regression models. These models were run interactively using James Ring's program. Since the program can currently handle a maximum of 25 variables simultaneously, the fifteenth model was run without the full set of predictors.

Table 23 here

Very small amounts of variance in housing satisfaction are explained either by person variables or house variables on their own (R^2 = 0.07 and 0.08) but the two sets appear to be additive (R^2 = 0.14). However the set of relational variables explains twice as much just on its own (R^2 = 0.29) and there is no noticeable increase in explanatory power when the other two lower level sets are added in, either separately or together (R^2 = 0.30, 0.30,0.31). Bringing in the subjective predictors immediately doubles the variance explained (R^2 = 0.63) and whichever combination of the previous sets of predictors is added in there is no noticeable increase in explanation (R^2 variously = 0.64, 0.65). Inspection of the beta-coefficients in Table ~~6.5~~ 23 would indicate that the objective indicators only affect house satisfaction through the relational variables and these in turn only affect satisfaction through the specific sub-domain satisfactions.

Using Ring's program to build path models with variables constrained at logically separate levels and deleting all paths with coefficients of less than 0.1 yields a best path model using "objective" predictors as shown in Fig. ~~2~~ The number of predictors has been reduced from thirteen to eight, and the proportion of variance explained is the same ($R^2 = 0.32$). Again, careful model-building should highlight those objective conditions whose improvement would most likely increase housing satisfaction.

Figure 2 here

Life as a whole

Finally, a selection of variables was used in regression and path models of satisfaction with life as a whole. Again the variables were divided into four basic types or levels. At the lowest logical level there are sex, age, class and income; at the second logical level are what might be termed "behavioural" variables which include the number of health symptoms admitted, the number of consumer durables possessed and the number of housing problems experienced; at the third level the domain satisfactions are included and at the fourth the measures of positive and negative affect. The dependent variable is the single rating on the 0-10 scale of satisfaction with "your life as a whole".

As with housing, fifteen different regression models were tested and the same kinds of results obtained. The lower the logical level of the predictor set the lower the variance explained. However the variance explained by the affect measures is lower than that explained by the satisfaction measures, and it may be that levels three and four should be reversed. This implies that McKennell's model (Fig. ~~3.1.(b)~~ 1 (b)) should be rejected. As with housing the introduction of higher order predictors masks the variance explained by the lower order predictors. The best fit with the regression models explains half the variance in life satisfaction ($R^2 = 0.51$), but if the satisfaction and affect measures are left out this falls drastically ($R^2 = 0.10$).

Table 24 here

By a little judicious juggling it is possible to increase the variance explained in regression models for the whole sample ($R^2 = 0.55$), but this means reducing the domain satisfactions to five, omitting all the variables at levels one and two, replacing negative and positive affect by affect balance, and introducing two new predictors: amount of perceived "choice and control over the way life has turned out for you" and the score on a semantic differential scale assessing "my present life". Weighting predictor satisfaction ratings by their perceived importance rankings increases some beta-weights slightly but the net effect is to reduce the variance explained (For QL3 this meant that R^2 went down from 0.44 to 0.39).

Retaining the logical levels as in para ~~6.6~~ a number of systematic searches were made for path models. Since the net result of this resembles something like grandmother's knitting after a bad attack by kittens, it is simpler to display the models in sections, or in tabular form. It is important to notice that there are no significant direct paths from any variables at levels one or two to variables at level four or to life-satisfaction. Approximately half of the variance in life-satisfaction is explained by satisfaction in six domains (family life, standard of living, health, financial situation, job and leisure) and by the two affect measures ($R^2 = 0.50$), but the domains by themselves explain practically all of this ($R^2 = 0.48$).

Figure 3 here

At the lower levels of the model there are some effects, direct or indirect, of objective predictors on domain satisfactions. Since the paths tend to criss-cross it is simpler to display the beta coefficients in tabular form. There are direct paths to satisfaction with family life, health and leisure from age and health symptoms, to satisfaction with standard of living from sex, age, consumption level and health symptoms, to financial satisfaction from sex, age, income and health symptoms, and to job satisfaction from all variables at lower levels. Variables at level two with significant direct paths from variables at level one are: number of housing problems from age and income, number of consumer durables from class and income, and number of health symptoms from sex and income.

Table 25 here

Even though there are no significant direct paths from levels one or two to life-satisfaction, there are some very strong paths from some 'objective' measures to the related satisfaction measure. We ourselves have not yet experimented with the model replacing those satisfaction measures with their related 'objective' measures, but it is suspected that a fair proportion of variance would still be explained. Certainly replacing health satisfaction by health symptoms only reduces R^2 by 0.01.

There are some implications in these findings for policy-makers. On the assumption that the indicators described are reliable, valid and robust, that the models are underpinned by adequate theory and understanding of social processes, that there is no impediment to the translation of research into action, and that action or intervention are feasible and desirable, then there appear to be several uses for subjective indicators and for model-building approaches. First, subjective measures, or measures of subjective states, could be used to highlight circumstances occasioning acute personal distress. Second they could be used to attach a "satisfaction quotient" or "distress quotient" to different conditions as a means of weighting for priorities when decisions have to be made. Finally, the inclusion of subjective as well as objective data in models, both linear and non-linear, may help us to choose the most effective method or point of intervention. In Britain's current economic situation, any aid of this kind will help to maximise the benefit to be obtained from the allocation of scarce resources.

APPENDIX A

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APPENDIX B

Instruments

The basic tool used for obtaining satisfaction ratings was a vertical numbered scale adapted from the work of Cantril. For the two pilot surveys it was in the form of an open-ended ladder with the words "COMPLETELY SATISFIED" above and "COMPLETELY DISSATISFIED" below. The first pilot used eleven points numbered 0-10 and the second pilot seven points numbered 1-7. This latter was to enable comparison with the Campbell, Converse, Rodgers survey in the USA, many questions in which were common to both surveys. For QL3 and QL4 the scale was changed back to eleven points numbered 0-10, but the format chosen, after consultation with Dr. William Belson was that of a vertical scale consisting of boxed numbers linked by a single line like rectangular beads on a thread. The same scales, with suitable wording changes, were used to obtain different kinds of ratings in answer to the questions "How much is there .....? "To what extent ....?" and "Whereabouts would you say ....is now?" or "......deserves to be?"

~~Figure~~

Most of the satisfaction ratings are heavily skewed towards the upper pole denoting high satisfaction. The exceptions are in those domains which are more remote from the individual respondent, or in which respondents have little direct control, and, therefore, responsibility. This is not necessarily an artefact of the scales used, since the skews are reversed, but not so heavily, when the lower part of the scale denotes a desirable condition (e.g. "In general, how much would you say you worry these days?") All the satisfaction scales also display pronounced troughs at points 6 and 9, and peaks at 5, 8 and 10.

~~Figure~~

Even though there is no social or psychological theory which requires that life-satisfaction should be normally distributed, other researchers are attempting with some success to spread out the hump of high satisfaction ratings by the use of a greater number of compound or superlative verbal descriptions at the positive pole. Andrews & Withey (1974) report a

complex experiment using multi-trait multi-method measures. Campbell, Converse and Rodgers' 1-7 scales are smooth distributions, but heavily skewed with large numbers of respondents opting for points indicating high satisfaction. Abrams & Hall (1972) obtained similar results using the same scales. Ornauer and Galtung in their survey of future expectations used a 1-9 scale and obtained smooth distributions with some skewing, but much smaller proportions opting for the topmost scale points. Marsh (1975) used a 1-10 scale and obtained distributions close to our own 0-10 scales. There would certainly appear to be a need for experimentation on scale length as well as scale wording before any large investment is made with a commitment to any particular scale.

TABLE 1
Definitions of "Quality of Life"*

(QL4: 1975, N = 932)

% References to:	
23.1	Family, home-life, marriage, children etc.
19.2	Generalized internal feelings, "happiness", "being satisfied inside yourself"
17.9	Money, prices.
17.1	Standard of Living, "not luxuries", decent conditions of life.
15.9	Social values, standards of behaviour, "decency"
10.8	Personal Philosophies, religion, guiding principles.
10.1	Social life, friendship
10.0	Housing, comfortable home
9.8	Health, medical
8.6	Work, employment, job-satisfaction
6.7	Freedoms (various)
6.3	Leisure, holidays, travel
4.0	Environment, nature, gardens, sunshine
3.5	Education, culture, personal fulfilment
3.5	Comparisons of Britain now with past, or with other countries
3.3	Consumer activities, durables, luxuries, personal consumption, hedonism
3.0	Pressures of modern life, conservation, urban stress
2.5	Worries, cares, mental health
2.5	Complaints, negative statements about others
1.8	Altruistic replies, awareness of specific groups needing help
1.7	Social equality, social justice, deprived groups
3.1	Other specific replies
9.5	DK or vague answers

(* Fully probed open-ended question: multiple responses coded. Each R averaged 1.9 different responses. "There's a lot of talk these days about the 'Quality of Life' in Britain and in other countries. Of course 'Quality of Life' means different things to different people. What does it mean to you? What sort of things do you think of now when you hear the words 'Quality of Life'?")

TABLE 2

Definition of "Quality of Life" 1975

Reference to:	All %	SEX Men %	Women %	AGE GROUPS 18-29 %	30-44 %	45-59 %	60+ %	SOCIAL CLASS OF HEAD OF H'HOLD AB %	C1 %	C2 %	D %	E %
Family & Home life	23	18	26	22	24	26	21	26	20	25	22	20
General Contentment	19	17	21	26	15	18	18	16	18	22	20	18
Money & Prices	18	18	18	28	21	13	12	15	18	20	21	12
Living Standards	17	23	13	20	23	19	8	22	19	16	17	13
Social values & Standards	16	14	17	7	11	22	21	16	20	14	17	12
Personal beliefs, Religion	11	10	12	9	11	12	11	12	10	10	13	10
Social relationships	10	9	11	10	8	10	12	18	12	7	8	7
Housing	10	9	10	12	11	10	8	13	10	9	12	7
Health	10	8	11	8	12	12	7	10	9	10	14	3
Work	9	12	6	14	12	8	2	10	8	12	8	1
Freedoms of all kinds	7	9	5	7	9	5	6	12	7	7	2	5
Leisure, holidays, travel	6	8	5	6	12	5	3	9	7	7	5	3
Environment, nature	4	4	4	5	4	4	3	11	4	3	2	1
Education and culture	4	2	4	4	5	2	4	7	5	4	1	0
Comparison with past & other countries	4	4	4	2	1	3	7	5	4	3	3	4
Consumer goods, luxuries	3	4	3	6	2	5	1	5	3	4	2	2
Pressures of life	3	3	3	4	3	3	2	3	4	4	2	1
Worries, cares, mental health	2	2	3	2	2	2	2	0	4	2	4	2
Negative statements	2	2	3	2	2	2	4	2	2	2	2	4
Altruistic statements	2	2	2	1	1	2	3	3	3	1	0	3
Equality and justice	2	2	2	2	2	1	2	1	2	1	2	4
Other	3	4	3	5	1	3	3	3	7	2	2	3
DK/NR	10	8	11	11	8	8	11	3	5	10	13	18

TABLE 3

Comparison of perceived Quality of Life in selected countries (QL4: 1975)

(0-10 scale, 0="lowest possible" 10 = "Highest possible")

	Mean $\bar{x}$	Grouped scale ratings (0-4) %	(5-7) %	(8-9) %	(10) %	DK %	Total %
Australia	7.7	3	32	50	11	4	100
Sweden	7.5	3	40	44	8	6	100
Germany	7.4	5	35	49	7	4	100
Holland	7.4	3	43	45	4	5	100
Britain	7.2	7	43	38	11	2	100
U.S.A.	7.1	10	39	37	10	4	100
France	6.4	11	59	23	3	4	100
Russia	4.9	37	43	11	2	6	100
India	2.5	84	11	1	*	4	100

(* = less than 0.5%)

TABLE 4

Perceived trends of "Quality of Life" (QL4: 1975)

(a) Level of "Quality of Life" in Britain
(Scale 0-10: 0 = "lowest possible" 10 = "highest possible")

Time reference	Mean	Grouped scale ratings					(N = 932)
	$\bar{x}$	(0-4)	(5-7)	(8-9)	(10)	DK	Total
		%	%	%	%	%	%
5 yrs. ago	8.0	3	29	49	17	2	100
Now	7.2	7	43	38	11	2	100
5 yrs. time	6.0	25	39	22	9	5	100
Entitled	8.9	1	9	40	47	3	100

(b) Level of "your own standard of living"
(Scale 0-10: 0 = "lowest possible" 10 = "highest possible")

Time reference	Mean	Grouped scale ratings					(N = 932)
	$\bar{x}$	(0-4)	(5-7)	(8-9)	(10)	DK	Total
		%	%	%	%	%	%
5 yrs. ago	6.5	12	54	26	6	2	100
Now	6.6	8	60	28	3	1	100
5 yrs. time	6.7	12	42	34	7	5	100
Deserved	8.0	*	28	52	17	2	100

(c) Satisfaction with "your life as a whole"
(Scale 0-10: 0 = "Completely dissatisfied" 5 = "Exactly halfway" 10 = "Completely satisfied"

Time reference	Mean	Grouped scale ratings					(N = 932)
	$\bar{x}$	(0-4)	(5-7)	(8-9)	(10)	DK	Total
		%	%	%	%	%	%
5 yrs. ago	7.3	7	40	36	16	1	100
Now	7.8	3	29	48	20	1	100
5 yrs. time	8.1	3	22	46	25	4	100
Entitled	8.8	*	10	50	38	2	100

(* = 0.5% or less)

TABLE 5

Changes needed to improve "Quality of Life" in Britain **

	%
Inflation, prices, cost of living	11
Government, politics	10
Make people work, social security abuses	7
Crime, violence, police	6
Nothing, Britain is best	6
Strikes	6
Values, people are greedy, selfish	6
Employment, unemployment	4
Social justice, equality	4
Taxes, rates	4
Reduce power of Unions	3
Dunkirk spirit	3
Immigration controls	3
Pensions, old people	3
Wages, incomes, grants (increase)	2
Housing	2
Education	2
Other industrial relations	1
Environment	1
Religion	1
Pace of life, pressure, worries	*
Health, welfare services	*
Other	10
DK	5

(* = 0.5% or less)

** "What is the ONE thing you would most like to change to improve the Quality of Life in Britain today?"

TABLE 6

Distribution of domain-satisfaction ratings (QL4: 1975)

(Scale 0-10: 0 = "Completely dissatisfied" 5 = "Exactly halfway" 10 = "Completely satisfied")

Domain	Mean	Grouped scale ratings						Zero-order Corr. with whole life satisfaction
	$\bar{x}$	(0 - 4) %	(5) %	(6 - 7) %	(8 - 9) %	(10) %	N = 100% %	r
Being a housewife	9.1	5	9	13	30	37	522	0.48
Family life	8.8	4	5	9	27	55	925	0.37
Town	8.1	6	9	13	35	37	930	0.25
Job	8.0	2	9	22	38	29	532	0.42
Local district	7.9	9	8	14	37	33	930	0.28
Health	7.8	8	9	14	42	27	923	0.38
House	7.8	8	10	14	40	28	924	0.37
Leisure	7.7	6	13	18	35	27	927	0.52
Standard of living	7.7	5	12	19	41	23	923	0.53
Gen.financial sit.	7.3	10	15	21	35	19	925	0.52
Freedom & democracy	7.3	6	15	27	39	13	920	0.23
Education	6.9	13	15	25	29	18	916	0.23
Quality of Life in Britain	6.5	15	20	27	28	10	922	0.32
LIFE AS A WHOLE	7.9	3	9	22	48	20	924	-

APPENDIX £

Key to variable names in figs. and tables.

SEX	Sex of respondent
AGE	Actual age of respondent last birthday. (18-84)
CLASS	Social grade of head of household (AB, C1, C2, D,E)
INCØMEH	Grouped income of household (gross)
BUILT	Year dwelling was built (grouped)
ENVIRØN	Interviewer observation of outlook from front of dwelling (6 categories)
AMENITY	No. of basic amenities in house in exclusive use (0-5)
DWELLING	Type of structure (Detached, semi-detached, terrace, flat)
DENSITY	No. of persons per room in dwelling (continuous)
CØST	Cost of rent/mortgage, rates, maintenance (grouped)
DAMP	Extent to which damp is a problem in dwelling (1-4)
TENURE	Tenure of dwelling (Owner-occupied, other)
HØUSPRØB	No. of problems in dwelling endorsed (0-6)
CONSUMER	No. of consumer items endorsed as possessed or enjoyed (0-9)
SYMPTØMS	No. of symptoms of ill-health admitted (0-14)
AFFPØS	Positive affect score (0-5)
AFFNEG	Negative affect score (0-5)

Index to tables and figures

TABLE 7

Comparison of 1973 and 1975

Satisfaction ratings with domains common to both surveys

	Mean satisfaction		'Dissatisfied' (0-4)		'Completely satisfied' (10)		Zero-order correlation with life sat.	
	1973	1975	1973	1975	1973	1975	1973	1975
	~~x~~	~~x~~	%	%	%	%	r	r
Job	8.3	8.0	2	2	32	29	.46	.42
Town	7.8	8.1	8	6	32	36	.31	.25
House	7.8	7.8	7	8	28	28	.35	.37
Health	7.7	7.8	10	8	31	27	.35	.38
District	7.5	7.9	11	9	28	33	.27	.28
Leisure	7.5	7.7	7	6	22	27	.41	.52
St. of living	7.4	7.7	7	5	19	23	.56	.53
Education	6.7	6.9	13	13	14	18	.34	.23
Democracy	6.7	7.3	9	6	9	13	.22	.23
Financial sit.	6.6	7.3	15	10	12	19	.51	.52
Life as a whole	7.6	7.8	4	3	19	20	-	-

TABLE 8

Correlations of satisfaction-ratings between domains (QL4 : 1975)

	House	District	Town	Family life	Britain	Democracy	Standard of living	Financial situation	Education	Job	Being a housewife	Leisure	Health
House													
District	0.43												
Town	0.25	0.54											
Family	0.20	0.20	0.19										
Britain	0.31	0.27	0.27	0.20									
Democracy	0.20	0.22	0.20	0.12	0.43								
Living	0.43	0.28	0.19	0.32	0.39	0.28							
Finance	0.34	0.20	0.17	0.30	0.30	0.23	0.60						
Education	0.25	0.13	0.19	0.10	0.14	0.12	0.23	0.16					
Job	0.21	0.22	0.21	0.24	0.20	0.10	0.38	0.42	0.21				
Housewife	0.31	0.29	0.32	0.32	0.19	0.18	0.33	0.34	0.19	0.46			
Leisure	0.34	0.25	0.26	0.33	0.30	0.23	0.39	0.43	0.28	0.39	0.55		
Health	0.16	0.13	0.11	0.19	0.17	0.05	0.22	0.27	0.14	0.25	0.28	0.37	
Whole Life	0.37	0.28	0.25	0.37	0.32	0.23	0.53	0.52	0.23	0.42	0.48	0.52	0.38

Delete diagonal titles
Put QL3 correlations in upper half.
? Leave out "Britain" and "Being housewife"?

TABLE 9

Measures of affect and syndromes

(QL4 : 1975, N = 932)

(a) Items composing scales

Positive affect	%	Negative affect	%
Excited	40	Restless	24
Proud	43	Lonely	18
Pleased	60	Bored	28
On top of the world	41	Depressed	24
Things going your way	60	Upset	14

(b) Scores on subscales

	0	1	2	3	4	5	Total	Mean
	%	%	%	%	%	%	%	$\bar{x}$
Positive affect	15	16	20	20	17	12	100	2.5
Negative affect	45	25	14	10	5	1	100	1.1

(c) Affect balance (Positive minus negative)

-4	-3	-2	-1	0	+1	+2	+3	+4	+5	Total	Mean
%	%	%	%	%	%	%	%	%	%	%	$\bar{x}$
1	3	6	7	14	18	19	16	12	4	100	1.4

(d) Personal competence

Low				High		
0	1	2	3	4	Total	Mean
%	%	%	%	%	%	$\bar{x}$
13	25	29	24	9	100	1.9

(e) Trust of others

Low			High		
0	1	2	3	Total	Mean
%	%	%	%	%	$\bar{x}$
18	19	28	35	100	1.8

TABLE 10

QL4 Affect and Syndrome measures mean scores

(Scale range)		Affect (0 - 5) Positive	Affect (0 - 5) Negative	Affect (-5 - +5) Balance	Syndrome (0 - 4) Efficiency	Syndrome (0 - 3) Trust
Whole sample		2.4	1.1	1.4	1.9	1.8
Age within sex						
Men	All	2.5	0.9	1.6	1.9	1.7
18 - 29		2.8	1.1	1.7	2.0	1.7
30 - 44		2.8	1.0	1.8	1.9	1.7
45 - 59		2.3	0.8	1.5	1.8	1.8
60+		2.1	0.6	1.5	2.1	1.8
Women	All	2.4	1.2	1.2	1.9	1.8
18 - 29		3.3	1.6	1.7	1.9	1.8
30 - 44		2.5	1.1	1.4	1.9	1.8
45 - 59		2.2	1.2	1.1	1.7	1.8
60+		1.8	1.1	0.7	1.9	1.9
Class within sex						
Men	All	2.5	0.9	1.7	1.9	1.7
AB		2.9	0.9	2.0	2.2	2.1
C1		2.7	0.7	2.0	1.9	1.7
C2		2.5	0.9	1.6	1.9	1.6
D		2.3	0.9	1.4	1.7	1.8
E		2.1	1.1	1.0	1.9	1.6
Women	All	2.4	1.2	1.2	1.9	1.8
AB		2.9	0.9	2.0	2.4	2.1
C1		2.5	1.1	1.5	1.9	2.0
C2		2.6	1.2	1.4	1.9	1.8
D		2.3	1.4	0.9	1.5	1.6
E		1.6	1.5	0.1	1.7	1.8

TABLE 11

Mean satisfaction ratings of life domains by indices of trust, efficiency and affect. (QL4: 1975: N=932)

	%	House	District	Town	Family	Britain	Democracy	Living	Finance	Education	Job	Being housewife	Leisure	Health	Life
Whole sample	100	7.8	7.9	8.1	8.8	6.5	7.3	7.7	7.3	6.9	8.0	8.2	7.7	7.8	7.8
(a) Trust in others															
Very low	18	7.5	7.3	7.7	8.8	6.0	6.8	7.4	6.7	6.6	8.0	8.0	7.3	7.5	7.6
Low	19	7.6	7.6	8.0	8.5	6.2	7.2	7.5	7.0	6.7	8.0	8.0	7.2	7.4	7.6
Moderate	28	8.0	8.3	8.3	8.8	6.7	7.4	7.8	7.5	7.2	8.2	8.2	7.9	8.0	8.0
High	35	8.0	8.1	8.2	8.9	6.8	7.5	8.0	7.6	7.0	8.0	8.3	8.0	8.2	8.0
(b) Personal efficiency															
Very low	13	7.2	7.6	7.8	8.6	6.0	6.8	7.2	6.4	6.2	7.8	7.6	6.8	7.0	7.0
Low	25	7.3	7.8	8.0	8.6	6.1	7.0	7.2	6.9	6.6	7.9	7.8	7.3	7.3	7.4
Moderate	29	8.0	8.0	8.0	9.1	6.5	7.4	7.8	8.3	6.9	7.9	8.4	7.9	8.1	8.0
High	24	8.4	8.2	8.4	8.8	7.1	7.6	8.4	8.0	7.2	8.4	8.5	8.2	8.5	8.4
Very High	9	8.2	8.0	8.3	8.7	6.9	7.6	8.2	7.9	8.0	8.4	8.5	8.1	8.5	8.3
(c) Positive affect															
Low (0-1)	31	7.6	7.7	8.2	8.8	6.4	7.3	7.2	6.9	7.0	7.8	8.1	7.4	7.3	7.3
Medium (2-3)	40	7.9	8.1	8.2	8.7	6.4	7.3	7.8	7.4	6.8	8.0	8.1	7.7	7.9	7.9
High (4-5)	29	8.0	7.9	7.9	8.8	6.7	7.3	8.1	7.6	7.0	8.2	8.4	8.0	8.4	8.3
(d) Negative affect															
Low (0)	45	8.1	8.1	8.3	9.0	6.7	7.4	8.0	7.6	7.0	8.2	8.5	8.1	8.3	8.2
Medium (1-2)	39	7.4	7.6	7.8	8.2	6.1	7.1	7.3	6.7	6.8	7.6	7.6	7.1	7.1	7.1
High (3-5)	16	6.2	6.8	7.4	8.3	5.1	6.7	6.3	5.3	6.1	7.1	7.4	5.8	5.7	6.4
(e) Affect balance															
Negative (-4:-1)	17	6.8	7.2	7.9	8.2	5.7	6.9	6.4	5.9	6.5	7.5	7.5	6.3	6.5	6.4
Zero (0)	14	7.7	7.9	8.3	8.6	6.5	7.4	7.6	7.0	6.8	7.6	8.0	7.5	7.2	7.3
Low positive (1:2)	37	8.0	8.0	8.0	8.9	6.5	7.3	7.9	7.5	7.1	8.0	8.2	7.9	7.9	8.1
High positive(3:5)	32	8.2	8.2	8.1	9.0	6.9	7.5	8.3	7.9	7.0	8.3	8.7	8.3	8.8	8.5

TABLE 12

Mean satisfaction ratings for specified housing conditions.

	Mean overall satisfaction with house.	Mean satisfaction with specific aspect.	Satisfaction item.
Date of construction			
1899 or earlier	7.5	7.2	"The general state or repair and decoration inside"
1900 - 1918	7.7	7.9	
1919 - 1944	7.8	7.6	
1945 - 1964	8.1	8.3	
1965 or later	8.2	8.0	
Fixed bath or shower			
None	5.5	2.2	"Facilities for baths or showers"
Shared	7.3	6.9	
Exclusive	8.0	8.7	
Inside flush toilet			
None	6.5	4.5	
Shared	6.9	6.7	
Exclusive	8.0	8.7	
Hot water for bath or shower			
Piped	8.1	8.8	
Geyser	7.5	8.2	
Kettle	6.0	3.9	
Building type			
Detached	8.6	8.4	"Its appearance from the outside"
Semi-detached	8.1	7.9	
Terrace	7.4	6.9	
Flat or maisonette	7.3	6.6	
View from front			
Open country, trees	7.8	8.4	"The view from your windows"
Gardens, trees	8.1	7.6	
No gardens or trees	7.4	6.4	
Industrial	7.2	5.4	
Commercial, shops	7.4	5.4	
Other	7.7	3.9	
Cost of rent, rates etc.			
Under £5 p.w.	7.7	7.2	"The cost of (rent/mortgage) rates, repairs etc."
£5 under £10	7.6	6.4	
£10 under £15	7.7	5.9	
£15 under £25	7.8	6.0	
£25 under £35	8.0	4.9	
£35 or more	8.1	5.3	
Method of heating living room in winter			
Central heating	8.3	8.4	"Keeping it warm in winter"
Electric storage	8.9	8.1	
Solid fuel	7.9	6.8	
Gas-fire	7.6	6.5	
Electric fire	7.1	5.4	
Other	6.4	4.5	

TABLE 13

Mean satisfaction with house and district by reported level of nuisance.

Source of nuisance	Level of nuisance: "Not at all"	"A little"	"A lot" or "A great deal"	Satisfaction item
Noise				
Traffic or trains	8.1	7.6	6.7	"Your (house /flat)"
Aircraft	7.9	7.7	7.3	
Children	8.1	7.5	6.5	
Neighbours	8.1	7.0	5.6	
Industry	7.9	7.0	5.6	
Other				
Air pollution	7.5	8.2	6.3	
Rats or mice	6.8	8.0	5.6	
Insects	7.1	8.0	6.3	
Condensation	7.7	8.3	6.6	
Damp	7.1	8.4	5.4	
Noise				**Housing items**
Children	8.7	7.9	6.9	"Privacy from neighbours"
Neighbours	8.7	7.0	5.8	
Other				
Condensation	8.9	7.4	4.1	"Freedom from damp and condensation"
Damp	8.7	6.2	2.4	
Noise				**District items**
Traffic or trains	8.9	7.6	4.5	"Noise"
Aircraft	8.4	7.4	5.9	
Children	8.5	8.0	5.5	
Neighbours	8.5	6.7	4.4	
Industry	8.3	7.0	3.0	
Children	8.2	7.7	7.1	"the sort of people who live round here"
Neighbours	8.2	7.2	6.1	
Other				
Air pollution	8.6	6.6	4.6	"Clean air"

TABLE 14

Indices of environmental quality and levels of satisfaction. (QL4:1975: N=932)

	Percent in category	Mean satisfaction ratings (0 - 10 scale)		
	932 = 100%	House	District	Life as a whole
	%	$\bar{x}$	$\bar{x}$	$\bar{x}$
(a) No. of noise sources bothering R "a lot" or "a great deal" (0 - 5)				
None	77	8.1	8.2	8.0
One	15	7.2	7.6	7.7
Two	6	6.7	6.5	7.1
Three or more	2	4.6	5.9	7.0
(b) No. of sources of nuisance bothering R "a lot" or "a great deal" (0 - 6) (Noise counting once only)				
None	57	8.5	8.4	8.1
One	25	7.6	7.7	7.6
Two	11	6.7	7.3	7.4
Three	4	6.1	5.9	7.2
Four or more	3	2.8	4.9	6.7
(c) No. of amenities enjoyed by household.				
Two or fewer	7	5.8	7.3	7.4
Three	11	7.5	7.9	8.0
Four	34	7.6	7.8	7.6
Five	26	8.1	8.2	8.1
Six	22	8.6	7.8	8.1
(d) Attempted to move house in last 12 months				
Yes	15	6.5	7.1	7.4
No	85	8.1	8.1	7.9
(e) Would like to move away from district				
Yes	35	6.9	6.3	7.6
No	65	8.3	8.8	8.0

TABLE 15

Census data and subjective measures.

(Sunderland: Nov. 73 - Feb. 74)

Mean ratings of satisfaction with "local district" and with "(Sunderland/Hetton/Houghton/Washington) as a place to live" by various census and other 'hard' measures relating to wards in which respondents live.

Ward indicators		Satisfaction with: Local district	Town	Life as a whole	N
Population					
1. % aged 0 - 4	Less than 8%	8.5	8.7	7.6	205
	8% or more	7.0	8.4	7.2	346
2. Children aged 0-4 per 1000 women aged 15-14	Less than 420	8.3	8.5	7.6	244
	420 or more	7.0	8.5	7.0	307
3. % aged 0-14	Less than 25%	8.1	8.6	7.5	353
	25% or more	7.3	8.5	7.4	395
4. % aged 60 or over	Less than 19%	7.2	8.5	7.5	371
	19% or more	8.2	8.6	7.4	377
5. % single person households	Less than 17%	7.6	8.5	7.5	349
	17% or more	7.9	8.5	7.4	399
6. % households with 6 or more persons	Less than 7%	8.1	8.6	7.6	373
	7% or more	7.3	8.5	7.3	375
7. Average size of household	Less than 2.9	7.9	8.5	7.4	297
	2.9 or more	7.6	8.5	7.5	451
8. % households at more than 1½ persons per room	Less than 3%	8.1	8.7	7.8	451
	3% or more	7.1	8.3	7.0	297
Tenure					
9. % households in owner-occupation	Less than 26%	7.3	8.5	7.2	324
	26% or more	8.0	8.6	7.7	424
10. % households renting from local council	Less than 30%	8.1	8.5	7.6	254
	30% to 59%	7.8	8.6	7.5	164
	60% to 79%	7.8	8.5	7.4	186
	80% or more	6.8	8.3	7.1	144
Amenity					
11. % households with exclusive use of basic amenities	Less than 76%	7.4	8.5	7.0	242
	76% - 90%	8.3	8.4	8.0	245
	91% or more	7.5	8.6	7.5	261
12. % households with access to car	0 - 30%	7.1	8.3	7.1	346
	31 - 40%	8.1	8.7	7.5	227
	41% or more	8.5	8.7	8.2	175
13. No. of buses per day to city centre passing through ward	Less than 600	7.2	8.4	7.4	250
	600 or more	7.9	8.6	7.2	301

TABLE 16

Health Symptoms (QL4: 1975) §

Symptom	"Not at all" %	"A little" %	"Quite a lot" & "A great deal" %	N (=100%)	Zero-order corr. with overall sat. with health.
Cold or flu	56	31	13	922	-0.15
Dizziness	82	12	6	929	-0.34
Aches & Pains	44	38	17	924	-0.49
Sweating hands	86	9	5	928	-0.25
Headaches	53	34	13	930	-0.30
Twitching	82	12	7	929	-0.34
Nervousness	56	30	14	930	-0.49
Rapid heartbeat	85	11	4	928	-0.35
Shortness of breath	77	15	7	930	-0.43
Skin rashes	89	8	3	928	-0.17
Upset stomach	71	22	7	930	-0.34
Feeling run down	55	33	13	930	-0.55
*Female complaints	88	9	3	540	-0.17
Getting to sleep	65	18	17	931	-0.42
Staying asleep	75	13	12	930	-0.37

*Asked of women only

§ "To what extent, if any, were you bothered by ..... during the past few weeks?"

TABLE 17

Admission to symptoms and satisfaction with health and life (QL4 = 1975)

(a) Index of five symptoms indicating poor health (Bradburn 1969)

No. of symptoms	None 26%	One 30%	Two 25%	Three 12%	Four 5%	Five 3%
Mean no. of symptoms(0-14)	1.3	3.7	5.7	7.5	10.0	11.7
Mean sat with health(0-10)	9.1	8.2	7.5	6.9	5.6	4.8
Mean sat with life(0-10)	8.3	7.9	7.7	7.6	7.1	6.5
Mean SD score(0-60)	44	52	40	39	36	31

(b) Index of three symptoms indicating anxiety (Bradburn 1969)

No. of symptoms	None 34%	One 21%	Two 22%	Three 13%
Mean no.of symptoms(0-14)	1.9	4.2	6.7	9.1
Mean sat with health(0-10)	9.1	8.3	6.8	5.1
Mean sat with life(0-10)	8.4	7.9	7.4	6.9
Mean SD score (0-60)	45	42	38	34

(c) Index of limitation by recent illness or chronic health problem or disability

Level of limitation	No recent illness or chronic problem 60%	Illness or problem no limitation 10%	Limitation by illness or problem 30%
Mean no of symptoms (0-14)	3.4	5.5	6.8
Mean sat with health(0-10)	8.8 (8.7)*	7.6 (7.6)*	6.0 (6.0)*
Mean SD score (0-60)	42	42	38

(*Figures in brackets are from 1973 QL3 data for comparison)

(d) Consultation with doctor at surgery or at home

Last consultation was:	Within last 7 days 12%	Within last 4 weeks 23%	Within last 3 months 19%	Within last 12 months 24%	More tha a year ago 22%
Mean no of symptoms(0-14)	6.1	5.9	5.1	4.0	2.7
Mean sat. with local health care facilities(0-10)	8.4	8.3	8.2	8.0	8.3
Mean sat. with health(0-10)	7.1	7.0	7.7	8.1	8.9

TABLE 18

Health Symptom Correlations (Pearson)

	Colds	Dizziness	Aches	Hands sweating	Headaches	Twitching	Nerves	Heart	Short of breath	Rashes	Stomach	Run down	Fem. comp.	Get. to sleep
Colds or 'flu	-													
Dizziness	13													
Aches & Pains	14	32												
Sweating hands	18	20	26											
Headaches	19	30	26	24										
Twitching	07	28	35	26	14									
Nerves	12	33	34	23	38	31								
Rapid heartbeat	10	34	32	20	23	26	31							
Shortness of breath	18	25	27	14	13	25	21	40						
Skin rashes	08	03	16	07	16	11	20	14	09					
Upset stomach	17	23	25	17	21	16	29	20	16	15				
Feeling run down	30	30	42	34	38	29	53	34	34	17	38			
Female complaints	-01	06	15	17	17	03	30	03	-01	08	10	23		
Trouble getting to sleep	14	20	32	16	19	20	31	27	25	07	20	31	00	
Trouble staying asleep	09	17	29	11	17	20	24	23	16	06	17	28	-02	58

Reformat to get figures closer and regularly spaced

TABLE 19

Comparison of perceived levels of living in 1973 and 1975

(0-10 Scale 0 = "lowest possible" 10 = "highest possible")

Mean ratings of standard of living ascribed to various groups by whole sample.

(a)

	NOW		DESERVED		SHORTFALL	
	1973	1975	1973	1975	1973	1975
Labourers	5.2	5.6	7.0	6.9	1.8	1.3
Skilled workers	7.2	7.4	8.4	8.5	1.2	1.1
Doctors and lawyers	8.9	8.5	9.2	9.4	0.3	0.9
Investors	8.7	8.4	7.6	7.7	-1.1	-0.7
Directors and executives	9.1	9.0	8.4	8.5	-0.7	-0.5
Small businessmen	6.9	6.6	8.0	8.1	1.1	1.5
Personal service	5.4	5.5	7.3	7.3	1.9	1.8
Clerks	6.2	6.3	7.4	7.4	1.2	1.1
Civil servants	7.4	7.6	7.8	7.7	0.4	0.1
Uniformed public service	6.4	6.7	8.3	8.5	1.9	1.8
Pensioners	3.8	4.5	7.4	7.4	3.6	2.9
Teachers	6.9	6.7	8.1	8.0	1.2	1.3
Students	5.0	5.3	6.3	6.1	1.3	0.8
Welfare recipients	4.6	5.0	5.6	5.4	1.0	0.4
Coloured people	5.3	5.7	6.5	6.2	1.2	0.5
Yourself	6.4	6.6	8.0	8.0	1.6	1.4

(b) Perceived trends in personal standard of living

	1973	1975	1973 N = 966 1975 N = 932
5 years ago	6.0	6.5	
Now	6.4	6.6	
5 years time	7.0	6.7	
Entitled	8.0	8.0	

TABLE 20

Comparison of perceived levels of freedom & democracy in Britain

(Scale 0-10) "How much .....?"

(0 = "Nil/not at all" 10 = "A very great deal")

	NOW		OUGHT TO BE		SHORTFALL	
	1973	1975	1973	1975	1973	1975
(a)Freedom of speech	7.5	8.3	8.9	9.1	1.4	0.8
(b)Tolerance	5.7	6.4	8.3	8.4	2.6	2.0
(c)Democratic	6.9	7.3	8.8	8.9	1.9	1.6
(d)Easy to understand politics	5.3	5.2	8.9	8.9	3.6	3.7
(e)Influence of voters	4.8	5.3	8.8	8.7	4.0	3.4
(f)Social equality	5.5	6.0	8.6	8.4	3.3	2.4
(g)Respect for law and order	*	4.8	*	9.4	*	4.6
(h)Pride in being British	|	6.9	|	9.4	|	2.5
(j)Censorship	|	5.3	|	6.2	|	0.9
(k)Equality for women	|	6.9	|	8.6	|	1.7
(l)Government information	*	6.4	*	5.2	*	-1.2

* not asked in 1973

TABLE 21

Selection of variables for MCA model of district satisfaction

SUNDERLAND

Dependent variable is satisfaction with DISTRICT on district list

Model	Ordered MCA	Multiple regression	Multiple regression
Number of cases	701	701	701
Predictors:	Beta-weights		
State of roads	-02	01	01
Bus & Train services	--	-03	-03
Shops	05	05	05
Freedom from noise*	10	10	07
Entertainments	06	05	04
Freedom from crime*	10	09	09
Schools	02	-03	-03
Parks & open spaces	06	06	04
Traffic in streets	03	-01	01
General appearance*	24	27	27
Safety at night	04	02	--
Being near family*	08	06	05
Being near friends*	08	08	08
Clean air	09	06	04
Sort of people*	35	34	33
(View from windows)*	not included		09
(Privacy from neigh.)*	not included		06
% variance explained	62	58	59

Dependent variable is satisfaction with DISTRICT on person variables using MCA model (N = 692)

Predictors:	Beta-weight
Sex	08
Age Group*	26
Working status*	15
Terminal education age	02
Tenure of dwelling*	17
Type of dwelling*	11
Marital status	08
Residence as % of age*	10
Social class of HH	05
Adjusted multiple R^2	11
% Variance explained	15

The best predictors from each set (those marked*) were included in the final model together with census variables selected as having prima-facie relation to district satisfaction (see table).

TABLE 22

Satisfaction with district using all permutations of predictor sets with MCA (Sunderland)

Predictor: Satisfaction ratings	No. of categ-ories	Est. simple r	(Listwise deletion of cases with missing values - original N = 966) (1)	(2)	(3)	(4)	(5)	(6)	(7)
			733	748	704	733	689	704	689
View from windows	10	43	14			15	17		18
Privacy from neighbours	10	43	09			09	07		07
Freedom from noise	10	47	12			11	10		10
Freedom from crime	10	45	14			13	15		15
General appearance	10	61	29			30	29		30
Being near family	10	31	11			12	13		14
Being near friends	10	38	12			12	11		12
Sort of people	10	42	37			35	40		38
Census statistics for ward of residence.									
% aged 0-14	3	24		38		14		33	11
% aged 60 or over	3	19		05		06		12	07
% households with 6 or more persons	2	23		05		09		03	07
% households in owner-occup.	3	17		08		11		05	13
% with excl.use all amen.	3	16		15		06		12	07
% at more than 1 person per room	3	26		14		09		09	08
% households with access to a car	3	26		22		13		20	16
Personal 'objective' characteristics									
Age group	4	24			28		10	25	11
Working status	4	11			09		09	08	11
Tenure of dwelling	4	18			17		05	08	05
Type of dwelling	4	21			19		03	16	04
Residence as % of age	11	08			10		08	09	08
Adjusted multiple R^2			60	12	12	61	61	20	62
% variance explained			64	14	14	66	67	24	68

TABLE 23

Satisfaction with housing. Beta-weights from regression models (QL4 : 1975)
(See Appendix for key to variable names)

Predictors:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Properties of respondent:															
SEX	02		01		01		01		-00			-00	00		*
AGE	25		23		12		11		-05			-05	-06		-05
CLASSH	-14		-06		-07		-04		-04			-02	-04		-02
INCOMEH	09		-00		01		-03		-00			-01	-02		*
Properties of dwelling:															
BUILT		01	01			-01	-01			-03		-03		-03	*
ENVIRON		-02	-01			-00	-00			02		01		02	02
AMENITY		24	24			14	14			05		03		04	01
DWELLING		-08	-09			-03	-03			-03		-03		-03	-02
Respondent-dwelling relationships.															
DENSITY				-16	-12	-15	-10				01		-00	02	-00
COST				01	02	-02	-00				05		04	04	04
DAMP				-27	-25	-24	-23				-10		-10	-10	-10
TENURE				00	02	-04	-01				-01		-03	-02	-04
HOUSPROB				-27	-27	-26	-26				-07		-07	-07	-07
Satisfaction ratings:															
Kitchen								10	11	10	10	12	11	10	11
No. of rooms								14	14	14	14	14	14	14	14
Shape & Size								14	15	14	14	15	15	14	15
Keep warm								09	09	07	08	08	08	07	08
Keep clean								00	00	01	-00	01	00	01	00
Baths								14	13	12	12	12	12	12	12
Noise free								04	03	04	02	03	02	02	02
Damp free								07	07	07	02	07	-03	-02	-03
View								08	08	08	08	09	08	08	08
Privacy								03	04	03	04	04	04	04	04
Cost								05	05	06	06	05	06	06	06
Repair								18	18	18	18	18	18	18	17
Appearance								18	18	17	17	17	18	17	17
R^2	07	08	14	29	30	31	30	63	64	64	65	64	65	65	65

(* Program limit of 25 variables required omission of some predictors)

TABLE 24

Satisfaction with life as a whole - beta-weights from regression models (QL4 : 1975)

(Bar above entry denotes negative coefficients)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Background:															
Sex	06				08	$\overline{02}$	09				$\overline{02}$	10	$\overline{01}$		$\overline{01}$
Age	17				15	$\overline{05}$	14				$\overline{05}$	14	$\overline{04}$		$\overline{04}$
Class of household	$\overline{05}$				$\overline{00}$	$\overline{02}$	$\overline{00}$				$\overline{03}$	02	$\overline{00}$		02
Income of household	17				08	$\overline{00}$	07				01	04	$\overline{02}$		00
Behaviour:															
Consumer durables		07			07			00	01		$\overline{04}$	03		$\overline{03}$	$\overline{05}$
Symptoms admitted		$\overline{24}$			$\overline{26}$			$\overline{01}$	$\overline{08}$		$\overline{01}$	$\overline{11}$		03	03
House problems		$\overline{13}$			$\overline{11}$			02	$\overline{10}$		02	$\overline{08}$		02	02
Satisfaction:															
House			08			08		08		06	09		07	07	08
Family life			11			12		11		12	11		12	11	11
Living standards			20			20		20		17	20		17	17	18
Financial situation			16			16		15		14	15		15	15	15
Health			15			13		14		10	13		09	12	11
Town			05			06		05		06	05		06	06	06
Britain			03			03		03		03	03		03	03	03
Job			11			12		11		11	13		12	11	12
Leisure			19			20		19		17	20		18	17	17
Affect:															
Positive affect				25			$\underline{28}$		$\underline{24}$	$\underline{14}$		$\underline{26}$	$\underline{14}$	$\underline{15}$	$\underline{14}$
Negative affect				$\overline{37}$			$\overline{35}$		$\overline{31}$	$\overline{11}$		$\overline{29}$	$\overline{11}$	$\overline{12}$	$\overline{12}$
Multiple R^2 for model	04	10	48	20	12	48	22	48	22	50	48	24	51	51	51

TABLE 25

Lower levels of path model for life-satisfaction.
(See Appendix for key to variable names)

Dependent variable	Predictor	Beta-weight	Multiple R^2
Level 3 (satisfactions)			
FAMILY LIFE	- AGE	0.17	
	- SYMPTOMS	-0.14	0.04
STANDARD OF LIVING	- SEX	0.11	0.15
	- AGE	0.24	
	- CONSUMER	0.28	
	- SYMPTOMS	-0.20	
FINANCIAL SITUATION	- SEX	0.13	0.15
	- AGE	0.29	
	- INCOME	0.19	
	- SYMPTOMS	-0.22	
HEALTH	- AGE	-0.10	0.47
	- SYMPTOMS	-0.67	
JOB	- SEX	0.20	0.15
	- AGE	0.28	
	- CONSUMER	0.19	
	- CLASS	0.19	
	- INCOME	0.18	
	- SYMPTOMS	-0.12	
	- HOUSPROB	-0.10	~~0.15~~
LEISURE	- SYMPTOMS	-0.31	0.13
	- AGE	0.24	
Level 2 (behavioural)			
HOUSPROB	- AGE	-0.19	0.04
	- INCOME	-0.20	
CONSUMER	- CLASS	-0.32	0.44
	- INCOME	0.44	
SYMPTOMS	- SEX	0.11	0.08
	- INCOME	-0.24	