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THE QUALITY OF LIFE IN AUSTRALIA*

ABSTRACT. This paper outlines a long term project on the quality of life in Australia and presents some initial survey data. The long term project is intended (1) to find which domains of life most affect the perceived well-being of Australians and the values/ satisfactions people wish to achieve in these domains (2) to propose policy programs designed to enhance satisfaction with particular domains and (3) to assess the political feasibility of proposed programs. Policy programs intended to enhance satisfaction are termed *positive* welfare programs to distinguish them from conventional *compensatory* welfare programs. The survey data analysed here (national sample, $N = 679$) deal with the satisfactions and dissatisfactions of Australians, the correlates of perceived well-being and the links between domains and values. Perceived well-being is measured by Andrews and Withey's Life-as-a-whole index and Bradburn's Affect Balance scale. Satisfactions are measured on a 9 point modified version of Andrews and Withey's delighted-terrible scale. Readers familiar with American, British and Canadian findings will find the results reported here broadly similar. However, the linkage between people's sociological characteristics and their satisfaction levels appears to be exceptionally weak in Australia, which tends to confirm the view that Australia is a *comparatively* unstratified society.

The founder of Mass Observation, a British market research company, once wrote that, "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"[1]. Perhaps not, but social scientists now attempt something at least as ambitious when they try to measure people's perceptions of the 'quality of life' and even to discover the principal determinants of psychological well-being or happiness. The long term objectives of this research are (1) to discover the *domains of life* (job, marriage, leisure, etc.) which most affect the well-being of Australians and the *values* (high standard of living, close personal relations, a sense of accomplishment, etc.) Australians wish to achieve in these domains, (2) to propose *public policy programs* which would assist realization of values, and (3) to assess the political feasibility of proposed programs.

This project may be regarded as an attempt at political market research, based on the premise that governments, like private corporations, need to

know that their consumers want. As such it is a logical extension of current work on social indicators. Most of this work has been concerned with developing indicators of personal and social stress. So we know a good deal about trends in physical and mental illness, crime, marital problems, housing conditions, the conditions under which old people live and so forth. The policy programs intended to deal with these problems could be termed deficiency welfare or *compensatory welfare programs* in the sense that they are designed to alleviate misery and compensate for obvious deficiencies rather than positively to enhance quality of life and promote well-being.[2] Some recent research, however, in Britain, Scandinavia and the United States, has moved away from this exclusive concern with 'problem areas' and towards investigating people's subjective satisfaction with different aspects of life and their sources of psychological well-being.[3] In this project I am primarily concerned to draw out the policy implications of research on subjective social indicators and perceived quality of life. Its eventual aim is to provide market research data to enable future Australian governments to improve their understanding of the values people seek to achieve in different domains of life, so that *positive welfare programs* may be designed to promote these values.[4]

Having stated these rather grandiose aims, I have to confess that at present I am only at the first stage of the project, and that this report will review the results of a national survey undertaken in Australia in March 1978; a survey which was designed to explore levels of satisfaction with different values and domains of life, to find the main correlates of psychological well-being, and to relate these results to people's demographic and political characteristics. It may be of some interest, however, to outline the methods of research which will be used at each stage of the project.

As suggested by Table I the national survey, and a subsequent Melbourne metropolitan survey, will be used for preliminary mapping operations.[5]

It is considered essential to select representative respondents from the survey samples, so that these people's values, expectations, aspirations, time budgets and 'objective' social conditions can be explored in depth and over a period of several years. Intensive interviewing, then, is required to provide a deeper understanding of results outlined by the wide-ranging but inevitably somewhat superficial survey data. Currently, the survey data are being subjected to various multidimensional scaling techniques, particularly cluster analysis, with a view to selecting respondents who are representative of sub-

TABLE I

Objectives and methods

Objectives	Methods
I. To discover the *values* with different sections of the community want to achieve in various *domains* of life.	I.1. National sample survey (March 1978) and Melbourne metropolitan survey (November 1978)
	I.2. Intensive interviews with selected respondents from the national survey whose "life concerns" (values, domains...) have been shown to be typical of particular groupings within the community.
II. To design appropriate positive welfare programs.	II. Inventory of programs compiled from reformist writings and current government practice. Seminars with members of Social Welfare Departments of Australian state governments. Leisure survey.
III. To assess the political feasibility of proposed programs.	III. The selected respondents interviewed at stage II will be brought together as a group to discuss, debate and vote on proposed policy programs. A group of political influentials (local politicians, business and trade union leaders) will also be invited to participate. The aim is to provide a simulation of the debates which would occur if an Australian state government decided to introduce particular proposals. Sources and coalitions of support and opposition will be noted.

sets of the national population in terms of their patterns of satisfaction, dissatisfaction and overall well-being.[6] The later stages of the project, to be undertaken concurrently with the intensive interviewing, will involve designing positive welfare programs and attempting to assess the political feasibility of these programs by having them discussed and debated by samples of the general public and élite publics.

This interim report will review results of the national survey and attempt to answer these questions:

1. How satisfied are Australians with different aspects of their lives?

2. Which domains of life and which values are most important to people in the sense that they have greatest impact on perceived well-being/quality of life/happiness?

3. Which values are people trying to achieve in which domains of life? In other words, which domains and values ('life concerns') are closely linked in the minds of Australians and which are unrelated or only distantly related to each other? (N.B. For convenience we shall sometimes refer to both domains and values as 'life concerns'.)

A word about values: the term has been used to mean many things in the social sciences. Here I mean simply criteria which people use to judge how well they are getting along in different domains of life. Operationally, in the survey, many criteria are adjectives or participles ('how *exciting* your life is', 'what you are *accomplishing* in your life') and domains are mainly nouns ('your leisure activities' or 'your friends').[7] Empirically, it might be found that some people judge their leisure activities by how exciting they are and that a sense of 'what you are accomplishing' is irrelevant to this domain. 'What you are accomplishing', on the other hand, might be relevant to the domain of job satisfaction but irrelevant to everything else. One further point: it is *not* assumed that people have underlying or organizing values (or, one might say, first premises) which structure their life priorities and judgments about numerous problems and issues. As will become clear in the next section, the question of whether people actually have organizing or metavalues is one which we intend to investigate.

I. DEFINITIONS, METHODS AND MODELS OF PSYCHOLOGICAL WELL-BEING

Since about 1970 sociologists and social psychologists have become increasingly concerned to measure people's subjective satisfactions and perceived quality of life. A major reason for this burgeoning interest has been that early studies showed only weak linkages between people's 'objective' social conditions (i.e. their housing conditions, health conditions, socio-economic status etc. as assessed by outside observers) and their subjective satisfactions.[8] Since subjective satisfactions and a sense of well-being presumably matter to people more than their objective conditions, and since (arguably) government should be concerned to enhance people's perceived quality of life as well as improve their material standards, it seemed important and worthwhile to continue with this research.

In addition to confirming and giving us a rather intricate understanding of the linkages between objective and subjective conditions, later researchers have followed two other interesting lines of inquiry. They have focussed on
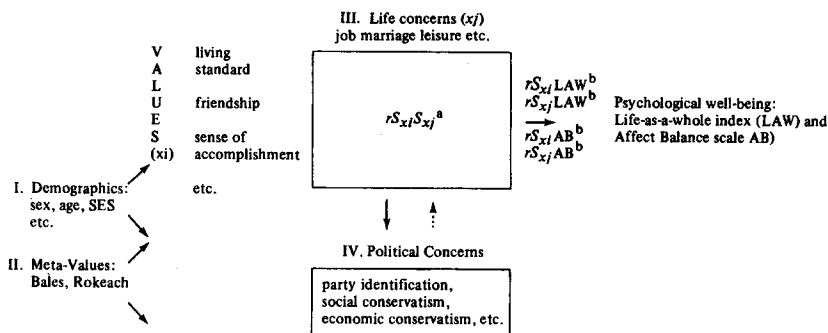
particular domains of life (e.g. housing, job, etc.) and tried to find out which aspects of these domains (e.g., for housing: house size, neighbors, garden, distance to work, closeness to friends, etc.) have most impact on overall domain satisfaction.[9] Other researchers, adopting a very broad perspective, have measured satisfaction with a wide range of life concerns with a view to determining which concerns contribute most to psychological well-being or perceived quality of life.[10] This last approach is the one adopted here since it is appropriate for the preliminary mapping operation required for the first stage of this project (see Table I).

The results reported in this paper come from a national probability sample survey of Australians ($N = 679$) conducted by the Morgan Gallup Poll research center in March 1978. The sample size is small compared with similar American surveys but the sampling error of differences for an N of 700 is only 5.9% and this seems adequate for an exploratory study which is obviously not required to generate highly accurate estimates or predictions. Furthermore, the sample proved to be a very precise miniature of the Australian population when its characteristics were matched with population characteristics supplied by the Census Bureau. In terms of age, sex, income, occupation, education, work status and state of residence the sample deviated from the population by margins of less than 3%. The only significant deviation from population norms lay in a 6% overrepresentation of small town residents and a consequent underrepresentation of capital city residents.

The model or conceptual framework guiding the survey design was as delineated in Figure 1.

Two distinct measures of the dependent variable, psychological well-being, were used: Andrews and Withey's Life-as-a-whole index and Bradburn's Affect Balance scale. The former index was derived by twice asking respondents, 'How do you feel about your life as a whole?' and averaging the results.[11] The scale used was a 9 point delighted-terrible (D-T) scale. This was expanded from the 7 point scale used by Andrews and Withey because they and British investigators found that respondents bunched too much at points 4–7 and recommended that, for this type of research, 9 point scales were preferable.[12] On the cards shown to respondents each point was labelled, with a view to increasing reliability, and there were 2 off-scale items (see Figure 2).

Life-as-a-whole measured on the D-T scale was selected because, of the 6 general measures of well-being tested by Andrews and Withey, it had the

III. Life concerns (x_j).
job marriage leisure etc.

V   living
A   standard
L
U   friendship
E
S   sense of
(xi) accomplishment

$rS_{x_i}S_{x_j}$ [a]

rS_{x_i}LAW [b]
rS_{x_j}LAW [b]
rS_{x_i}AB [b]
rS_{x_j}AB [b]

Psychological well-being:
Life-as-a-whole index (LAW) and
Affect Balance scale AB)

I. Demographics: etc.
sex, age, SES
etc.

II. Meta-Values:
Bales, Rokeach

IV. Political Concerns

party identification,
social conservatism,
economic conservatism, etc.

[a] S = satisfaction measured on the 9 point D-T scale. $rS_{x_i}S_{x_j}$ is the correlation between a particular value and a particular domain or, one might say, the importance to respondents of achieving a particular value in a particular domain.
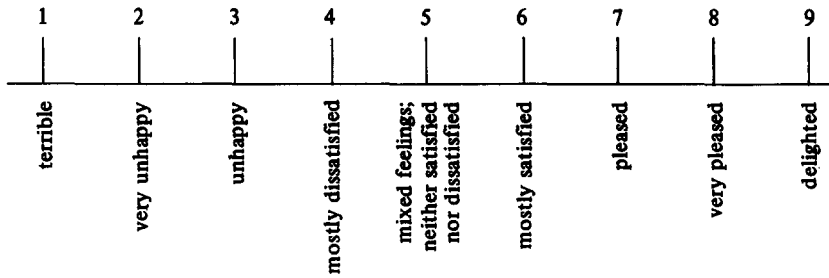
[b] rS_{x_i}LAW and rS_{x_i}AB are correlations between satisfaction with particular values and respectively, the Life-as-a-whole and Affect Balance measures of well-being. rS_{x_j} LAW and rS_{x_j}AB are equivalent measures relating domains of life and well-being. The correlation coefficients may be regarded as measures of the contribution which particular domains and values make to well-being.

Fig. 1. Life concerns and political concerns.

highest average correlation with the others.[13] (Encouragingly, all 6 measures were highly intercorrelated, suggesting that they all succeeded in measuring the same perceptions.)[14] Further, when we compare their first and second responses about their 'life as a whole', we find that 86.3% of respondents answer at the same or at adjacent points on the scale. Finally, the life-as-a-whole index discriminates well among independent variables, i.e., some life concerns emerge as very important to people (high correlates of Life-as-a-whole), others as quite insignificant.

The second measure used, Bradburn's Affect Balance scale, was included partly because comparable data were available for the United States and Britain.[16] People were asked to give a 'yes' or 'no' answer to questions about whether, 'during the last few weeks,' they had experienced 5 positive feelings ('particularly excited or interested in something?' 'proud because someone complimented you on something you had done?' etc.) and 5 negative feelings ('so restless you could not sit long in a chair?' 'very lonely or remote from other people?'). Each respondent's Affect Balance is calculated by summing his/her positive and negative affect scores, so that the scale runs from +5 to −5.

As compared with Life-as-a-whole, the Affect Balance scale appears to deal

1	2	3	4	5	6	7	8	9
terrible	very unhappy	unhappy	mostly dissatisfied	mixed feelings; neither satisfied nor dissatisfied	mostly satisfied	pleased	very pleased	delighted

It does not apply to me X.
I've never thought about it Y.

Fig. 2. The delighted-terrible scale.

more with feelings ('I *feel* good about my life') rather than with cooler, cognitive evaluations ('I am *satisfied* my life is working out well'). The Affect Balance measure may perhaps be regarded as a neat conceptualization of our concept of happiness. The Life-as-a-whole index, on the other hand, is best thought of as an index of self-reported well-being or perceived quality of life. There is a minor literature on the difference between cognitive and affective measures of well-being and it is clear that some population groups tend to be more satisfied and less happy, while others are happier but less satisfied.[17] A second less important difference between the Life-as-a-whole and Affect Balance scales relates to the time frame which respondents are presumed to have in mind as they answer questions. In answering the Affect Balance questions respondents were specifically asked about feelings experienced 'during the last few weeks'. A short term context seems appropriate in dealing with feelings of happiness and unhappiness, which are presumably fairly transient. In answering questions about their 'life as a whole', on the other hand, respondents were expected to use a more extended time frame (an 'extended present' in Andrews and Withey's phrase).[18] Hopefully, embedding the 'life as a whole' questions in the context of questions about satisfaction with numerous specific domains and values had the effect of inducing respondents to think of their lives in the round and not just report fleeting perceptions.

The question naturally arises, however, as to whether simple measures of this kind validly and reliably assess people's psychological well-being. The

usual defense social psychologists make is to say, first, that the measures they
have constructed yield very similar (i.e. highly intercorrelated) results and so
tend to validate each other.[19] Secondly, it appears that most people do make
running (even daily) assessments of their well-being, so survey questions are
meaningful to them.[20] Thirdly, the survey questions themselves, in their very
simplicity, are just like questions we constantly ask each other (even if, in
casual conversation, we don't expect a serious reply): 'How's it going?'
'How's life treating you?'[21]

The reliability of well-being measures also needs to be probed. Some
indications of their short-term stability have already been given, but their
longer term test-retest reliability is a more important matter.[22] Do people's
reports of their well-being change from week to week or month to month?
In the only two studies which report test-retest results, respondents were rein-
terviewed after 6 months and 8 months respectively.[23] In this period the lives
of many of them had drastically changed − they had divorced, become ill,
married, had children, etc. − so test-retest coefficients ranging from 0.40 to
0.53 for the various measures of well-being used should probably be regarded
as fairly satisfactory. No pretense should be made, however, that reliability
and validity problems have been solved. For the present we have to rely on a
limited number of results and, less technically, on assessments of the internal
consistency and plausibility of our findings.

The first part of the national survey consisted of 76 questions, all on the
D-T scale, asking about satisfaction with domains of life and values. 'How do
you feel about the amount of fun and enjoyment you have? .... Your spare
time activities? ... .'[24] Some of the items related to domains of life and others
to values which respondents might seek to achieve in various domains. The
correlations among value satisfactions and domain satisfactions ($rS_{x_i}S_{x_j}$ in
Figure 1) may be taken as a measure of how closely linked they are in the
minds of Australians. Similarly, the correlations between satisfaction with
specific life concerns and satisfaction with Life-as-a-whole (rS_{x_i}LAW, rS_{x_j}LAW)
and Affect Balance (rX_{x_i}AB, rS_{x_j}AB) indicate the relative contribution or
importance of these life concerns to psychological well-being.

The list of life concerns was compiled after reviewing several theories and
numerous surveys dealing with human values, needs and subjective social
indicators.[25] Rather than buy one particular theory it seemed preferable to
proceed eclectically and to try and arrive at a fairly comprehensive list of life
concerns which might significantly affect well-being.

The latter part of the survey was intended to provide data to facilitate exploration of linkages between people's life concerns and their political and policy beliefs. It included a standard measure of political party identification, pretested scales of economic conservatism, social conservatism and environmentalism[26] and questions borrowed from Ronald Inglehart and the Eurobarometer surveys which aim to relate people's policy priorities to their personal values.[27]

As Figure 1 indicates, the survey included standard demographic items (sex, age, SES, country of birth, etc.) and also questions intended to tap 'meta-values'. By meta-values I mean underlying values which may serve to organize and prioritize the more specific values included in our list of life concerns. Several psychologists believe that they have discovered and measured such meta-values. Robert F. Bales suggests that people can be categorized in terms of 4 values: egalitarianism, individualism, attitude to authority and need determined expression versus value determined restraint.[28] Milton Rokeach, on the other hand, believes that people are best classified in terms of the priority they give to 18 instrumental and 18 terminal values.[29] Shortened versions of Bales' and Rokeach's values questionnaires were included in our survey to see whether there are meaningful relationships between meta-values, satisfaction with specific life concerns, the importance of life concerns and psychological well-being.

There are a number of variables which, ideally, should have been included in the model but which, for time-cost reasons and to keep the present survey to a manageable length, could not be fitted in. People's satisfaction with life concerns and their psychological well-being doubtless depend to some extent on their aspirations, their expectations and even their equity judgments (their sense of what they are entitled to).[30] No attempt has been made to operationalize these concepts. Nor have we attempted to measure personality traits which might affect well-being.[31] Also, there is interesting work by welfare economists and sociologists which links people's activity patterns (or time budgets) and the skill with which they perform various activities to their well-being.[32] This theme, too, will have to be taken up at a later stage.

Finally, there are limitations which follow from the fact that our data are cross-sectional. Depth psychologists, using longitudinal study designs, report that adults pass through different stages of development during which their life concerns and levels of psychological well-being alter.[33] It is hoped eventually to collect longitudinal data but, for the present, we are not able to

provide adequate tests of hypotheses derived from recent writings on adult ·
development crises.

II. SATISFACTION LEVELS AND CORRELATES OF WELL-BEING
IN AUSTRALIA

How satisfied are Australians with different aspects of their lives? The overall
picture is that they are very satisfied with their close personal relationships:
their marriages, sex lives, relations with their children and 'the things you and
your family do together' (average scores on the 9 point D-T scale were over
6.75). They are also well satisfied with the amount of respect and esteem
they get from other people and their remembered relations with their parents
when they were children and adolescents (but standard deviations were high
here, especially in respect of 'your relationship with your father when you
were a teenager').

Satisfaction levels are moderate to high on a range of self-related introspective
concerns; the extent to which respondents feel they have 'a sense of purpose
and meaning in life', that they are 'succeeding and getting ahead', 'broadening
and developing themselves', can 'handle problems that come up' in their lives,
'can assert themselves when necessary', and are 'in touch with their own
feelings'. Average satisfaction levels on these questions were around 6.5.
Similar levels of satisfaction, but higher standard deviations, were registered
for leisure activities, 'the amount of fun and enjoyment you have', 'outdoor
places you can go in your spare time' and the extent to which people felt
they had enough privacy and time alone.

We now consider life concerns on which average satisfaction levels were
moderate to high but in regard to which standard deviations were also high
(over 1.6 on the 9 point D-T scale). These include people's ratings of their
health and the 'amount of energy' they feel they have. Jobs — or rather most
aspects of job satisfaction — also fall in this category. Responses on standard
of living type questions were puzzling. Most people gave a high satisfaction
rating in response to a question about 'your standard of living: the things you
have; housing, car, furniture etc.' But satisfaction specifically with 'the
income you and your family have' varied more and was much lower on
average, perhaps because of recent small declines in many people's real
purchasing power. Respondents' satisfaction scores for their houses, neigh-

borhoods, and the goods and services available in their local area were in between their income and standard of living scores.

Satisfaction was lowest (and standard deviations were high or moderately high) in respect for four broad aspects or domains of life. People were dissatisfied with the amount of free time they had and, perhaps as a consequence, with their organizational involvements (the clubs, societies and organizations they belonged to) and 'the things you do to help people or groups in this community'. Secondly, respondents were concerned about the amount they worried and the pressure they were under. They were also dissatisfied with 'the physical fitness and exercise' they get. Finally, Australians gave very low ratings — the lowest ratings in the entire set of 76 questions — to their Federal, State and local governments and the policies these governments pursue. This may in part be casual cynicism, but satisfaction levels are so low that cynicism is probably only a partial explanation. It would be interesting to see what voter turnout would be if voting were not compulsory.

We now ask which life concerns are most important to Australians, in the sense that they correlate highly with psychological well-being. Table II shows the correlates of Life-as-a-whole in order of importance.[34] In some instances variables have been combined into indices. Indices were only created if variables appeared to be substantively very similar and correlated at a 0.4 level or higher. For example, the central government index was created from three variables: 'what our Federal Government is doing', 'the way our political leaders think and act', and 'what our Government is doing about the economy: jobs, prices, profits'. The correlations among those three variables were 0.72 $(r1, 2)$, 0.67 $(r2, 3)$ and 0.67 $(r1, 3)$.

The self-fulfillment index, consisting of 6 variables of which the leading one is 'the sense of purpose and meaning in your life', emerges as much the most important correlate of Life-as-a-whole and, indeed, 'explains' over 50% of the variation in Life-as-a-whole. As well as a sense that life has purpose, it embodies elements of self-efficacy and perceived success ('the extent to which you are achieving success and getting ahead', 'what you are accomplishing in your life') and personal growth or even self-actualization ('the extent to which you are developing yourself and broadening your life', 'how exciting your life is'). Next in order of importance are indices of one's capacity to handle problems and changes, and of the respect and esteem with which one is treated by other people. In short, it appears that one's

self-concept and the respect paid to the self by others are fundamental
to (perceived) psychological well-being.

TABLE II

Correlates of psychological well-being; Life-as-a-whole index ($N = 679$)

Variable or index	Correlation[a][b]	Variable or index	Correlation[a][b]
Self-fulfillment index	0.73	Parents index	0.36
Handle problems index	0.55	Spare time activities	0.36
Respect index	0.53	Job index	0.36
Friends index	0.49	Children	0.36
Sex life	0.47	Worries index	0.36
Standard of living index	0.45	Work around house index	0.32
Family activities	0.45	House	0.30
Health index	0.45	Suburb/neighborhood	0.26
Fun and enjoyment	0.44	Organizational involvement	
Assertiveness index	0.43	index	0.20
Marriage index	0.42	Religious fulfillment	0.20
Privacy index	0.40	Safety from violence, theft	0.11*
Others' moral qualities		Government index	0.09*
index	0.40		
Own moral qualities index	0.39		
Beauty in your world	0.39		

[a] Person's r has been used, although, strictly speaking, the 9 point D-T scale is only an
ordinal scale. However, rank order correlations gave much the same results as Person's r,
indicating that the assumption of linearity required for Pearson's r was met. Person's r
has the advantage of being more interpretable.
[b] All results significant at the 0.001 level except those marked with an asterisk.

Next are a miscellany of life concerns which are predictably significant
contributors to well-being: satisfaction with friends, sex life, standard of
living, health, fun and enjoyment, and marriage. Other life concerns which are
important are satisfaction with the amount of privacy one gets and with the
perceived moral qualities of oneself ('how dependable and responsible you
are', 'how kind and generous you are'...) and other people. Interestingly,
there is only a modest correlation between people's perceptions of their own
moral qualities and their scores on the self-fulfillment index.

Among the life concerns which are less important than might have been
expected are job satisfaction, relations with one's own children, satisfaction
with home and neighborhood, and satisfaction with organizations to which
one belongs. Freudians might be surprised that there is not a stronger relation-

ship between the parents index (4 questions about relations with mother and father as a young child and as a teenager) and psychological well-being ($r = 0.36$). Finally, note that the low correlation shown between religious fulfillment and Life-as-a-whole ($r = 0.20$) is misleading, because the assumption of linearity is not met. Most people are not frequent church attenders nor highly religious. The minority of devotees are happier than average with most aspects of their lives.[35]

We next consider the interrelations among life concerns. Which values and domains of life are closely associated in the minds of Australians — which values are they trying to achieve in which domains — and which are only distantly related? Figure 3 presents a *smallest space analysis* (SSA) of the distances between groupings of life concerns. SSA is one of a family of dimension reducing techniques for which the input is a correlation matrix;[36] in this case a matrix of satisfactions in relation to 76 life concerns.[37] For display here the 76 dimensions have been reduced to 3. The 3 dimensional result which, of course, had to be flattened on to a 2 dimensional page, proved to be substantively more interpretable and statistically more satisfactory than the result in 2 dimensions. In interpreting Figure 3 it should be understood that only the distances between the 'shapes' (or contour lines) and not the sizes of the shapes are to scale. The key to the 3rd dimension is given at bottom left.

If we think of Figure 3 as displaying life concerns in a box, it can be seen the variables which make up the self-fulfillment and respect indices are close to the middle of the box. These are core concerns. Around the central core are other important concerns: marriage and sex, family and leisure activities, friends, and a group of variables relating to material well-being (income, standard of living, house, etc.). More distant from the central core in at least 2 dimensions are concerns which correlate weakly with self-fulfillment and with Life-as-a-whole: group involvement and governmental and public policy related concerns. (The distances from the central core of concerns of intermediate importance are less visually apparent because the display is on a flat page.)

The 3 dimensional SSA enables us to see interesting linkages between domains of life and values/criteria. Just to the left and above the central core of self-fulfillment concerns is a contour of material concerns, indicating that satisfaction with the domains of house and suburb correlates with the criteria of standard of living and 'the goods and services you can get when you buy
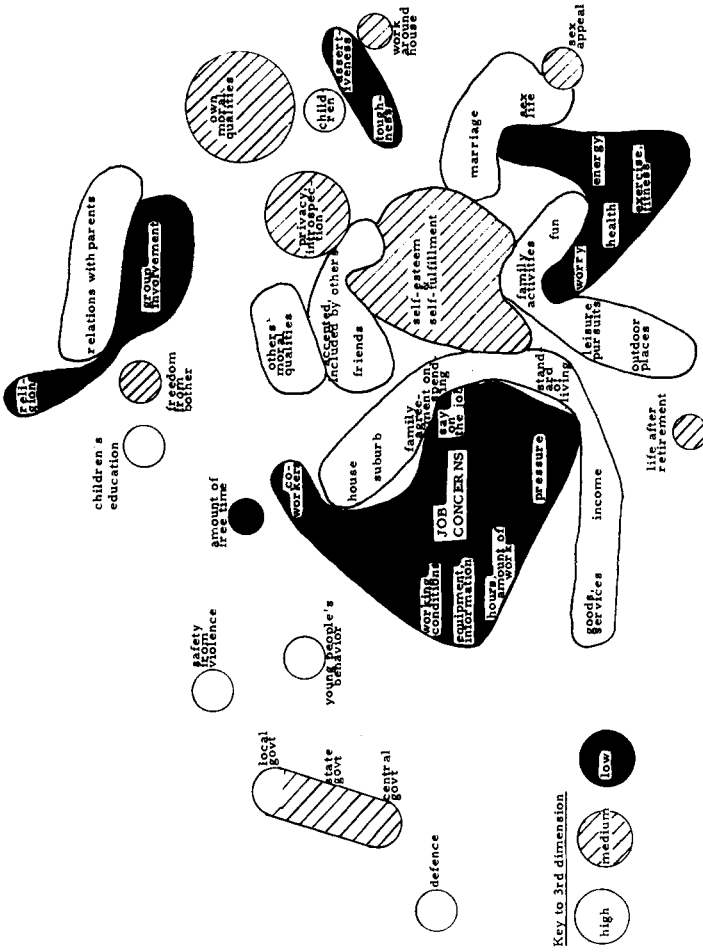
Fig. 3   The life concerns of Australians: a smallest space analysis in three dimensions. Kurskal's stress = 0.21. 'Contour lines' have been drawn around life concerns which are substantively related and less than 5 units apart in 3-dimensional space. (The average distance between concerns is 8.2 units)

things in this area'. Satisfaction with these concerns is further enhanced if there is 'family agreement on spending'. To the left of material concerns is a contour relating to job satisfaction which depends on such criteria as 'the amount of say you have in how your job should be done', 'the hours you work and the amount of work you are asked to do' and, interestingly, 'the amount of pressure you are under' and 'the amount of free time you have'.[38] Above and slightly to the left of the core self-fulfillment concerns is the domain of friends. It appears that satisfaction with friendships is closely associated with the extent to which one is 'accepted and included by others' and, more generally, with perceptions of the moral qualities of other people; 'how dependable and responsible', 'how kind and generous' and 'how sincere and honest' they are.[39] To the right and close to the central core is the marriage and sex life domain and, fairly close still, is a contour indicating that the domains of family activity and leisure are associated with 'fun and enjoyment' and with 'outdoor places you can go in your spare time'. Then at bottom right is a contour suggesting that important criteria which people associate with their health are 'the amount of energy' they have and 'physical fitness and the amount of exercise they get'. Interestingly, it appears that 'the amount [one] worries about things' is strongly related to health satisfaction.

Finally, the SSA suggests, and closer inspection of the full 76 x 76 correlation matrix confirms, that people's satisfaction with most life concerns tend to be substantially correlated.[40] Satisfied people are fairly content with almost all aspects of their lives, whereas dissatisfied people are chronic malcontents and rank most aspects of their lives as unsatisfactory. Visually, this finding is indicated by the fact that almost all personal or self-related concerns, together with relations with family and friends, and also material and health concerns are packed into little more than a quarter of the 3 dimensional space (or the bottom right of Figure 3). Only governmental and public concerns and other semi-public concerns like children's education, safety from violence and theft, young people's behavior and organizational activities are not found in this segment of the space.[41] In other words, only in relations to these concerns is satisfaction more or less uncorrelated with the great mass of personal, central concerns.

What is the explanation for the finding that people are generally content, or generally discontent, but not likely to rank high on some life concerns and low on others? It is tempting to suggest that self-fulfillment (r with Life-as-a-whole = 0.73) and its leading components ('the sense of purpose and meaning

in your life', 'what you are accomplishing in your life' etc) are so important that satisfaction in this regard suffuses the rest of life, and dissatisfaction defuses it. This interpretation should not be pressed too far, however, since no interaction effects have been found between the self-fulfillment index, other life concerns and the Life-as-a-whole index.[42] The relationships between life concerns and Life-as-a-whole appear to be linear and additive, so it is just possible for satisfaction in relation to other concerns to compensate for dissatisfaction in terms of self-fulfillment. However, the magnitude of the correlation between the self-fulfillment index and psychological well-being ($r = 0.73$) compared with other correlations (see Table II) indicates its central importance.

It should be stressed that in drawing attention to the contribution of the self-fullment index we are only putting forward a first order or proximate explanation of psychological well-being. (Indeed, it is not clear that 'explanation' is the right word: it may be preferable to refer here to 'components' of well-being). More underlying and satisfactory explanations may perhaps be found in terms of personality traits or even biochemical characteristics. Unless and until such findings emerge, however, it seems worthwhile to conceive of well-being in terms of the life concerns which contribute most to it.

One way to express an Australian formula for well-being is to write an equation in which the dependent variable is the Life-as-a-whole index and the independent variables are life concerns. The SSA helps us select concerns for inclusion in the equation. If we select one or two variables (or indices) from each segment of the 3 dimensional space, we would expect to explain a high proportion of the variance in Life-as-a-whole. In the event, a regression equation with 12 independent variables explains 63.8% of the variance in Life-as-a-whole for the total sample, and a slightly different equation, which substitutes marriage satisfaction for satisfaction with sex life, explains 66.2% of the variance for the married sample.

The multiple regression beta weights (standardized betas) shown in Table III again indicate the pre-eminent importance of the self-fulfillment index (beta weight = 0.40). The other beta weights, ranging from 0.14 for satisfaction with one's sex life to 0.04 for satisfaction with 'the amount of fun and enjoyment you have', indicate that while these life concerns all contribute significantly to satisfaction with Life-as-a-whole, they are substantially less important than the six values which comprise the self-fulfillment index.[43]

It is unusual in social psychological research to be able to explain such a high proportion of variance in any dependent variable. Gratifying as the result as, I initially regarded it with some suspicion and so substituted other variables for those included in Table III. In particular, other variables from the self-fulfillment index were substituted for 'sense of purpose and meaning in life' on the basis of the suspicion that this item might be too similar to asking about 'your life as a whole'. However, these (and other) substitutions made little difference to the variance explained in the Life-as-a-whole index.

In writing a regression equation we are assuming that life concerns are related to the Life-as-a-whole index in a linear and additive fashion. There is nothing particularly plausible about this assumption. Numerous hypotheses could be put forward implying non-linearities and interactions (i.e., non-additivities). For example, one might hypothesize that people who are very dissatisfied with their houses would care more about housing than the rest of the sample. Or, on the basis of the SSA, the hypothesis could

TABLE III

'Predicting' psychological well-being (Life-as-a-whole index)

	Total sample (N = 679)	Married people (N = 455)
Percent variance explained	63.8%	66.2%
Life concerns[a]	MR beta[b]	MR beta[b]
Self-fulfillment index	0.40	0.43
Sex life	0.14	c
Handle problems index	0.11	0.06
Family activities	0.09	0.08
Work around house index	0.08	0.09
Mother index	0.07	0.07
Health index	0.07	0.04
House	0.06	0.04
Standard of living index	0.05	0.05
Assertiveness index	0.05	0.05
Friends index	0.05	0.08
Fund and enjoyment	0.04	0.03
Marriage index	c	0.17

[a] A full list of variables and indices is given in Appendix I.
[b] MR = Multiple regression beta weights (standardized betas)
[c] Variable omitted

be advanced that, for people who are dissatisfied with their health, there would be a multiplicative relationship between health and 'the amount you worry about things',[44] and that both these variables would correlate more highly with the Life-as-a-whole index than for the rest of the sample. In view of the plausibility of hypotheses like these it was essential to check that a linear additive model really fits the data.

The check was made in three ways. First, essentially the same results were obtained using multiple classification analysis (MCA) as had been found using multiple regression (MR). MCA is designed for relating as set of non-metric independent variables to a single dependent variable.[45] It makes no assumption of linearity and maximizes the variance explained regardless of whether relationships are linear or curvilinear. The fact that the MCA betas are much the same as the MR betas and the fact that the MCA R^2 and the MR R^2 are similar suggests that our assumption of linearity is warranted.[46] A further check was made using the SEARCH program developed at the Institute of Social Research, University of Michigan.[47] Essentially, this program poses the question, 'which dichotomous splits on which independent variables will give us maximum improvement in our ability to predict values of the dependent variable?' Improvements in predictive power using SEARCH (rather than MR) might have been obtained either because SEARCH detected interactions (i.e., non-additivities) among independent variables, or because one particular independent variable was related in a non-linear fashion to the dependent variable. In fact, SEARCH found no way of partitioning the variables to explain more variance in the Life-as-a-whole index than MR.

A third check on our regression equation came from a *discriminant analysis* in which respondents were grouped into high, medium and low scorers on the Life-as-a-whole index. The first discriminant function classified 82.9% of respondents into their correct Life-as-a-whole group. No person was seriously misclassified in the sense that he or she was placed in the low Life-as-a-whole group when he/she really belonged in the high group, or vice versa.

Finally, we tested some specific alternatives to the linear additive model implied by Table III. These alternative models included both additive and multiplicative terms which gave extra weight to the following indices and variables which, it was hypothesized, might differentially affect Life-as-a-whole scores: the self-fulfillment index, the health index, the health index multiplied by the worries index, housing (v130), religious fulfillment (v113),

and religious fulfillment in combination with church attendance. None of these revised models enabled us to explain significantly more variance in LAW than the Table III model, either for the total sample or for sub-samples obtained by dividing respondents into high and low scorers on the indices and variables listed above.

A finding of great interest is that well-being or perceived quality of life is only very weakly related to the sociological characteristics of Australians. It might be expected, for instance, that people of higher occupational status would be more content with life than lower status people, or that men would be more content than women, or better educated people more content than less educated people. In other words the life concerns which we have examined might be merely intervening variables mediating between sociological characteristics and well-being. Not at all. The multiple correlation between 5 major sociological variables — age, sex, education, occupational status of head of household and income — and the Life-as-a-whole index was a statistically insignificant 0.06.[48] Interestingly, there is a modest correlation between the same sociological characteristics and Affect Balance. The multiple R is 0.23 ($R^2 = 5.2\%$) and most of this is accounted for by the relationship between Affect Balance and income ($r = 0.19$). Insofar as Affect Balance is a more affective measure than the Life-as-a-whole index, this suggests that lower status people do not 'feel' quite so good about their lives (or experience as much positive affect relative to negative affect), even though cognitively they evaluate their lives as just about as satisfactory as higher status people.

The finding that relationships between psychological well-being and people's 'objective' social conditions are weak is not new. American, British and Scandinavian social scientists have also reported weak relationships between sociological characteristics and psychological well-being. Results from these countries are not entirely comparable but it appears that Australia is quite exceptional in reporting relationships which are scarcely even statistically significant.[49] Indeed, the Australian result may be interpreted as adding a psychological dimension to the view sometimes expressed by historians and sociologists that Australia is, by Western standards, an exceptionally unstratified society.[50]

Further Research

This preliminary report has dealt with the perceived quality of life of the

sample as a whole. Later reports will deal with the satisfaction levels and correlates of well-being of different groups within the population. There are, in fact, interesting differences in the satisfactions, dissatisfactions and correlates of well-being of religious and non-religious people, people with differing levels of education and income, men and women, and even between Liberal, Labor and swinging voters.

As well as looking at population sub-groups we also need to look at *sub-concerns* in much more detail. In other words, we need to know more about specific sources of satisfaction and dissatisfaction in relation to important life concerns like self-fulfillment, marriage, friendship, housing and jobs. It is all very well to know that certain domains and certain values are statistically associated, but if we are to design positive welfare programs to enhance satisfaction levels we have to understand more precisely what improvements people would appreciate. The national survey and, to a greater extent, the later Melbourne metropolitan survey, provide information on these matters.

One premise of this project is that governments should use subjective social indicators as market research data to guide them in the development of policy programs to enhance well-being. At the end of the project the intention is to propose several positive welfare programs of this kind. However, as a colleague remarked, social scientists' policy recommendations can easily be divided into those made for governments which really exist, and those made for governments which have never existed or which would commit political suicide if they adopted the recommendations. With this kindly injunction in mind, it will be important to use our survey data to explore linkages between people's life concerns and their political and policy concerns. At minimum, taking account of political feasibility means not recommending programs which even the intended beneficiaries would be dubious about, either because of general policy beliefs, or attitudes about the legitimacy of governmental intervention. However, for most policy proposals, feasibility depends more on the attitudes of political elites than on the general public, so in the final stage of the project it will be crucial to have proposals debated and criticized by elite as well as mass public representatives.

APPENDIX

The segment of the March 1978 national survey analyzed in this paper is reproduced in this appendix. Following the extract from the survey is a list

of indices which were created by combining life concerns. The variable numbers shown here are those used in the author's computer file. Access to the data may be arranged by contacting the author.

	Variable No.
111a. First, during the last few weeks, did you ever feel... [Yes — No]	
Particularly excited or interested in something?	3
Proud because someone complimented you on something you had done?	4
Pleased about having accomplished something?	5
On top of the world?	6
That things were going your way?	7
111b. During the last few weeks, did you ever feel... [Yes — No]	
So restless you couldn't sit long in a chair?	8
Very lonely or remote from other people?	9
Bored?	10
Depressed or very unhappy?	11
Upset because someone criticized you?	12
112a. On the next white card is a scale from 1 to 9. As I say some things about life and politics, would you say the number that comes closest to how you feel?	
The more satisfied or happy you feel about what I mention, the higher the number you'll say (POINT TO TOP OF CARD.) The more dissatisfied or unhappy you feel about it, the lower the number you'll say. If you have mixed feelings, you'll say a number between 2 and 8.	
The amount of fun and enjoyment you have?	94
The amount of time you have for doing the things you want to do?	95
The way you spend your spare time; your non-working activities?	96
The outdoor places you can go in your spare time?	97
Your physical fitness and the exercise you get?	98
IF NOW MARRIED OR PREVIOUSLY MARRIED, ASK: (Otherwise go to 112c or 112d)	
112b. Your (wife)(husband)?	99
Your marriage?	100
Your children?	101
Your children's education?	102
IF WORKING FULL-TIME OR PART-TIME, ASK: (Otherwise go to 112d)	
112c. Your job?	103
The amount of say you have in how your job should be done?	104
The people you work with; your co-workers?	105
Where you work: the surroundings and conditions?	106
The hours you work and the amount of work you are asked to do?	107
What you have for doing your job: I mean the equipment, information, supervision and so on?	108

	Variable No.
How secure your job is?	109
The life you expect after (your retire) (your husband retires) from work?	110

ASK EVERYONE:

112d. What you are accomplishing in your life?	111
The way you handle the problems that come up in your life?	112
Your religious fulfillment?	113
Your own health and physical condition?	114
The things you and your family do together?	115
Yourself?	116
Your life as a whole?	117
The income you and your family have?	118
Your standard of living: the things you have; housing, car, furniture, etc.?	119
How well your family agrees on how family income should be spent?	120
How safe this country is from attack?	121
This suburb and community, as a place to live in?	122
The goods and services you can get when you buy things in this area: things like food, appliances, clothes?	123
What our Federal Government is doing?	124
The way our political leaders think and act?	125
What our Government is doing about the economy: jobs, prices, profits?	126
What the State government is doing?	127
What your local Council is doing?	128
How safe from violence, theft and other dangers you and your family are?	129
Your (house) (flat)?	130
The people you see socially?	131
Your friends?	132
The friends of the opposite sex you have?	133
How much you are accepted and included by others?	134
Your relationship with your mother when you were a young child?	135
Your relationship with your father when you were a teenager?	136
Your relationship with your mother when you were a teenager?	137
Your relationship with your father when you were a young child?	138
The things you do to help people or groups in this community?	139
The organizations, clubs or societies you belong to?	140
How interesting your day-to-day life is?	141
The extent to which you are developing yourself and broadening your life?	142
The extent to which you can adjust to changes in your life?	143
The extent to which your physical needs are met?	144
The amount of beauty and attractiveness in your world?	145
The extent to which you are achieving success and getting ahead?	146
Your own sincerity and honesty?	147
How dependable and responsible you can be?	148
How generous and kind you are?	149

	Variable No.
Your ability to assert yourself when necessary?	150
The amount of energy you have?	151
How fairly you get treated?	152
The respect and recognition you get?	153
The amount of pressure you are under?	154
The extent to which you are tough and can take it?	155
Your sex life?	156
Your attractiveness to the opposite sex?	157
How neat, tidy and clean things around you are?	158
Your housework – the work you need to do around your home?	159
How dependable and responsible people around you are?	160
How sincere and honest people around you are?	161
How generous and kind people around you are?	162
The way young people in this country are thinking and acting?	163
The freedom you have from being bothered and annoyed?	164
The amount you worry about things?	165
The extent to which you are in touch with your own feelings?	166
Your independence or freedom: the chance you have to do what you want?	167
The privacy you have? I mean being alone when you want to be?	168
How exciting your life is?	169
The sense of purpose and meaning in your life?	170
Your life as a whole?	171

Indices Combining Life Concerns

Indices were created from life concerns which were evidently substantively similar and which correlated at a 0.4 level or higher.

Index	Component life concerns
Health	v98 + v114 + v151
Own moral qualities	v147 + v148 + v149
Others' moral qualities	v160 + v161 + v162
Worries	v154 + v165
Central government	v124 + v125 + v126
Local government	v127 + v128
Parents	v135 + v136 + v137 + v138
Mother	v135 + v137
Father	v136 + v138
Marriage	v99 + v100 + v156
Respect	v152 + v153
Job	v103 + v104 + v106 + v107 + v108
Organizational involvement	v139 + v140
Self-fulfillment	v111 + v141 + v142 + v146 + v169 + v170
Success	v111 + v146
Interesting life	v141 + v142
handle problems	v112 + v143
Friends	v131 + v132 + v133 + v134
Standard of living	v118 + v119
Work around house	v158 + v159

Privacy	v166 + v167 + v168
Assertiveness	v150 + v155
Positive Affect	v3 + v4 + v5 + v6 + v7
Negative Affect	v8 + v9 + v10 + v11 + v12
Affect Balance	Positive Affect-Negative Affect
Life-as-a-whole	v117 + v171

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NOTES

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[1] Quoted in John Hall, 'Subjective measures of quality of life in Britain: 1971 to 1975', Social Trends No. 7, 1976 (HMSO, London, 1976), pp. 47–60.

[2] In this introductory section the terms quality of life, psychological well-being and happiness are used loosely and somewhat interchangeably. Working definitions and measures are discussed in Section I.

[3] M. A. Abrams, 'Subjective social indicators', Social Trends No. 4, 1973 (HMSO, London, 1973), pp. 35–50; Hall, 'Subjective measures of quality of life in Britain: 1971 to 1975', Social Trends No. 7, 1976, pp. 47–60; E. Allardt, 'About dimensions of welfare', Research Report No. 1. Research Group for Comparative Sociology, University of Helsinki, 1973; Hadley Cantril, The Pattern of Human Concerns (Rutgers University Press, New Brunswick, 1965); N. M. Bradburn, The Structure of Psychological Well-Being (Aldine, Chicago, 1969); A. Campbell *et al.*, The Quality of American Life (Sage, New York, 1976); Frank M. Andrews and Stephen B. Withey, Social Indicators of Well-Being (Plenum, New York, 1976). Canadian data are also in the process of being analyzed. See B. R. Blisher and T. Atkinson, paper presented at the Symposium on 'Quality of life', IX World Congress of Sociology, Uppsala, 1978.

[4] Australian work which could be said to deal with positive welfare programs includes F. Emery, Futures We're In (Centre for Continuing Education, Canberra, ANU, 1975); F. Emery and E. Emery (eds.), 'A choice of futures: To enlighten or inform' (Centre for Continuing Education, Canberra, ANU, 1975), and Telecom 2000 (Telecom, Melbourne, 1975). See also Solomon Encel *et al.* (eds), The Art of Anticipation (Universe, New York, 1976).

[5] The Melbourne survey was conducted in conjunction with David Kemp of the Political Science Department and Anona Armstrong and Alexander J. Wearing of the Psychology Department of Melbourne University.

[6] The University of Michigan's CLUSTER program is being used to examine patterns of correlations among people's satisfactions and dissatisfactions with selected domains of life and values. One advantage of cluster analysis is that it is as well designed for clustering cases (i.e. survey respondents in this instance) as for clustering variables.

[7] The distinction between domains and values/criteria is clear in standard of principle but hard to maintain in particular instances. For instance, living is probably best regarded as a criterion. However, it could be treated as a domain, in which case one's house, car and other material possessions would in a sense be criteria by which one judged overall satisfaction with standard of living.

[8] See, in particular, Allardt, 'About dimensions of welfare', (1973), and Abrams, 'Subjective social indicators', (1973).

[9] Campbell *et al.*, The Quality of American Life (1976) is the most thorough study focussing on specific domains.

[10] See, in particular, Andrews and Withey, Social Indicators of Well-Being (1976).

[11] The two items were separated by about 15 minutes of interviewing time. Respondents, in general, rated their Lives-as-a-whole as a little more satisfactory the second time they were asked, i.e., after they had scored themselves in regards to a wide range of life concerns.

[12] Andrews and Withey, Social Indicators of Well-Being (1976), Chap. 11, and Hall, 'Subjective measures of quality of life in Britain', (1976), p. 59.

[13] Actually, Andrews and Withey used 68 different measures of well-being. The 6 referred to here are their most general measures in which respondents were asked to evaluate their lives-as-a-whole and not a specific aspect or a specific time period.

[14] Ibid., p. 77.

[15] This may be regarded as a coefficient of stability; so may the Pearson product moment correlation of 0.63 between the first and second sets of responses.

[16] See Andrews and Withey, Social Indicators of Well-Being (1976) and Hall, 'Subjective indicators of quality of life in Britain' (1976).

[17] For discussions of the affective and cognitive components of well-being, see Aubrey McKennell, 'Cognition and affect in perceptions of well-being', Social Indicators Research 5 (1978), pp. 389–426, and Part 11 of this article.

[18] Social Indicators of Well-Being (1976), p. 19.

[19] Andrews and Withey found correlations generally over 0.5 among measures which asked respondents to evaluate their entire lives. Correlations between measures of this type and measures which focus on a specific range of feelings (e.g., positive affect and negative affect) or a specific time period (e.g., 'the last few weeks') were somewhat lower. For example, Andrews and Withey found correlations of 0.36 and −0.32 between Life-as-a-whole and Positive Affect and Life-as-a-whole and Negative Affect. The correlation with Affect Balance was 0.48. See Social Indicators of Well-Being (1976), p. 85. In the Australian national survey the three correlations were, respectively, 0.27, −0.29 and 0.39.

[20] See Norman C. Dalkey, Studies in the Quality of Life (Lexington Books, Lexington, 1973), p. 97.

[21] Andrews and Withey, Social Indicators of Well-Being (1976), p. 65.

[22] See p. 10 and Note 15.

[23] Campbell *et al.*, The Quality of American Life (1976), Chap. 2.

[24] See Appendix 1.

[25] The main surveys examined are printed in the studies listed in Note 2. Among the theories of human needs and values reviewed were Milton Rokeach, The Nature of Human Values (Free Press, New York, 1973); Robert F. Bales, Personality and Interpersonal Behavior (Holt, Rinehart and Winston, New York, 1973); Abraham H. Maslow, Motivation and Personality (Haper, New York, 1954). See also Norman T. Feather, Values in Education and Society (Free Press, New York, 1975).

[26] The scales of economic conservatism, social conservatism and environmentalism have been used by Morgan Gallup Research Centre in their Social Barometer surveys in Australia.

[27] See Ronald Inglehart, 'The silent revolution in Europe: Intergenerational change in post-industrial societies', American Political Science Review 65 (Dec. 1971), pp. 991–1017; Inglehart, The Silent Revolution (Princeton University Press, Princeton, 1977). For a critique of Inglehart's findings see A. Marsh, 'The silent revolution: Value priorities and quality of life in Britain', American Political Science Review (March 1975), pp. 21–30.

[28] Bales, Personality and Interpersonal Behavior (1973).

[29] Rokeach, The Nature of Human Values (1973).

[30] Campbell *et al.*, The Quality of American Life (1976), Chap. 6, suggest measures to operationalize aspirations and expectations. Hall, 'Subjective measures of quality of life in Britain' (1976) reports data on people's equity judgments relating to their standard of living and to political freedom and democracy.

[31] Note, however, that Bales believes that his measure of values can be used classify respondents in terms of their personality traits. See: Personality and Interpersonal Behavior (1976), Chap. 1, 8.

[32] See, in particular, F. Thomas Juster, Paul N. Courant, and Greg K. Dow, 'A social information system for the analysis of well-being' (University of Michigan, Ann Arbor, mimeo, 1979).

[33] See Daniel J. Levinson, The Seasons of a Man's Life (Knopf, New York, 1978) and George E. Vaillant, Adaptation to Life (Little, Brown, Boston, 1977).

[34] The rank order of correlations with Affect Balance was much the same as with the Life-as-a-whole index. However, Affect Balance discriminated less well among independent variables.

[35] This and other differences in the life concerns of sub-sets of the population will be dicussed in a later paper.

[36] Other techniques of this kind include factor analysis, cluster analysis and canonical correlation.

[37] The analysis was undertaken using the Guttman-Lingoes SSA program. The printout gave the location of each life concern on each of the 3 dimensions (dimensions were 10 units in length). The first draft of Figure 3 was constructed by showing each life concern as a small circle plotted in 2 dimensions. The 3rd dimension was then added by means of the conventions shown in the key to Figure 3. Finally, to enhance the visual interpretability of the Figure, contour lines were drawn round circles representing life concerns which (a) were evidently substantively very similar and (b) were not more than 5 units apart in 3 dimensional space. The circles were then removed. Alternative methods of representing SSA outputs can be found in Andrews and Withey, Social Indicators of Well-Being (1976), Chap. 2, and Campbell *et al.*, The Quality of American Life (1976), Chap. 3.

[38] This last life concern falls close to rather then within the job concerns contour. See Figure 3.

[39] Note how close the 'friends' contour and the 'others' moral qualities' contour are in Figure 3.

[40] Analysis of similar American data suggests that these results are not to any great extent due to correlated error effects. See Frank M. Andrews and Aubrey C. McKennell, 'Measures of self-reported well-being: Their affective, cognitive and other components' (ISR, Ann Arbor, Working Paper Series, 1979).

[41] 'Relations with parents' is an exception to the generalization that the concerns which are distant from the central core are semi-public ones. See Figure 3.

[42] Evidence indicative of the fact that relationships between life concerns and the Life-as-a-whole index are linear and additive is given below.

[43] Most of the life concerns included in Table III contribute at a 0.05 level of significance to explanation of the variance in the Life-as-a-whole index. The only exceptions are the assertiveness index, the friends index and fun and enjoyment (v94). These concerns are significant at the 0.10, 0.10 and 0.17 levels respectively.

[44] I.e., Life-as-a-whole = a + b1 health + b2 worry + b3 health. worry.

[45] See Frank M. Andrews *et al.*, Multiple Classification Analysis (Institute for Social Research Ann Arbor, 1973).

[46] For the total sample the MCA betas were: self-fulfillment index 0.35, handle problems index 0.17, sex life (v156) 0.16, health index 0.15, family activities (v115) 0.14, work

around house index 0.14, house (v130) 0.13, assertiveness index 0.09, friends index 0.07, fun and enjoyment (v94) 0.06. The MCA R^2 (variance explained) was 66.0%.

[47] The SEARCH program is described in John A. Sonquist *et al.*, Searching for Structure (Institute for Social Research, Ann Arbor, 1973).

[48] This and other results discussed in this paragraph were checked for evidence of non-linearities and interactions by the same procedures as the results reported in Table III. The variance explained using MCA and SEARCH was no higher than using MR.

[49] The most nearly comparable results are the American. Andrews and Withey report that the 5 sociological variables used here plus 'stage of family life cycle' explain 11% of the variance in Life-as-a-whole. See: Social Indicators of Well-Being (1976), p. 141. If we include 'stage of family life' cycle in our list of Australian sociological variables the variance explained in Life-as-a-whole is 1.3%.

[50] Purely sociological evidence for this view is analyzed in Bruce Headey and Tim O'Loughlin, 'Transgenerational "Structured" inequality: Social fact or fiction', British Journal of Sociology 29.1 (March 1978), pp. 110–120.