

ON THE RELATIONSHIP BETWEEN OBJECTIVE AND SUBJECTIVE SOCIAL INDICATORS: IMPLICATIONS FOR SOCIAL PLANNING IN IRELAND

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ABSTRACT

This paper, while recognising the importance of objective social indicators for social planning, makes a case for the addition of subjective social indicators as a necessary complement. Furthermore, it is argued that objective social indicators based on aggregate statistics for the country as a whole, even when these are disaggregated to a certain extent, cannot yield the same type of information obtainable through the use of sample survey techniques of the kind used in the present study, which enable the collection of both objective and subjective social indicator data on the same individuals. The value of this technique of relating objective and subjective social indicators is illustrated on the basis of selected findings from the 1977 Continuing Social Survey carried out in Ireland on a nationwide representative sample of just over 2,000 individuals drawn from the Electoral Register. The major portion of this questionnaire consisted of an EEC-wide harmonised study relating to the areas of health, health services, housing, the environment and life in general. This is the first in a series of such studies sponsored by the Statistical Office of the European Communities, Luxembourg, which are seen in the social action program of the Community as “a means of facilitating and encouraging the progressive convergence of social conditions in the Community, and of providing an essential basis for Community decisions concerning common targets in the social field”. In addition to analysing in greater detail the Irish data of the EEC harmonised portion of the questionnaire, the Continuing Social Survey in Ireland consists of a second portion specific to social problems in Ireland and designed to make a further input to social planning.

I. INTRODUCTION

The notion of “social statistics” is one which is certainly quite familiar to the members of this distinguished society. Indeed, the recognition of the social implications of statistics for society goes back many generations, if not some centuries. In 1798, Sir John Sinclair, in his *Statistical Account of Scotland*, described statistics as follows: “The idea I annex to the term (statistics) is an inquiry into the state of a country, for the purpose of ascertaining the quantum of happiness enjoyed by its inhabitants, and the means of its future improvement” (Campbell, 1976, p. 117).

In his review of this area, Campbell (*ibid.*) goes on to state that “during the years since Sir John’s observations, nations throughout the Western world have indeed been using

statistics to assess the condition of their people, and as time has passed these measures have become more inclusive, more sophisticated, and more important in their influence on public policy". The United States has been as prolific as any other country in the production of such statistics, Campbell notes; however, "the bulk of these data relate to the material aspects of American life, to income, expenditures, and savings, to the production and sales of goods and services, and to various other market place transactions. If it is true that the basic purpose of the collection of these data is to ascertain the 'quantum of happiness' enjoyed by our inhabitants, it is quite clear that we have been defining happiness in monetary (economic) terms" (*ibid.*). After considering other possible reasons why such close attention has been paid to these economic indicators, the author goes on to suggest that "an alternative explanation for the manner in which these economic measures so dominate our national accounts is the simple fact that they are easy to count" (*ibid.*).

More than a third of a century ago, the well-known psychologist, E. C. Tolman (1941), predicted that the concept of "economic man" would cease to dominate modern industrialised society and would be replaced by that of "psychological man". A number of social scientists and policy makers in the social area believe that we have, in fact, clearly moved in this direction. In an address to the first meeting of the Working Party on Subjective Social Indicators, held by the Statistical Office in Luxembourg in November 1975, Mr. M. Shanks, then Director-General for Social Affairs of the European Community, stated in very clear terms that:

"Firstly, the Communities and the Commission are fundamentally and essentially concerned with people and their well-being in the widest sense. Of course we are an economic community, but let there be no mistake about our social purpose — economics is the means and not the end of endeavours" (Shanks, 1975, p. 1).

II. SOCIAL INDICATORS AND QUALITY OF LIFE

Although the notion that social statistics are important for the "well-being" of a country — or to put it in Sir John Sinclair's terms "the quantum of happiness enjoyed by its inhabitants" — has been around for a long time, the recognition of the value of such statistics or "indicators" for social planning (as opposed to purely economic planning) has been of fairly recent origin. The term "social indicators" has been coined by social scientists and administrators alike to characterise these kinds of social statistics. There have been a number of approaches to "social indicator" research, and we shall discuss the more recent developments in the coming sections of this paper.

The first development in this area has been described as the "social statistics approach" (Stahlberg, 1978). In this approach social indicators are seen as offsprings from general social accounting and social indicator reports are compiled on the basis of existing social statistics. A clear example of this approach to social indicators may be seen in a document entitled *Toward a Social Report* (Cohen, 1969), reflecting the first large scale effort "to measure and evaluate systematically the social well-being of the nation" in the United States. Commissioned in 1966 by the then US President, Lyndon B. Johnson, and carried out under the auspices of the US Department of Health, Education and Welfare, it consisted largely of aggregate statistics, describing the nation as a whole. These included such statistics as income distribution, housing density, life expectancy, crime rates, etc. Other nations followed suit, and by 1973 some nations had produced as many as four annual social indicator reports reflecting a time series. Ireland recently joined these ranks with a publication in 1977 by the National Economic and Social

Council, also entitled *Towards a Social Report* (NESC, 1977a). The data contained in such national reports, based on aggregate statistics for a country, have come to be known as "objective social indicators" and contain, in addition to economic data, aggregate data collected by central statistical offices and other government departments, reflecting, as Campbell (1976) put it, statistics that "are easy to count". There is no doubt that such aggregate statistics, designed "to measure and evaluate systematically the social well-being of the nation" are of great value in social planning, and the US Department of Health, Education and Welfare is to be commended for the report which it produced in 1969, as is the National Economic and Social Council in Ireland to be commended for its report of 1977. However, such reports, based on aggregate statistics, do have serious limitations. It is to the credit of the NESC that they recognise these problems in the last sentence of their introductory chapter by stating that "it is also hoped that those with an interest in social policies and the measurement of their effectiveness will make suggestions as to how future social reports could be improved and developed" (NESC, 1977a, p.9). It is the major purpose of the present paper not only to comment on how such social reports can be improved and developed, but to report on developments that have already occurred in this area elsewhere in the world and, more recently, with the present study in Ireland.

III. SUBJECTIVE SOCIAL INDICATORS

As the title of the paper indicates, the major thrust of this discourse is to differentiate between "objective" and "subjective" social indicators and to draw the implications of such a distinction for social planning, based on some selected examples from a larger body of data which has recently been collected and analysed in Ireland. An earlier paper (Fine-Davis and Davis, 1977) written before the data from the present study had been analysed, presented in greater detail a review of the literature on subjective social indicators. In the present paper we shall review only briefly this background before addressing the major theme of the relationship between objective and subjective social indicators.

There has been an assumption underlying objective social indicators of a correlation between objective life situations and subjective feelings of life satisfaction. However, Schneider (1976) has argued that actual individual welfare and sense of well-being is a far more complex and subjective condition than is implied by descriptive social indicators based on aggregate data. In spite of the often made assumption that aggregate social indicators actually reflect the quality of life experienced by people, there is no *a priori* reason to believe that such a correlation between objective life situations and subjective feelings of life satisfaction, in fact, exists, no matter how intuitively appealing such an assumption of correlation might be. Such an underlying assumption of a correlation between objective and subjective social indicators obviously requires an empirical examination. To investigate this question, Schneider (*ibid.*) gathered comparable existing objective data on various social conditions in 15 American cities. Each city was ranked *vis à vis* each other city on the basis of each key variable. These rankings were then inter-correlated with independent data obtained by interview concerning respondents' subjective life quality in each of the cities. An essentially zero-order correlation was found between the two sets of variables. In our own data in Ireland we have found similar instances of a lack of relationship between objective data based on aggregate statistics and subjective satisfaction with various domains of life.

The use of the terms "objective" and "subjective" is perhaps unfortunate, since

science tends to value “objectivity” and devalue “subjectivity”. As Campbell (1974, p.9f.), in referring to the first social report in the US (Cohen, 1969), states, scientists:

“... prefer to count things that are easily reduced to finite units and those things that do not lend themselves to easy measurement they tend either to disregard or to represent by some surrogate measure which can be easily counted ... It cannot be doubted that objective data are to be preferred to subjective data when there is no question that the objective data are in fact measuring the intended variables. Some serious problems arise, however, when objective data are used to represent conditions which they do not represent or represent only partially, or when we try to avoid the use of subjective data by relying on objective data which do not in fact tell us what we want to know. Even more serious is the tendency to write off as unimportant those conditions which we do not know how to measure by traditional objective measures”.

In referring to the sceptics of subjective measures, Campbell (1974, p. 18) warns that “they should be reminded that the longer we wait to find reliable ways of assessing those aspects of individual experience which underlie our social problems, the longer those problems will be with us”. Daniel Patrick Moynihan further observed, during his tenure as Special Advisor to the late US President Lyndon B. Johnson that “it is a good general rule that governments only begin to do something about problems when they have learned to measure them” (*ibid.*). However, if one *really* wants to develop a measure of some variable, then it is usually possible to do so. As Campbell points out “it is useful to remember that the unemployment index which has now become such an important economic indicator was developed in the United States during the late 1930s because the estimates of unemployment then available were intolerably inaccurate, and it was imperative to have a better one. We will see a similar development in other areas of life experience and for the same reasons” (*ibid.*, p.17).

We would be the first to admit that measures of subjective social indicators, such as life satisfaction, satisfaction with particular areas of life, etc. are not perfect and require further development. On the other hand it should be realised that although the use of the terminology “subjective social indicators” is relatively new, the measurement techniques are based on a long history of measurement in the area of social psychology going back more than half a century (cf. Davis, 1973). Such measures are, after all, variations of measures of attitudes. In discussing the validity of these measures, Andrews (1974) points out that:

“There are ... some reasons to believe that the ‘subjective’ indicators provide at least as objective measures of what they intend to assess as do the ‘objective’ indicators of what *they* try to assess, and, furthermore, that some of the ‘objective’ indicators are rather heavily weighted with subjective elements (p. 281f.)”

A number of examples of the manner and extent to which “objective” indicators contain subjective elements could be cited, and, furthermore, these would most probably be readily conceded by many if not most economists and statisticians. On the one hand, such subjective elements are involved in the very definitions and assumptions underlying such basic economic indicators as GNP, the rate of unemployment, the Consumer Price Index and many others. For example, the calculation of GNP involves assumptions concerning matters such as income distribution, market prices, consumption patterns, etc. We have recent examples of changes in the assumptions underlying the calculation of unemployment rates, by including categories which were not previously included. It is quite possible that with changing values other categories of persons might be included, which

would again change the statistics which are used to reflect this indicator. It is quite obvious that the computation of the Consumer Price Index involves value judgements, since of all possible consumer prices, a judgement is constantly being made as to those commodities or services which are considered "essential", "basic" or whatever.

Furthermore, the very manner in which statistics relating to certain objective indicators are collected involves subjective elements, especially when these are collected by means of interviews. There is no reason to believe that certain data obtained by way of interviewer on the total population (such as is the case in Census data) is any more reliable than that obtained through sample surveys such as the Household Budget Survey or the present study. In cases where a sample rather than the total population is surveyed the margin of error due to sampling can be rather reliably calculated. The example of the unreliability of reported income is so familiar to all of us that it scarcely deserves comment. Even such basic characteristics as age are subject to possible errors due to data collection procedures.

Because of the implicit bias in the terms "objective" and "subjective" it has sometimes been suggested that the latter be referred to as "perceptual" measures. Nevertheless we shall consider briefly some of the concerns which have been expressed concerning the validity and reliability of such subjective or perceptual indicators. Andrews (*ibid.*) has noted the four major concerns which are frequently expressed concerning such measures:

- a) most people have not really thought about their reactions and hence cannot answer questions which ask about these reactions;
- b) although people could give answers, they won't for reasons related to invasion of privacy;
- c) although people can and will give answers, the answers they give will be biased;
- d) perceptions vary too rapidly and are too unstable to measure reliably (p.285).

Experience gained from a number of nationwide surveys tends to refute these concerns. To look at the first concern, Andrews and Withey (1974) found in four nationwide surveys carried out by the Survey Research Center of the University of Michigan that when people were asked more than 100 questions about various aspects of their lives (such as marriage, work, achieving success, etc.), very few people, usually less than 1 per cent, and never more than a few per cent, chose the possible response "never thought about it". Our ongoing research in Ireland corroborates this. In fact we have developed measures in Ireland to tap such dimensions as "importance" and "familiarity" of certain concepts to respondents (Davis, 1977).

The second concern, that a large number of people will refuse to cooperate in such surveys, is also not borne out by experience. In the surveys referred to above carried out in the US, refusal rates of approximately 15 per cent were found. However, refusal rates in recent surveys conducted in Ireland have been substantially lower; the refusal rate for the first Continuing Social Survey of social indicators which we have carried out was 3.8 per cent.

The third concern regarding bias is also not borne out by the experience which Andrews (1974) reports from analyses of the data in the above mentioned nationwide surveys. These analyses show single items to have a median validity coefficient of 0.81. Combining several items to assess the same concern results in "estimated validities of approximately 0.9 — i.e., consisting of approximately 80 per cent valid variance" (*ibid.*, p.256). Furthermore, it has been shown that when one uses the technique of factor analysis to empirically determine which items are tapping a common domain, the com-

posite scores which are thus generated have demonstrably greater reliability than individual items (Osgood, Suci and Tannenbaum, 1957; Davis, 1966).

Finally the concern about reliability, namely the question of perceptions of life varying too rapidly and thus being too unstable, has also been shown by Andrews (*op. cit.*) to be not as serious as might be thought. The research that he and his colleagues have carried out indicates that, while people are not perfectly consistent in the answers they give at different times to the same question, they are reasonably so. To test this assumption these authors followed up a random sample of 300 respondents who had taken part in a nationwide survey five months earlier and asked them a few of the questions they had been asked previously. They found that over 80 per cent chose (on a seven point 'delighted - terrible' scale) either the same category or the one adjacent to it that they had chosen five months earlier. Naturally, some of the respondents would in fact have been likely to have experienced changes in their lives which would be expected to affect their attitudes. Thus, the respondents were also asked "compared to six months ago, do you think your life as a whole now is better, worse or about the same?" When the responses to other questions of those who had said "about the same" were examined an even greater degree of stability was found.

IV. THE PRESENT STUDY IN AN INTERNATIONAL CONTEXT

Different groups of researchers in various countries and international organisations have taken somewhat different approaches to the study of subjective social indicators. It would exceed the space allotted to us here to present a complete summary of all of these various approaches. Characteristic of all these approaches, however, has been the use of nationwide sample surveys, as opposed to the use of aggregate statistics which have characterised previous efforts in the compilation of "objective" indicators.

Among the pioneers in large scale research efforts of this sort is the group at the Survey Research Center of the University of Michigan (Campbell and Converse, 1972; Andrews, 1974; Andrews and Withey, 1974; Rodgers and Converse, 1975; Campbell, 1976; Andrews and Crandall, 1976). Although there are some differences in emphasis among members of this group, they have largely focused on various measures of well-being and perceived life quality as dependent variables, examining demographic characteristics as determinants. Other groups in the United States, such as the Survey Research Center at Berkeley and the National Opinion Research Center (NORC) at the University of Chicago have focused somewhat more on socio-political attitudes.

The Organisation for Economic Cooperation and Development (OECD) has a major programme of research on social indicators, both subjective and objective, which has been underway for some time. The OECD programme of social indicator research was influenced to a large extent (especially in its earlier days) by the Michigan group (Strumpel, 1974).

A somewhat different approach, perhaps somewhat more closely related to the work being carried out at Berkeley and at NORC in Chicago, is the Continuing Survey of Social Problem Indicators which has been carried out on a fairly frequent basis since 1967 by the Israel Institute of Applied Social Research, under the direction of the noted psychometrician Louis Guttman, in collaboration with the Communications Institute of the Hebrew University. The two unique things about this study are its continuing nature, building up a time series of data on a variety of problem areas, and its emphasis on public attitudes towards policy relevant issues.

More recently, the European Community, through its Statistical Office in Luxembourg, has initiated a programme to extend existing social indicators to include both the addition of other objective data and the development of "qualitative" indicators (to reflect perceptions of and satisfaction with health care, housing, working conditions, family life, the environment, etc.). The collection of harmonised comprehensive data on the social situation in member countries of the Community is seen in the social action programme as "a means of facilitating and encouraging the progressive convergence of social conditions in the Community, and of providing an essential basis for Community decisions concerning common targets in the social field" (Shanks, 1975, p.8).

In the course of the first working meeting in Luxembourg in November 1975, at which each member country was represented by both government officials and independent research experts, it was decided that, while certain difficulties might be anticipated, such harmonised surveys involving "qualitative" or "subjective" indicators should be attempted. At this meeting both government officials and independent experts encouraged the Directorate for Social and Demographic Statistics, which had undertaken this initiative, to pursue a series of such harmonised surveys. However, most government officials agreed that, because of the social-psychological nature of such surveys, wherever possible it would be considered desirable that the surveys be carried out by social research institutes in the member countries, rather than by government agencies such as Central Statistics Offices. There were some exceptions to this view, but this was very definitely the stand taken by the Central Statistics Office in Ireland. As a result, the Irish delegation to subsequent working meetings in Luxembourg consisted of the present authors, representing the Economic and Social Research Institute and the Institute of Public Administration. It was agreed that the ESRI would be the main contracting organisation responsible for the collection of the Irish data and that the IPA would be a collaborating institution.

Before the development of the EEC harmonised social indicator research programme, involving the use of sample surveys and including subjective social indicators, there had been substantial interest on the part of the ESRI and the IPA to initiate a broad spectrum continuing survey of attitudes to social problems and issues in Ireland. Reference to plans for such a continuing social indicator survey are contained in the ESRI Research Plan for the period 1976-80 (Kennedy, 1976), whereby this project is listed as a priority project in the plan. A further impetus for such a project came from learning of the Israeli Continuing Survey of Social Problem Indicators, referred to earlier. Thus there was born the present project, which we have called the Continuing Social Survey in Ireland, consisting in large part of an EEC wide harmonised social indicator survey, with its focus on well-being and quality of life, and in part of a section devoted to an examination of attitudes to social issues, modelled, in part, on the Israeli approach. At the working meetings in Luxembourg it was agreed by both the independent experts representing the member countries and the Secretariat of the Statistical Office that for the first three years the EEC wide survey should focus on certain more limited life areas at a time, rather than attempting a comprehensive survey each year, until sufficient experience with such harmonised surveys had been obtained. It was agreed that the first year's survey would focus on health and housing and the second year's survey would focus on quality of working life. Data collection for the first Continuing Social Survey in Ireland took place in June 1977.

An initial sample of 2,760 individuals residing at non-institutional addresses was selected with a view to obtaining a final sample of approximately 2,000 respondents, in accordance with EEC guidelines. The procedure used was that of RANSAM (Whelan,

1977), a computer based programme for drawing national random samples, which has been developed over the last few years at the ESRI. RANSAM has three unique features which distinguish it from a simple random sampling procedure. These include stratification, clustering and selection with probability proportional to size. The Electoral Register constituted the sampling frame. The initial list of 2,760 potential respondents resulted in a final sample of 2,019. There were 741 non-responses; however, these were largely due to inadequacies in the Electoral Register as a sampling frame, such as “named person having moved”, “named person deceased”, etc. However, as mentioned above, the actual refusal rate was quite low (3.8%).

The first part of the 1977 questionnaire consisted of the EEC questions concerning objective and perceptual measures of health and housing. This harmonised portion of the questionnaire was concurrently administered in all of the EEC countries.

Briefly the areas covered in this part of the questionnaire may be summarised as follows:

a) Housing

- i) Basic descriptive information (e.g., type of dwelling, number of rooms, tenure, etc.)
- ii) Household amenities
- iii) Heating (existence of and satisfaction with)
- iv) Perceptions of adequacy of size of accommodation
- v) Perceived adequacy of daylight
- vi) Household appliances and accessories
- vii) Satisfaction with household facilities
- viii) Pollution and other discomforts (e.g., damp, draughts, noise)
- ix) Manageability of cost
- x) Overall satisfaction with housing

b) Neighbourhood

- i) Prevailing appearance and condition of immediate neighbourhood
- ii) Proximity of neighbourhood facilities
- iii) Satisfaction with proximity to relatives
- iv) Perceived safety (re: burglary, personal safety, vandalism and the traffic)
- v) Overall satisfaction with neighbourhood

c) Health

- i) Presence of longstanding illness
- ii) Functional ability
- iii) Number of sick days
- iv) Doctor contacts
- v) Recency of seeing doctor
- vi) Incidence and reasons for medicine consumption
- vii) Information concerning short-term illness symptoms
- viii) Self-assessed health
- ix) Satisfaction with health

d) Health services

- i) Experience seeking help for urgent medical problems

- ii) Experience with own doctor
- iii) Experience being in hospital
- iv) Satisfaction with health services

e) *Life in general*

- i) Life satisfaction
- ii) Optimism vs. pessimism about the future
- iii) Anomia (alienation)

The second part of the questionnaire contained items concerning attitudes to social issues and social problems in Ireland. These items covered a fairly wide range of issues and were drawn from various sources. A substantial portion of the items were measures which had been developed in previous research by the present authors and their co-workers in Ireland.

The 1978 Continuing Social Survey, the EEC wide harmonised portion of which focused on perceptions of working life, was carried out in late 1978 and has just recently come out of the field. As this survey was also administered to a nationwide random sample, it was possible to study attitudes toward work of a number of different groups: (1) the employed, (2) the unemployed, (3) the retired, (4) housewives, and (5) persons with little or no work experience (e.g., school-leavers, students, etc.). The question of whether to obtain a nationwide representative sample or merely a sample of the working population was deliberated at great length at meetings of researchers representing member countries and the Secretariat of the Statistical Office of the European Communities in Luxembourg. The unanimous decision to adhere to the same sampling procedure used in the previous year was dictated in large part by the desirability of being able to compare core questions from one year to the next. Also it was felt that attitudes toward working life were an important concern to all segments of the population whether or not they were currently working. Wherever possible, comparable data for the different groups was elicited. Thus, employed persons were asked about their current job, whereas the retired and unemployed were asked about their previous job. Housewives' work was treated as "work" and many comparable questions were asked of this group as well. The questionnaire included measures of attitudes toward working conditions, the skills needed for the job, attitudes toward retirement, perceptions of unemployment, attitudes toward shift work, night work, flexi-time, etc., as well as questions relating to perceived satisfaction with regard to pay, working conditions, etc. The important question of *relativity* in income and satisfaction is also examined. Needless to say, in addition to these various subjective measures, extensive data were collected relating to objective conditions of working life. In addition, core subjective questions such as general life satisfaction, satisfaction with health, etc., are contained in the 1978 Survey as part of the ongoing effort to build up a time series of data in these basic areas. Finally, there is also a second portion of the questionnaire containing some of the same questions concerning social attitudes and social problems in Ireland which were in the 1977 Survey, as well as some new items relating to emerging issues. We hope to begin analyses on these data shortly.

It is the intent of the present paper to illustrate the problem of the relationship between objective and subjective social indicators on the basis of selected results from the 1977 Continuing Social Survey in Ireland; the more complete results of this survey will be published shortly as a joint ESRI/IPA publication.

V. THE RELATIONSHIP BETWEEN OBJECTIVE AND SUBJECTIVE SOCIAL INDICATORS: SOME RESEARCH FINDINGS

One way to illustrate the relationship between objective and subjective indicators is to compare subjective measures derived from the 1977 Continuing Social Survey with existing objective data in the same domain. The examples which follow relating objective and subjective indicators from the 1977 Continuing Social Survey are presented not just for the intrinsic value of the data concerning the topics involved, but rather as illustrative examples of the relationship between objective and subjective social indicators. For example, we can look at subjective measures of satisfaction with health services in relation to existing objective data concerning health services in the country.

A four-way analysis of variance, using a measure of satisfaction with health services as a dependent variable and the demographic characteristics of sex, age, income and rural/urban status as independent variables was performed. The question of satisfaction with health services was asked in the following way: "Thinking about all the different kinds of health services, how satisfied are you on the whole with the health services available to you? Are you:

- Very satisfied1
- Fairly satisfied2
- Fairly dissatisfied3
- or Very dissatisfied4"

An inspection of these analysis of variance results contained in Table 1 (Appendix) shows that the only independent variable controlling a significant amount of variance in the dependent variable of satisfaction with health services was rural/urban status ($F = 19.86$; $p < .001$). Rural respondents were significantly more likely to express satisfaction with health services than their urban counterparts. This is rather surprising when one considers the extent to which the rural population is at a disadvantage in terms of access to health services, as documented in two recent NESC Reports (1976; 1977b).

How can one, thus, explain this relationship? Other data obtained in the 1977 Continuing Social Survey revealed that urban dwellers – although seemingly as healthy as rural ones on a number of dimensions – were greater *users* of health services. Their greater dissatisfaction with health services may, thus, be related to this greater *contact* with health services.

In any case, data such as this reveals that satisfaction with public services is a complex matter. One cannot blandly assume that increasing the number of doctors or hospital beds per 10,000 population will automatically increase satisfaction with health services. Thus one cannot rely solely on "objective" measures to infer the subjective state of various segments of the population.

Another example which could be cited emerges from an examination of the relationship between objective and subjective data collected in the 1977 Continuing Social Survey in the area of housing. Not surprisingly, it was found that lower income respondents reported poorer quality housing along a number of dimensions and were also less satisfied with their housing, as indicated by the analysis of variance results presented in Table 2 (Appendix). However, a more careful inspection of the interaction effects in Table 2 (which are plotted in Figures 1–3, Appendix) showed that *younger* people with low incomes were *much more* dissatisfied than their older counterparts, *even though* the younger ones were more likely to have a greater number of household amenities (such as an inside WC, a fixed bath or shower and cooking facilities in a separate kitchen, etc.) as

well as a greater number of household appliances (e.g., TV set, washing machine, telephone, refrigerator, central heating, etc.). Why is this the case? One might have predicted the younger ones would be *more* satisfied than their elders, given their relatively more comfortable housing. Are younger people perhaps comparing themselves not to their parents but rather to more affluent people in the society? Perhaps this reflects a re-orientation of aspirations. This is another example of where simple objective indices of number of houses with central heating, indoor WC, etc. will not tell us all we need to know about people's levels of satisfaction.

It is obviously necessary to measure such subjective variables as satisfaction directly, rather than inferring them from objective measures. It is clear from the present data that psychological explanations such as expectations may be necessary to explain such findings. It would appear that the standard of housing in this example which may be quite satisfactory to an older person may be considerably less satisfactory for a younger person with a comparable income, because the expectation of the latter may be greater. In general, the standards that are now accepted generally in many areas may in ten years time be considered quite unsatisfactory.

A further example of the sort of comparison between objective and subjective social indicators which is possible by means of the kind of omnibus survey we have carried out is the following. While measuring the number of household accessories and possessions, referred to earlier, we asked incidentally, about possession of an automobile. Much later in the questionnaire, as part of the section on attitudes to a range of public services, we asked about level of satisfaction with public transport. These two pieces of data – the first of a clearly objective nature and the second of a subjective or attitudinal nature – were then analysed in relation to one another. Car-owners and non-car owners were conceptually broken down into two groups. These two groups were then compared by means of a t-test in terms of their satisfaction with public transport. These results are presented in Table 3 (Appendix). It might have been expected that those who were ostensibly more frequent users of public transport – namely non-car owners – would be somewhat less satisfied, since they were more likely to have experienced waiting for buses in bad weather, coping during bus strikes, and in general not enjoying the convenience of private transport. However, contrary to any such expectations, *car owners* were, in fact, significantly less satisfied with public transport ($t = -3.36$; $df = 1417$; $p < .001$) than non-car owners. Some observers in commenting *ex post facto* on this relationship have said that they found these results unsurprising, suggesting such explanations as the possibility that much of the contact which a car owner might have with public transport would come about in situations of high frustration, such as the car not being available due to disrepair or other reasons. However, alternative explanations include the possibilities that, (1) dissatisfaction with public transport may have predisposed the respondent to use private transport in the first place; and (2) if public transport were significantly improved, many car owners might be inclined to switch their mode of transport. Needless to say, this could have a major effect on reducing traffic congestion and concomitant air pollution.

The point which we are attempting to make in this example is that one simply would not know the relationship between objective and subjective indicators in a given area, unless one collected both types of data simultaneously in the manner in which we have described in the present study. Furthermore, in the absence of such indicators, one might well draw inferences from objective data which could be quite inaccurate, leading thus not only to a lack of subjective input into social planning but also to the possibility of faulty social planning based on incorrect extrapolations from objective data. Clearly, if

one wished to clarify alternative explanations of such findings in a specific area for purposes of concrete policy formulation, further research focusing on the given area may be indicated. The value of the present omnibus type of survey is that it not only provides continuous information on a wide variety of areas but suggests which areas among a possible myriad of areas warrant such in-depth research. Furthermore, we anticipate that the present Continuing Social Survey could accommodate in subsequent years sections which go into depth on one or more particular areas at relatively little additional cost to a given Government Department or Departments concerned with the area in question.

Other examples of analyses of the relationship between objective and subjective indicators could be cited. One which produced unexpected findings had to do with telephone ownership. In a manner similar to that described above, we compared telephone owners with non-telephone owners in terms of their satisfaction with telephone services. If we did not have subjective social indicators measuring satisfaction of people with certain public services, what inferences concerning such subjective satisfaction might have been made from the existing objective data? For example, given objective measures concerning the extent of telephone ownership, what inferences might be drawn concerning satisfaction with this service? The factual situation, based on aggregate statistics, is that 20.6 per cent of households had a telephone in 1973¹. Given expected developments in the intervening years, the objective data from our 1977 Survey indicating that nearly 31 per cent of a random sample of the population live in households which have a telephone, is quite plausible. Although the NESC report of 1977 did not provide comparable data from other EEC countries in 1973, our 1977 data which was harmonised across the EEC countries shows Ireland to be lowest in terms of telephone ownership and Denmark highest, with 84 per cent having telephones. Given the relatively low level of telephone ownership in Ireland, one might expect a significantly lower level of satisfaction with this service on the part of the sizeable group of non-telephone owners, compared with those who do have a telephone. Our 1977 data contain both objective and subjective measures on this and many other questions which allows a direct test of this hypothesis, as Table 4 (Appendix) shows. One might have expected telephone owners to be more satisfied; however, as can be seen there was no significant difference between telephone owners and non-owners, suggesting that *having* a phone may not be the crucial variable; perhaps it is quality of service or other variables which are determining satisfaction or dissatisfaction. It could be argued that the importance of the service to the groups of individuals involved might be a determining factor. As we have indicated earlier, we have developed in Ireland (Davis, 1977) measures of the importance (as well as measures along other dimensions) which people attach to various concepts. Future work will more systematically take these measures into account.

In general, however, we found, when examining demographic determinants of satisfaction with a wide range of public services, that older people, the poor and, in many cases, women, were more likely to express greater satisfaction than the young, the better off and men. In most of these cases, there seemed to be no apparent reason for this. This is dramatically illustrated in the analysis of variance results presented in Table 5 (Appendix), which examine the effects of these demographic characteristics on satisfaction with the control of pollution. The significant main effect showing differences between rural and urban dwellers is understandable; not surprisingly, urban dwellers, who are

¹ Data from 1975 Household Budget Survey, as cited in *National Economic and Social Council*, Report No. 25 (1977a, p. 132).

exposed to more pollution, were considerably more dissatisfied ($F = 36.61$; $p < .001$). However, the main effect for socio-economic status (SES), showing that lower SES groups express greater satisfaction ($F = 16.10$; $p < .001$), as well as the main effects for age, showing older people to be more satisfied ($F = 6.58$; $p < .05$), and that for sex, with females expressing greater satisfaction than males ($F = 10.20$; $p < .01$), are not as easily explainable as the rural/urban difference. The prevalence of this pattern, showing that older people, females and members of lower socio-economic groups tend to express less dissatisfaction, suggests again the possibility of lower *expectations*, or acquiescence and acceptance of the *status quo* on the part of groups with relatively lesser power in the community.

Extremely useful though multivariate analysis of variance and bivariate analyses using t-tests are, these techniques have certain limitations in some cases. This is particularly true when one wants greater flexibility in using both objective and subjective variables as potential predictors of a given dependent variable. In order to examine the predictive power of a wider variety of both objective and subjective social indicators as determinants of variance in a key dependent measure, namely overall Life Satisfaction, a stepwise multiple regression analysis was performed. Table 6 (Appendix) presents these results. The question measuring the dependent variable of Life Satisfaction has been used in many previous studies over the last twenty years (e.g., Gurin *et al.*, 1960; Bradburn and Caplovitz, 1965). It was phrased as follows: "Taking everything into account, how satisfied are you with your life in general? Are you:

- | | |
|----------------------------|----|
| Very satisfied | 1 |
| Fairly satisfied | 2 |
| Fairly dissatisfied | 3 |
| or Very dissatisfied | 4" |

As potential predictor variables we inputted 16 different measures: four global measures related to health and five global measures related to housing and neighbourhood were selected on the basis of preliminary analyses; seven demographic variables, including age, marital status, income, rural/urban status, etc., were included in large part on the basis of much previous research indicating their relationship to life satisfaction (e.g., Bradburn and Caplovitz, 1965; Inkeles, 1960; Cantril, 1965; Rodgers and Converse, 1975). On the basis of earlier studies indicating the relationship between socio-economic status and life satisfaction, one might have expected income to be an important predictor of life satisfaction. Considering the recent incidence of wage claims and resulting strikes in Ireland, one would want to look at this variable particularly closely. Indeed, when we perform analyses of variance, using income together with other demographic characteristics as independent variables, it is the most important determinant of overall life satisfaction. However, the amount of variance which it controls is not nearly as great as might be expected. Unfortunately, in the present study, we only have a measure of *absolute* income. It is quite likely that *relative* income (or at least the perception of income relativities) might be a more significant determinant of life satisfaction. In the 1978 Continuing Social Survey, which focuses on the quality of working life, we will be able to throw more light on this question. As an inspection of Table 6 shows, absolute income still remains a significant predictor of life satisfaction ($F = 10.68$; $p < .01$). However, with a specification of a significance level of $p < .01$, only seven of the 16 variables which were inputted remained in the final equation; of these seven, income was one of the lowest predictors. More significant predictors were

subjective variables of Satisfaction with Health, Housing, Neighbourhood and Self-Assessed Health.

It is true that many of the subjective measures which were more predictive of overall life satisfaction involved satisfaction with particular domains of life and, thus, one must consider the possibility of multicollinearity. However, although other results do show these variables to be somewhat correlated with the global measure of life satisfaction, the levels of correlation are quite low, and thus, the question of multicollinearity does not constitute a serious worry. Rather, as other results show, income tends to be a predictor (albeit at a moderate level) of some of these other subjective measures in the equation. The likely explanation is, therefore, that, in terms of a PATH model, income has its effect on life satisfaction by moderately predicting some of the subjective measures which in turn are highly predictive of life satisfaction. Although it would be premature to draw definite conclusions at this point, these kinds of relationships do open up the possibility that some of these mediating subjective variables might be amenable to policy intervention, in which case this would have definite implications for overall social and economic planning.

Undoubtedly other variables – which were not included in the present study – such as quality of working life, quality of family life, inter-personal relationships, leisure time, etc. all play a role in explaining overall life satisfaction. It would, of course, be highly desirable to study all of these variables together in a comprehensive survey of social indicators to determine their relative importance. When we have analysed the data from the 1978 Continuing Social Survey, which focuses on the quality of working life, we will have some further information on this question. And when we reach the stage where we are able to carry out comprehensive social indicator surveys, we will be in a position to give even more definitive answers to these important questions.

To pursue some speculations which emerge from the present data a bit further, let us consider the question of industrial unrest. The economic – as well as the social – consequences of this problem need hardly be emphasised. The phenomenon of industrial unrest may, in part, be a manifestation of more general social unrest and social disorganisation. This is not to suggest that pay claims are unjustified. Indeed, many such claims reflect the legitimate need of workers to achieve or maintain a decent standard of living for themselves and their families. However, one would like to think that this is a problem which could be resolved through existing social institutions. What we are suggesting, however, is that the difficulties encountered by these institutions in resolving understandable conflicts between unions and employers may reflect something more than the overriding importance of income for life satisfaction; they may imply a breakdown of institutional arrangements and an alienation of individuals from the existing structures of modern day society.

Thus, the question of industrial peace may not lie solely in the issue of wages, important though this issue is. Social scientists have long been aware that “inarticulate and unacceptable frustrations and desires on the part of workers often find expression in the form of wage demands ...” (Hoffman and Nye, 1974, p.36ff).

Although, as we have mentioned, we will know somewhat more about this question when we have analysed the 1978 data relating to quality of working life, we can put forth some very tentative hypotheses based on data contained in the present survey. Among the subjective measures contained in the 1977 Continuing Survey (and one which was harmonised across all participating EEC countries) was a seven item scale of Anomia or

alienation, yielding an index of this variable². Anomia or alienation involves a feeling of normlessness, a lack of feeling of “belonging” to a close knit society, lack of confidence in existing political structures and a feeling of powerlessness on the part of an individual. Anomia is the psychological analogue to the well-known sociological construct of “anomie”, attributed to Durkheim, which refers to a property of a society as a whole. The measurement of this variable as a psychological characteristic of individuals was pioneered by Srole (1956) and has been refined in many subsequent studies (cf. Robinson and Shaver, 1973).

It is well known that this syndrome of Anomia or alienation is often at the root of social unrest and social protest. Table 7 (Appendix) presents analysis of variance results, using the four demographic characteristics of sex, age, income and rural/urban status as independent variables and the Anomia score as the dependent variable. The finding that poor people express significantly more Anomia or alienation is consistent with much previous research (cf. Robinson and Shaver, 1973). However, again income does not explain an overwhelming percentage of variance, suggesting that other variables are involved as well. Indeed, from Table 7, it can be seen that age and rural/urban status are also significant determinants of variance in the dependent measure of Anomia. This suggests that, in addition to being more prevalent among members of lower income groups, Anomia is significantly more likely to be expressed by the young and by the residents of urban areas. Putting these three characteristics together – the young, urban poor – we realise that this is the group frequently at the forefront of social protest movements. While it may be recognised that sometimes such movements may have beneficial effects in bringing about positive social change, other forms of protest are less socially productive, and many are clearly counterproductive. These include protest activities carried out by terrorist organisations, which recruit heavily from the young, urban poor – frequently the unemployed. Crime is another form of social protest and social disorganisation, whose perpetrators are over-represented by the young, urban poor. Finally, industrial strikes may, in part, represent another expression of alienation.

When we examine the predictors of Anomia in a multiple regression analysis, taking demographic variables, including income, data on living conditions, and attitudinal variables into account, we see that income does not turn out to be as significant as other variables. Table 8 (Appendix) presents the results of a stepwise multiple regression analysis of predictors of Anomia, in which the same sixteen variables used in the previously described analysis of life satisfaction were inputted as potential predictors, and the same cut-off criterion of a significance level of .01 was used. An interpretation of these results shows that Anomia – or alienation – is associated with lower satisfaction with neighbourhood and neighbours, poorer self-assessed health, greater likelihood of being a renter than an owner, a greater likelihood of being either single, widowed or separated (as opposed to being married), and a greater likelihood of having completed fewer years of education.

² These items were presented to subjects on a 5-point scale which ranged from strongly agree to strongly disagree. These included such items as “You sometimes can’t help wondering whether anything is worthwhile”, “Nowadays people like me often feel lonely and cut off from society”, etc. In addition to three items phrased in the direction of anomia, there were four items phrased in the opposite direction to provide balancing (e.g., “I feel I am part of a close-knit local community”). Responses to these seven items were summated to form an index measuring anomia. This score ranged from 7 (low) to 35 (high).

Among other things, these findings indicate the well known truth that human beings are complex. Of course, decent wages are important to people; of course people want a reasonable standard of living. But they have other needs as well, and these are often psychological needs. These clearly include satisfaction with neighbourhood, good health, etc. They may also include needs to have gratifying work – and this does not rule out industrial work, for as has been shown, for example, in Scandinavian countries (Campbell, 1974; Dennehy, 1979), this can be made rewarding if structured creatively.

When we learn more about the complex needs which go into the prediction of such important variables as life satisfaction and anomia, which we will hopefully do shortly in the course of the analysis of the 1978 Continuing Social Survey data, focusing on quality of working life, we anticipate being able to locate further points where social policy intervention is possible.

The foregoing were just some selected results to illustrate the relationship between objective and subjective social indicators. As we indicated earlier, more complete results of this study, many of which will be of interest to specialists in the various domains covered, will be appearing shortly as a joint ESRI/IPA publication.

VI. CONCLUSIONS: RELEVANCE OF CURRENT RESEARCH TO SOCIAL PLANNING

In conclusion, we should like to summarise, first of all, the advantages of this kind of research for social planning and, secondly, address ourselves to the question of who should bear responsibility for taking account of such research as an input to social planning and providing support for such research on a continuing basis.

The value of subjective social indicator surveys for social planning must be made quite explicit. It is our view that research of the sort exemplified by the ongoing Continuing Social Survey has many potential contributions to make to the policy making process:

1. As the survey is conducted on a carefully drawn representative nationwide sample, the findings may be safely generalised to the country as a whole, and thus, may be taken into account for national planning. However, it must be clearly understood that data emanating from such a survey is not intended just for the government of the day and in no way is it intended to allow for the political “manipulation” of people. Rather, it is a vehicle whereby information on living conditions and social problems in Ireland may be made available to all sectors of the community.
2. While subjective social indicator surveys are, by no means, seen as a replacement for aggregate objective statistics, they are seen as an important complement to them. Aggregate objective statistics are uniquely suited to indicate the *extent* and distribution of living conditions, whereas subjective measures indicate how people feel about these conditions. Thus, objective indicators may help to point to where social problems may lie, whereas subjective indicators can help shed light on how to remedy them.
3. However, it also is important to point out that social indicator surveys of the type described collect data on *both* objective and subjective information. This offers a unique opportunity to compare objective characteristics (e.g., concerning health, housing, income, etc.) of the *same individuals*. This is hardly ever possible with aggregate objective statistics. Furthermore, objective characteristics of individuals may, in this way, be related to subjective perceptions – a type of analysis which is impossible with aggregate statistics. As we have attempted to illustrate in this paper, this kind of

analysis enables one to determine *which* objective indicators are most predictive of important subjective measures, such as overall Life Satisfaction and Anomia or alienation. It is hoped that such information may help to provide a better understanding of the causes and conditions which lead to social well-being of the population, as perceived by its individual members.

4. Since the survey is continuous, repeated at approximately annual intervals, it enables a data base to be built up over time. Such a data base allows for the monitoring of changes in living conditions and simultaneously changes in people's attitudes to their living conditions. Longitudinal data furthermore allows for the charting of change over time in attitudes to social policy issues. In this way, attitudes toward *potential* legislative or other social or economic policy innovations or changes may be measured. Similarly, the *effects* of policy changes, legislation or other events may be assessed.
5. The survey is also useful in the sense that it may bring to light particular social problems, which might not otherwise come to light. As Haya Gratch points out, in discussing one of the major uses of the Israeli Continuing Survey of Social Problem Indicators:

“The social indicators are designed to give early signals of social problems which require the attention of policy-makers. The trends leading to industrial unrest, or inter-group tensions, for example, are constantly scrutinized. The feeling that social crises seem to erupt unexpectedly is a result of the fact that no systematic observations accompanied their evolution (Gratch, 1975, p.8)”.

To illustrate this point, a recent example could be cited. It has been observed that there has been a rather large decrease in the number of marriages taking place in this country; however, this fact has not yet manifested itself in economic or sociological analyses. The Continuing Social Survey, as an annual ongoing survey, would seem to be very well adapted to drawing attention to such trends before they were manifested in the “objective” statistics.

6. Finally, the Continuing Social Survey as we have described it, and as we are developing it, is cost effective in nature. Ireland is a relatively small country and, as such, must be judicious in its allocation of resources, including those for research. It need not be pointed out, however, that it costs just as much to carry out a nationwide survey in a country of three million as it does in one with two hundred million (e.g., the US) because sampling exigencies require approximately the same size sample when a certain population level is reached. For this reason it would be highly inefficient to carry out a separate study each time it was decided to ascertain attitudes of the public to a single issue relevant to public policy. The Continuing Social Survey is an existing mechanism whereby such questions could be incorporated into the survey at very little or no extra cost.

As a final note, we would like to leave with you the question of responsibility for social planning in Ireland, which would take into account the sort of comprehensive data involved in subjective social indicator research of the type described and the concomitant question of support for such research on a continuing basis. Many of us have been encouraged by the emphasis placed by the present Government on economic and social planning. Unfortunately, however, there has so far been less evidence of social planning than one would like to have seen. The concentration on economic planning, in light of both tradition and the current economic problems facing the country, is, to a certain extent, understandable. However, we hope that this paper has demonstrated

the equally important contribution which might be made by a program of continuing social research on subjective and objective social indicators, of the type which we have described. We hope also that it has become apparent that it is a myth to believe that even economic planning can proceed on the sole basis of traditional objective indicators. For as has been clearly shown, economic and social problems are inextricably intertwined. As Campbell has stated:

“The value of subjective measures ... is to give additional information to the repertoire of the ... decision-maker, to provide an array of psychological data parallel to the more familiar kinds of indices. It is to be hoped that integration of the two kinds of data will make possible a fuller and truer representation of society than we command at present (1974, p. 19)”.

At the moment, most of the developed world is actively engaged in social indicator research, including that of a subjective nature. This includes several groups in North America, Great Britain (Abrams, 1975), the OECD countries (cf. Strumpel, 1974), the EEC, (cf. Shanks, 1975) and the European Science Foundation's Working Group on “Values and Social Problem Indicators in Contemporary Europe”, under the initiative of Professor Louis Guttman, who has pioneered a similar Continuing Survey in Israel since 1967 (Gratch, 1975). However, Ireland has only started to enter this area of research with the 1977 Continuing Social Survey, the field costs of which were underwritten by the EEC. Had this EEC initiative not occurred, it is unlikely that Ireland would have entered this area of research for many years. However, even as things stand, resources do not seem to be sufficient for the full exploitation of the data which has already been collected in order to make it available for social planning in Ireland. Furthermore, it has not been possible to collaborate fully with the OECD and the European Science Foundation because of a lack of resources. Thus the continuation of this line of research in Ireland, which has been found to be of great value for social planning in other countries, is in jeopardy. Given the increasing complexity of social problems facing this country, the question must be asked: can Ireland afford *not* to carry out this kind of research?

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APPENDIX

TABLE 1: Summary of Analysis of Variance Results: Effects of Four Independent Variables on Satisfaction with Health Services⁺

(N = 1711)

Source	Sum of Squares	df	F-Ratio	Direction
<i>Main Effects</i>				
A (Sex)	0.03	1	0.04	
B (Age)	1.96	1	2.55	
C (Income)	0.23	1	0.30	
D (Rural/Urban)	15.27	1	19.86***	(2)
<i>2-Way Interactions</i>				
A × B	0.40	1	0.52	
A × C	1.29	1	1.68	
A × D	0.03	1	0.04	
B × C	3.80	1	4.94*	
B × D	0.01	1	0.02	
C × D	0.80	1	1.04	
Residual	1318.34	1700		
Total	1345.24	1710		

* p ≤ .05	Sex: 1 = Male	2 = Female
** p ≤ .01	Age: 1 = 18–39	2 = 40+
*** p ≤ .001	Income: 1 = High	2 = Low
	Rural/Urban: 1 = Rural	2 = Urban

⁺ (1 = very satisfied; 4 = very dissatisfied)

TABLE 2: Summary of Analysis of Variance Results: Effects of Four Independent Variables on Responses to Housing Measures

<i>a. Overall Satisfaction with Housing (1 = very satisfied; 4 = very dissatisfied) (N = 1680)</i>				
Source	Sum of Squares	df	F-Ratio	Direction
<i>Main Effects</i>				
A (Sex)	0.23	1	0.39	
B (Age)	10.58	1	18.31***	(1)
C (Income)	32.44	1	56.16***	(2)
D (Rural/Urban)	0.29	1	0.50	
<i>2-Way Interactions</i>				
A × B	0.46	1	0.79	
A × C	0.01	1	0.02	
A × D	0.68	1	1.17	
B × C	5.74	1	9.93**	
B × D	0.05	1	0.08	
C × D	0.40	1	0.69	
Residual	963.82	1669		
Total	1010.04	1679		
<i>b. Index of Household Accessories and Appliances (Range = 0–9) (N = 1721)</i>				
<i>Main Effects</i>				
A (Sex)	0.06	1	0.02	
B (Age)	32.59	1	9.92**	(1)
C (Income)	1673.86	1	509.76***	(1)
D (Rural/Urban)	14.04	1	4.28*	(2)
<i>2-Way Interactions</i>				
A × B	7.50	1	2.28	
A × C	5.04	1	1.53	
A × D	0.82	1	0.25	
B × C	39.42	1	12.01***	
B × D	6.80	1	2.07	
C × D	0.09	1	0.03	
Residual	5605.58	1710		
Total	7697.29	1720		
<i>c. Index of Household Amenities (Range = 0–4) (N = 1721)</i>				
<i>Main Effects</i>				
A (Sex)	0.00	1	0.00	
B (Age)	0.01	1	0.01	
C (Income)	154.24	1	160.97***	(1)
D (Rural/Urban)	131.14	1	136.86***	(2)
<i>2-Way Interactions</i>				
A × B	2.21	1	2.31	
A × C	0.00	1	0.00	
A × D	0.29	1	0.30	
B × C	10.31	1	10.76**	
B × D	0.03	1	0.04	
C × D	12.90	1	13.46***	
Residual	1640.91	1710		
Total	2024.60	1720		
* p < .05	Sex:	1 = Male	2 = Female	
** p < .01	Age:	1 = 18–39	2 = 40+	
*** p < .001	Income:	1 = High	2 = Low	
	Rural/Urban:	1 = Rural	2 = Urban	

Figure 1: Overall Satisfaction with Housing: Source Level Means for Interaction Effect Between Age and Income

		<i>INCOME</i>		
		High	Low	
<i>AGE</i>	Young	1.50	1.95	F = 9.93; p < .01
	Old	1.45	1.64	

(1 = very satisfied; 4 = very dissatisfied)

Figure 2: Index of Household Accessories and Appliances: Source Level Means for Interaction Effect Between Age and Income

		<i>INCOME</i>		
		High	Low	
<i>AGE</i>	Young	5.06	3.41	F = 12.01; p < .001
	Old	5.04	2.71	

(Range 0–9)

Figure 3: Index of Household Amenities: Source Level Means for Interaction Effect Between Age and Income

		<i>INCOME</i>		
		High	Low	
<i>AGE</i>	Young	3.60	3.13	F = 10.76; p < .01
	Old	3.72	2.88	

(Range 0–4)

TABLE 3: A Comparison of Car Owners with Non-Car Owners in Terms of Satisfaction with Public Transport

(N = 1884)

	Group 1		Group 2		df	t-value
	Car Owners (n = 1205)		Non-Car Owners (n = 679)			
	\bar{X}	S.D.	\bar{X}	S.D.		
Satisfaction with Public Transport (1 = very dissatisfied 7 = very satisfied)	3.82	1.83	4.11	1.81	1417	-3.36***

* $p \leq .05$ (two-tailed)
 ** $p \leq .01$
 *** $p \leq .001$

df is adjusted to reflect heterogeneity of variance

TABLE 4: A Comparison of Telephone Owners with Non-Telephone Owners in Terms of Satisfaction with Telephone Services

(N = 1757)

	Group 1		Group 2		df	t-value
	Telephone Owners (n = 609)		Non-Telephone Owners (n = 1148)			
	\bar{X}	S.D.	\bar{X}	S.D.		
Satisfaction with Telephone Services (1 = very dissatisfied 7 = very satisfied)	4.26	1.71	4.19	1.80	1296	0.81 (N.S.)

* $p \leq .05$ (two-tailed)
 ** $p \leq .01$
 *** $p \leq .001$

df is adjusted to reflect heterogeneity of variance

TABLE 5: Summary of Analysis of Variance Results: Effects of Four Independent Variables on Satisfaction with the Control of Pollution

(N = 1512)

Source	Sum of Squares	df	F-Ratio	Direction
<i>Main Effects</i>				
A (SES)	72.56	1	16.10***	(1)
B (Age)	29.67	1	6.58*	(2)
C (Rural/Urban)	165.00	1	36.61***	(1)
D (Sex)	45.95	1	10.20**	(2)
<i>Interaction Effects</i>				
A × B	5.22	1	1.16	
A × C	1.22	1	0.27	
A × D	3.01	1	0.67	
B × C	1.75	1	0.39	
B × D	12.50	1	2.77	
C × D	15.75	1	3.49	
Residual	6756.75	1501		
Total	7104.50	1511		

* p < .05
 ** p < .01
 *** p < .001

SES: 1 = low 2 = high
 Age: 1 = 18-39 2 = 40+
 Rural/Urban: 1 = Rural 2 = Urban
 Sex: 1 = Male 2 = Female

TABLE 6: Stepwise Multiple Regression Analysis of Predictors of Life Satisfaction

(N = 1674)

Predictor Variables	Multiple R	R ²	Beta	Standard error B	F
1. Satisfaction with health	.417	.174	.26	.03	55.88**
2. Satisfaction with housing	.475	.226	.12	.02	24.22**
3. Satisfaction with neighbourhood	.492	.242	.12	.02	23.62**
4. Self-assessed health	.501	.251	.16	.03	18.89**
5. Satisfaction with neighbours	.506	.256	.07	.03	10.15*
6. Age	.509	.259	.09	.00	14.54**
7. Income	.514	.264	.08	.01	10.68*
<i>Multiple R for Total Equation</i>		<i>Analysis of Variance for Total Equation</i>			
Multiple R	= .51	Source	Sum of squares	df	Mean square
R ²	= .26	Regression	186.51	7	26.64
Standard error	= .56	Residual	519.43	1666	.31
					F
					85.46**

* p < .01
 ** p < .001

Note: The betas given are those for the seven variables as included in the final equation. The same holds for the standard error of beta and the F-ratios.

TABLE 7: Summary of Analysis of Variance Results: Effects of Four Independent Variables on Anomia

(N = 1721)

Source	Sum of Squares	df	F-Ratio	Direction
<i>Main Effects</i>				
A (Sex)	50.25	1	2.38	
B (Age)	208.09	1	9.84**	(1)
C (Income)	682.71	1	32.29***	(2)
D (Rural/Urban)	369.33	1	17.47***	(2)
<i>2-Way Interactions</i>				
A × B	14.78	1	0.70	
A × C	22.31	1	1.06	
A × D	43.01	1	2.03	
B × C	0.02	1	0.00	
B × D	9.91	1	0.47	
C × D	42.11	1	1.99	
Residual	36126.61	1710		
Total	37394.40	1720		

* $p \leq .05$ Sex: 1 = Male 2 = Female
 ** $p \leq .01$ Age: 1 = 18–39 2 = 40+
 *** $p \leq .001$ Income: 1 = High 2 = Low
 Rural/Urban: 1 = Rural 2 = Urban

TABLE 8: Stepwise Multiple Regression Analysis of Predictors of Anomia

(N = 1674)

Predictor Variables	Multiple R	R ²	Beta	Standard error B	F
1. Satisfaction with neighbourhood	.220	.048	-.15	.17	37.43**
2. Self-assessed health	.286	.081	-.16	.12	46.32**
3. Satisfaction with neighbours	.310	.096	-.12	.23	25.92**
4. Owner vs. renter	.318	.101	.07	.12	8.45*
5. Marital status	.325	.105	.07	.22	9.22*
6. Age completed education	.331	.109	-.06	.05	7.29*

Multiple R for Total Equation

Analysis of Variance for Total Equation

	Source	Sum of squares	df	Mean square	F
Multiple R = .33	Regression	3977.60	6	666.93	34.14**
R ² = .11	Residual	32366.52	1667	19.42	
Standard error = 4.41					

* $p \leq .01$
 ** $p \leq .001$

Note: The betas given are those for the six variables as included in the final equation. The same holds for the standard error of beta and the F-ratios.

DISCUSSION

T. P. Linehan: Mr. President, Ladies and Gentlemen, I have pleasure in speaking to this paper which brings up, for more general discussion than heretofore, one aspect of statistical needs of society – that of subjective social indicators. The authors are to be congratulated for their pioneering and persistent work in this field on the Irish scene and I look forward with anticipation to the publication of the 1977 Survey results referred to on page 99.

As the authors describe, social indicators are in vogue. Apart from the activities mentioned in the paper there has been considerable discussion within the UN Statistical Commission and regional bodies and a useful publication “Social Indicators – Preliminary Guidelines and Illustrative Series” was issued last year by the UNSO. The approach used differs somewhat from that of the OECD, and links the development of social indicators closely to the integration of social and demographic statistics, as envisaged in the development of a framework for integration, and to measuring and assessing living conditions and the circumstances and factors that influence them. The monitoring of individuals’ aspirations and perceptions of their well-being is not, however, included in these guidelines.

The discussions that have taken place, and indeed the very paper before us indicate clearly that this is activity of a research nature which will continue to be such for some time to come.

At the outset I would like to do two things. First, to make clear that I claim no particular competence or experience in interpreting subjective indicators and so I have taken the paper at face value and reacted accordingly. Secondly to sort out two separated but related things which to me seem intertwined in various parts of the paper. One is the case being made for subjective indicators – the other is the merit being attached to individualised data collection. In this context there may be some confusion in the use of the word aggregate which occurs frequently. I would distinguish between macro-data such as GDP, or index of industrial production, at national or subnational level (i.e. aggregate) and data collected as micro-data and then combined – which I would call *aggregated* data. Census of Population would be an obvious example. The problem of getting objective indicators deriving from this micro level depends on cross-classification of the relevant characteristics (and their prior collection of course) but is *not* dependent on or necessarily associated with the collection of data for subjective indicators.

Of course, if it is desired to use this latter type of objective data with subjective data to complement each other by cross-tabulation and analyses on the lines of this paper then the information should be collected as one set as far as possible. It is unlikely, however, that large-scale survey inquiries, such as the Labour Force Survey which is in effect a micro-Census, will incorporate subjective type questions to any great extent.

Intriguing questions come to mind when one envisages a regular system of indicators of both types. What is the basic objective of providing particular health services – is it to maintain and improve health in the physical sense as objectively understood *or* to achieve as high as possible a level of satisfaction with these services in the subjective approach? To do both is, no doubt, the answer. If, however, policies to achieve one within resource limitation, give opposing movement in the other, which is the priority? Greater access to or immersion in second and third level education may well lead to greater dissatisfaction with job opportunities and lower overall life satisfaction. Should planners take the approach that in the popular phrase “people don’t know how well off

they are” and continue to measure their state in the objective approach albeit with expanded objective indicators, *or* give priority to keeping people happy? Admittedly without the subjective indicator to quantify this state of happiness the debate remains theoretical.

I have read the paper with great interest. It is particularly useful to have the introductory pages setting the background. There is little point in my getting involved in the semantics of “objective” and “subjective” here.

Perhaps, however, I could quote the words of the poet, which may be relevant to much of our activities: —

“Though we don’t know what we measure
Yet we publish it with pleasure
And we hide our mortal terror
Of a quite substantial error!”

I would like at this stage to refer to page 93 where reference is made to the paper by Schneider and to spell out a little of what was involved there. He had, of necessity, to work with data from two completely separate sources. Seven subjective indicators (separately for white and black population) for samples in 15 cities were available. When an analysis of variance was carried out using city residence as a factor, it was found that it had only a small effect on individual feeling of life satisfaction across the measured life domains, i.e. accounted for only a very small fraction of the variance. The second set of figures related to various objective data (aggregate) for the various cities and he states that these showed substantial differences between cities. The rank correlations derived between the two sets were, as the present paper says, zero order. But my point is that the comparison was between one set of nearly equal measures and other sets with substantial variation — not between two sets each showing substantial but unrelated variation. This does not affect the basic conclusion in any way.

The listing on pages 98–99 of the areas covered in the 1977 Social Survey makes impressive reading and the further extension in the 1978 Survey looks promising indeed.

I would like now to pass to the principal part of the paper — Section 5 and the Appendix tables. I’m sure there are many types of qualifying remarks that should be made about the effect of different scales in work of this kind — the assumption of a type of linear relationship which is implicit in the models used and the number of points on the scale, varying from four in Tables 1 and 2 to 7 in Tables 3–5. In Table 7 we have a range of scores from 7–35 being the aggregation of seven items of 5 points each. I know it was not the objective of the authors to cover such technical aspects but it would be reassuring for the uninitiated to be shown that these features do not materially affect the results. (Incidentally in the work by Schneider referred to earlier the scale was only a three point one).

I will not dwell on this as I want to raise a question which would certainly arise in the analysis of the results presented in the Appendix tables if we were dealing with physical measurements. Given the size of sample used in the analysis of variance, the F ratio will show what may seem to be relatively small differences as statistically significant. So the question is what magnitude constitutes a difference which, in a particular instance, is of practical or real significance to which one should try and attach some implication or consequence? Let me illustrate using Table 1, which deals with satisfaction with Health Services. Here the urban/rural effect is shown as *** i.e. $p < .001$ i.e. highly significant in the statistical sense. Although the actual averages are not shown, it is easy to make a

reasonably good estimate of the difference involved, let us call it "d", because when there are only two groups, as in these cases, and if p and q represent the proportions of the total in each group, then the sum of squares for that main effect is $pq/n \times d^2$. n is known and pq may be taken as 0.25 for urban, rural with approximately ½ in each. This yields a value for d of 0.19 where the range of values is 1–4 (indeed a difference of less than one-half of this, 0.09 would be statistically significant at the 5% level). So my question becomes – is this an important difference between the levels of satisfaction in the two groups or is it of minor significance? (remembering, of course, that its statistical significance is not in doubt).

This is relevant to the associate discussion on page 100 – the second half – where an explanation of this difference is sought.

Table 3 also illustrates the point where satisfaction with Public Transport is compared for car owners and non-car owners. Here the two averages appear, so no estimation is called for on my part. The two averages are 3.82 and 4.11, a difference of 0.29 where the range is 1–7. Is this a fundamental difference or a marginal one? Of course, if it is in a direction opposite to that expected on the basis of other types of information it may have greater implication – but the discussion on pages 101–102 of this aspect tends to leave one with the impression that there is really no solid ground in this example for concluding that the subjective and objective approaches are contradictory.

Table 2 is really one of the most interesting ones as two objective measures are given as well as the subjective one on Satisfaction with Housing. The mean values for age by income set out in Figure 1 do give an apparent contradiction. There are several investigations which suggest themselves – which may in fact have already been carried out by the authors but not covered here as their concern is to present this apparent contrast. (i) Is a simple count of the household accessories and appliances the most appropriate measure? An analysis to distinguish their separate effects would be of interest. (ii) So would an analysis taking account of the possible differences between those who are the "final residents" (e.g. head of house and spouse) and those who are less permanent – young persons likely to have a different relationship i.e. other than "ownership", to the various appliances. (iii) So would a direct analysis between Housing Satisfaction and Number of Appliances, etc.

Undoubtedly Table 1 does show clearly what a very small proportion of the total variation in the measure of satisfaction with Health Services is accounted for by Residence (U/R) difference, or sex difference or the factors of age and income when these are taken as having two classes each – the residual amounts to 98 per cent of the total variation, indicating a very variable situation *within* each subdivision or group and a very wide degree of overlapping *between* groups.

For satisfaction with Housing (Table 2) a very similar situation holds with 95.5 per cent remaining, and again 95 per cent for satisfaction with control of pollution (Table 5) and over 97 per cent for Table 7 concerning Anomia. So there is no doubt that if it is considered important to "explain" the variability involved, other factors have to be explored. Tables 6 and 8 show what has been achieved when some factors of what I might call the same breed are used. These account for 26 per cent of the variation for Life Satisfaction and 11 per cent in the case of Anomia.

As the authors indicate there are many other factors of the same breed which might well help to account for a substantial amount of the remaining variability.

This is, of course, a fascinating area; an alluring one and one requiring a methodical disciplined approach. As in so many other fields of statistical research it is difficult to

assess the real value of a new system until some time series flow from it. I look forward to that achievement from the authors commencing with the results of the 1977 and 1978 Surveys. There is no doubt that they have contributed and are contributing enormously to this work on subjective indicators in developing methodology and in putting it to the test.

It gives me great pleasure, therefore, to formally propose the vote of thanks.

Dr R. C. Geary: The lecturers have made an excellent case for subjectivity measurement. In the friendliest way I have ventured to differ from Professor Davis as to his success in devising measures of the entities he deals with. I hasten to add that as an objectivist, I am far from satisfied with my own discipline. I was taught a lesson long ago by my dear wife, in an all too familiar domestic situation, her asking for more weekly money “because prices have gone up”. I rejoined: “My dear woman, I happen to be responsible for the statistics of prices and I assure you –”. Her interruption was unanswerable “My dear man, I’m talking about facts, not statistics”.

After more than fifty years of enjoyment in messing about with figures and their algebraic symbols (to misquote *The Wind in the Willows*), in my old age my conscience is beginning to disturb me in asking “What are you at?” In all the social disciplines the object should be the betterment of mankind – I avoid the word “welfare” like the plague in view of the complicated mess economics has made of it. Before Professor Davis came to ESRI, at a seminar my suggestion that what we should be concerned with is the derivation of a measure or a vector of happiness had a poor reception. Of course the problem is difficult, statistically. The American Constitution refers to the “pursuit” of happiness with no promise of attainment and Sancho Panza said “The road is better than the inn”. Notoriously there is no necessary correlation between prosperity and happiness though one recalls the remark of the oldtime rugged American: “Money doesn’t buy happiness but it buys a dam’ good substitute”. Austere religious philosophers may tell us that our reward is not here but their index of happiness (when we can measure it) may be very high. And E. A. Robinson’s Richard Cory (rich, handsome, envied by all) “went home and put a bullet through his head”.

I can think of no people more likely to discover how to measure happiness than our lecturers this evening. I warmly encourage them to continue their efforts.

Dr M. Casey: I would like to thank the authors for an interesting paper which, I gather, is a curtain-raiser to the publication of the full survey results. My comments will revolve around three basic questions and will occasionally draw on experiences we have had in the Bank in participating for a number of years in the EEC Consumer Survey. This survey is conducted three times a year by the Agricultural Research Institute and by the Economic and Social Research Institute. The three main questions are: –

- 1) Can we really define that which we want to measure?
- 2) Can we measure it? and
- 3) Is the policy-maker more enlightened at the end of the day?

At the risk of digressing I would then hope to indicate briefly how valuable attitudinal data, of a rather different kind, can be to economists.

1. A passing acquaintance with welfare economics suggests to me that it is extremely difficult to measure welfare; the ground is littered with impossibility theorems, compensation principles that run headlong into thorny problems of interpersonal com-

parisons and so on. When, therefore, one hears of an attempt to measure happiness, which is much more a will o' the wisp than welfare, since it surely embraces a host of psychological and even spiritual elements, one is filled with admiration but also a certain nagging doubt. The authors do tend to use the terms happiness and satisfaction interchangeably, however. If it is satisfaction that is the relevant concept, a definition would have been useful but I suspect that any truly workable and fixed-meaning definition would have to be so narrow as to undermine the authors' real intention. We would probably be forced back towards a much simpler concept, e.g., utility. In spite of these difficulties, however, I respect the authors' desire to light a candle, rather than curse the darkness.

The idea of using subjective or perceptual indicators to complement the objective ones is certainly most appealing but I wonder how successful it might be in practice? The examples given in the paper were not entirely reassuring. Of course it is early days and I'm sure that the present results could be probed further in subsequent surveys, always assuming of course, that we have a definite idea of what it is we are trying to measure.

2. But measurement itself poses enormous problems. The Rev. Professor Ryan's point about the changeability (fickleness?) of people is a very sobering thought. I would also surmise that there is a tendency for people to overreact to a single adverse event. For example, the EEC Consumer Survey for January 1979 showed a very marked deterioration in consumer confidence under *all* headings (expectations regarding future inflation, unemployment, financial situation of households, etc.). It is difficult to explain fully such a swing in sentiment by reference to objective indicators. One possible explanation is that the survey was taken just after food subsidies were removed and the respondents may have assumed that this was a portent of adverse developments under *all* headings. We have had some other experiences of this tendency to tar everything with the same brush. I'm not sure how we could purge the data of this "melodramatic" bias.

Another difficulty must surely be the lack of what might be termed, policy-relevant quantification. Taking one of the examples given in the paper, we have no way of knowing *how much* or *in what ways* the public transport system would have to be improved to encourage car-owners to use it. The policy-maker would still be in something of a quandry.

One way of giving the policy-maker more relevant information is that of social experimentation (1), an approach which has been used successfully in the USA. Continuing the example of public transport, social experimentation would probably involve *actually* improving public transport for a selected sample of households and observing how the households respond to the improvements. In such a *direct* approach to measuring behavioural responses the problem of defining satisfaction, etc. becomes (thankfully) somewhat irrelevant. One can assume that people behave in a way that suits them although their behaviour *during* the experiment may sometimes be a little artificial (the so-called Hawthorne effect). Social experimentation is, of course, *extremely* expensive, as can be imagined.

3. Returning to the question of social indicators as a complement to objective indicators I am inclined to think that the policy-maker would still be in a quandry *even if* the social indicators were both properly measured and well-defined. What, for example, is the policy implication of the authors' findings that young people are less satisfied with

the standard of housing than old people? Should housing standards be improved *only* for young people? Even if that were the short-term solution – leaving aside ethical considerations – I doubt if it would last for very long without creating a new problem of dissatisfaction, i.e., among the older people. We have had ample evidence recently in our city streets of just such a backlash.

Which brings me to my next point: relativities. It has been found (2) that absolute income has little effect on happiness but that relative income has a major influence. The path-breaking work of the late Fred Hirsch (3) also points to this depressing fact of life. Nearer to home we had, some years back, the work of McCarthy and O'Brien (4). It seems to me that two points arise from the overwhelming importance of relativity considerations. The first point concerns the surveyor, the second, the policy-maker.

The surveyor must tread warily. If, for example, he were to ask people whether they would accept wage restraint, our experience suggests that there would be some tendency for each respondent to interpret this question as applying to himself *in isolation*. If, on the other hand, a specific rider were added to the question pointing out that everyone else would be in the same boat (wage freeze in this example) the responses would be totally different. The point I would stress here is that very often the respondent simply doesn't realise that the question which is being put to him is also being put to all of the other people in the sample. In answering the questions he feels that he is committing himself *alone* to a point of view and doesn't know whether his response would put him out on a limb or keep him within the safety of the collective response. I'm not sure what the answer to this problem is. Perhaps it is to put the question twice, i.e., with and without the specific rider.

The second point in relation to relativities concerns the policy-maker. If it is the case that people derive most satisfaction from keeping up with, or streaking ahead of, the Joneses then the policy-maker will find himself constantly pandering to these (not very edifying) desires and, of course, by so doing, setting up a whole new set of tensions as the initial set of relativities is altered. One alternative would be to legislate for needs rather than wants but that solution has little to recommend it either. It is extremely difficult to know where to draw the line between pandering to relativity-inspired wants on the one hand, and acting as an omniscient dictator on the other.

Before concluding, I would like to make a separate though related point. Attitudinal data *is* very useful. I'm not talking now about attitudes in relation to satisfaction or "the quantum of happiness", but simply in relation to how and why people behave in the "ordinary business of life". Generally speaking, economists probably don't give enough weight to this kind of information. I'm not sure that people do always behave rationally, in the strict economic meaning of the term. The fact that PAYE workers did not object to an estimated increase in income tax this year of over 30 per cent *until* the 2 per cent farm levy was withdrawn, would hardly be termed rational behaviour in an economic sense. The point is though that even the specification of econometric models – which are after all "behavioural" – could often be improved by surveying attitudes in a theoretically structured way. As a result of our participation in the EEC Consumer Surveys we have gleaned many insights into how inflationary expectations are formed, into work/leisure trade-offs, social rates of discount, perceptions of poverty, savings behaviour and so on. In fact regarding the latter, Tait (5) has used survey evidence in support of the real balance effect. We hope to cross-tabulate our own survey data in the near future; this should provide further insights. The sort of question which cross-tabulations could answer might be for example: "Are the people who are most pessimistic about future inflation the same

as those who want to increase savings?" As the authors rightly point out, survey data is uniquely suited to cross-tabulation; one cannot explore "behind the scenes" of national accounts data in this way.

Thus, in conclusion, although attitudinal data can be invaluable in testing hypotheses regarding economic *behaviour* I would share the other speakers' reservations about its usefulness as an indicator of satisfaction or happiness, because of *definitional, measurement, and policy-response* problems. Perhaps, in time, as experience is built up, on the basis of the sort of paper we have had before us to-night, these problems will become less severe. I would like to thank the authors again for courageously launching their craft 'in such treacherous waters.

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Professor A. C. Cunningham: On first reading the paper, I was struck by the apparent diffident approach adopted by the authors in arguing their case for the use of subjective social indicators as a decision aid in social planning. Indeed, the tenor of the paper was virtually an apologia for even thinking in such a vein!

Having listened to the comments to date, I can begin to appreciate why the authors adopted such a low key advocacy.

I would like to bring to the attention of the audience that although the use of subjective social indicators in public policy planning is unusual in Ireland, such indicators are in common use by decision-makers in the private area. Now, it is unlikely that such hard-headed decision-makers would use subjective indicators, which they call qualitative market research, unless they had proven to be of assistance in making such decisions. I would furthermore point out to the audience, that the down-side risk for decision-makers in the private area in misinterpreting such subjective social indicators is significantly greater than it might be in the public service. Not only are resources at risk in the private area, but indeed the very jobs of the decision-makers are at stake, should they misinterpret such indicators.

The previous speaker mentioned the technique of "social experimentation", as an aid in attempting to verify subjective social indicators and assist the public policy decision-maker in his rather difficult task, and I could not help relating this immediately to its private sector equivalent – the "test marketing" approach. Again, this reinforces my own feeling that management technology, highly developed as it is in the private sector, can, and should, play a much greater role in the management of public resources.

Decision-makers, be they in the public or private sector, have the responsibility of managing scarce resources to meet agreed objectives. Now I will be the first to admit that objective setting in the public sector is sometimes a far more difficult task than it

might be in the private sector, but this is not to say that much of the technology developed to assist decision-makers in the private sector cannot be applied in the public sector.

Perhaps I might be forgiven, Mr. Chairman, if I attempt to illustrate this by some simple examples. Let us just consider for a moment, the real estate value that is tied up in public football pitches. Have we considered at all, the proportion of the public – i.e. our customers – who actually play football? Perhaps we might consider some of the alternative uses that such scarce land resources might be put to, which just conceivably could result in a greater overall social utility for that land! And, Mr. Chairman, we might also consider another public resource – swimming pools. There are a number of swimming pools which have recently been built almost to Olympic standards. Now if we consider the potential users of swimming pools in the general public, I doubt very much if many of them can come up to Olympic swimming standards. Indeed, if you examine the consumption behaviour of the swimming pool users, you will note that most of them are concentrated in the shallow end. Now if you examine the cost of swimming pools, you will find that the bulk of the running costs are absorbed down in the deep end, through the heating costs, filtering costs, etc. It is just possible that for the price of one Olympic type swimming pool, you could build two shallower pools in different locations which would satisfy a far greater proportion of the potential customers, but perhaps not the ego of the local administrators or politicians, who like to be able to show off Olympic size swimming pools, which are far more prestigious than simpler pools catering to a larger proportion of the potential users.

You will see from these examples and indeed from your own experience that decision-making in the public area is largely a series of trade-offs between different objectives within given limited resources. It may just be that part of the reaction against the use of subjective social indicators in such decision-making is the realisation that it would remove some of the power and authority now exercised by either local politicians, or local bureaucrats.

Thank you, Mr Chairman.

Mr Tony Fahy: I admire the courage of the authors in venturing into this challenging and important, though difficult, research field. I welcome the general thrust of the paper in attempting to explore the utility of subjective social indicators in the policy-making process and their relationships to the more familiar objective indicators.

However, I feel that the gap between promise and performance has not been fully bridged in this paper. This point is exemplified, in my view, in the apparent anomalies which the paper brought to light in the four policy areas of health, housing, communications and transportation.

One way out of the research dilemma I suggest, is to use the research tool (the social survey) which yielded up the 'anomalies' in the first place as the instrument to 'explain' the 'anomalies'. This approach would extend the survey in two directions. First, the core concept of 'satisfaction/dissatisfaction' would need to be explored and perhaps refined and, secondly, the target policy areas such as health services etc. may need to be re-defined and clarified in the light of the respondents' understanding of the content of these terms!

I look forward to reading the completed report of this study which is promised shortly as a joint ESRI/IPA publication.

Mr P. Duffy: I wish to join with previous speakers in complimenting the authors on their work in the difficult area of subjective social indicators.

I am particularly interested in the sections of the paper which have a bearing on housing. It seems to me that the comments made in the paper are a useful first step in the pursuit of satisfactory subjective indicators. This development is important because of the fact that, in recent years, the Government has been increasingly concerned with the qualitative as opposed to the quantitative aspects of housing. The paper complements in some respects research work done by An Foras Forbartha in the housing and physical planning areas. I would accept the concluding comment made on housing to the effect that "in general, the standards that are now accepted generally in many areas, may in ten years time be considered quite unsatisfactory". I have, however, a reservation on the housing data. In a politically sensitive area like housing, it is unfortunate that the 1977 survey of subjective indicators in EEC countries took place during the month when the last General Election was held in Ireland.

I would also like to take this opportunity of making a few brief general comments.

First, it is stated in the paper that the series of EEC studies are seen in the social action programme of the Community as "a means of facilitating and encouraging the progressive convergence of social conditions in the Community, and of providing an essential basis for Community decisions concerning common targets in the social field". To date, the financial assistance provided by the EEC for housing in member countries has been extremely limited.

Secondly, I would like to hear the authors' views on the question as to whether there is a prospect within the next 3–4 years that worthwhile international comparisons can be made on the basis of subjective social indicators.

Thirdly, the paper makes the case that subjective social indicators are a necessary complement to the objective indicators. The social indicators are a desirable complement but it is arguable as to whether they are necessary having regard to other priority areas of expenditure. Further, it is debatable as to whether they shed much light on possible solutions to problems.

Lastly, the paper concludes by asking the point – "Can Ireland afford *not* to carry out this kind of research?" The paper should, perhaps, have indicated the order of magnitude of the annual cost of this research.

Thank you, Mr Chairman.

Reply by Professor E. E. Davis and Dr M. Fine-Davis: We should, first of all, like to thank the Society for inviting us to give this paper and the many members and other guests who came here to hear the paper and, particularly, the discussants who took the trouble to give us their thoughtful reactions to the paper.

A certain theme seems to run through the comments made by most of the discussants. Naturally, all of the discussants, even those who were somewhat more critical than others, expressed in some form or other their thanks and appreciation for the paper and for the research we are doing in the field of social indicators. Of course, we appreciate these words of thanks and interpret them as perhaps reflecting the often noted hospitality and friendliness which one encounters in Ireland, and, which, indeed is perhaps even more a custom in this Society. There seems, however, to be a slight difference in the way the words of thanks have been expressed by most of the speakers this evening, compared with the words of thanks expressed on similar occasions, as recorded in the Proceedings of this Society. For example, Mr Linehan congratulates us for our "pioneering and persistent

work in this field on the Irish scene"; Dr Casey thanks us for "courageously launching (our) craft in such treacherous waters" and expresses his "respect (for) the authors' desire to light a candle rather than curse the darkness"; Mr Fahy expresses his admiration for "the courage of the authors in venturing into this challenging and important, though difficult, research field"; other examples in this vein could be cited.

We are sure that many, if not most, of you who are engaged in research of whatever kind experience "difficulties" in your research, as indeed we recognise certain inherent difficulties in the nature of the research upon which we have reported this evening. However, the fact that this theme has run throughout most of the discussion this evening would seem to be indicative of something other than the usual "difficulties" which most research encounters. We feel that the difficulties which many of you have mentioned in respect of our research are due, in large part, to the unfamiliarity or experienced "newness" of the research to most members of the audience. (In fact, this evening probably represents one of the very few – if not indeed the first – occasion on which a paper has been read to the Society by social psychologists.) However, the seeming "newness" of this train of research is more apparent than real. First of all, the measurement of subjective social indicators is merely an extension and application of the field of attitude measurement to the particular area of social indicators. The field of attitude measurement as an empirical discipline has a history of more than a half a century (cf. McGuire, 1969; Kelman, 1976). The application of these techniques to the measurement of perceived "quality of life", that is to say the measurement of subjective social indicators, has a history of well over a decade in many countries (cf. Strumpel, 1974). However, the work which we have reported on this evening represents the first large scale attempt to measure subjective and objective social indicators on a nationwide survey sample basis in Ireland.

Nevertheless, in any paper, there are bound to be questions of clarification and other comments raised. Perhaps in the case of this paper even more so because of the relative newness of this topic. We shall attempt to address ourselves to as many of these valid points as possible, within the time available.

We have particular pleasure in responding to the astute comments of Mr T. P. Linehan, whose international reputation as a statistician is impeccable and who, understandably, combined his words of praise with the raising of some important technical points. We would agree with Mr Linehan that what we have reported upon "is activity of a research nature which will continue to be so for some time to come". The distinction which he made between *aggregate* and *aggregated* statistics is a very useful one. We also welcome his elucidation of the research by Schneider, which we cited.

We are sorry that we did not provide data on the mean differences between urban and rural respondents in Table 1, but for the expert statistician that he is, it was not difficult for him to calculate the value of pq as 0.25 and then, together with the other known quantities, to arrive at the conclusion that the difference between these groups was approximately one-fifth of a scale point on a 4-point scale. It, of course, logically follows that any linear transformation of the range of the scale would not affect the calculated analysis of variance results. Thus, for example, if the 4-point scale were transformed to a 100-point scale, the difference would have been 5-scale points and might have appeared more "important". (This is not an imaginary situation, since there are instances of the use of 100-point scales – as well as 6, 7, 9, 11 and other point scales in the literature.) A related question which Mr Linehan raises is that the "uninitiated" would want to be "reassured" that the use of scales of varying lengths does not "materially affect

the results". It is true that we did not intend to go into such technical aspects in this brief paper, but since the point has been raised, we shall comment upon it briefly.

A first point to bear in mind is the fact that the use of a 4-point scale to measure "satisfaction" (in general and in various domains) was necessitated by the need for a harmonisation of this first portion of the 1977 questionnaire across all participating EEC countries. As Irish delegates to the Working Party of experts which has met frequently at the Statistical Office of the European Communities in Luxembourg to develop and finalise the questionnaires, we had argued for the use of a scale with more than four points. Unfortunately, however, we were "outvoted" by our colleagues from other countries – some of them even argued for a format involving a simple Yes–No or Agree–Disagree format – and the result was the 4-point scales which we used in the EEC-wide harmonised portion of the questionnaire. This is a price that one must sometimes pay for harmonisation (and the financing by the EEC Statistical Office of the expensive field costs of a large nationwide sample). We have argued at the aforementioned forum and elsewhere that the assumption that "average" respondents are unable to make differentiations in their responses beyond a two, three or four-point scale is a middle-class bias which assumes that working class and other less educated respondents, which one would encounter in large numbers in a nationwide representative sample, do not possess the ability for cognitive differentiation that, for example, university students (who are often used as subjects in psychometric research) have. We have disproved this assumption in much research in Ireland and elsewhere and it has also been disproved by such noted psychometricians as C. E. Osgood and his associates (Osgood, Suci and Tannenbaum, 1957; Snider and Osgood, 1969) and many others. To return to the original question of whether or not the use of scales of varying length makes a difference, the answer is yes – but in the following way: If "average" respondents can make differentiations on a scale which has a larger number of points on it (and we and others have shown that they can) then, as any statistician would know, one has captured more variance and, thus, is more likely to achieve significant results. If you ask a question with a simple "Yes–No" response format, you can never know how much variance is lost or hidden in the varying degrees of agreement or disagreement, of satisfaction or dissatisfaction, which the respondent may have felt. In speaking of degrees of positive or negative response to a question, we are not talking about some hypothetical or "will-o'-the-wisp" (to use a term introduced by Dr Casey in his remarks) constructs which have no bearing on the reality of what can or cannot be researched. We are, rather, talking about the fact that people can and do make such distinctions and, furthermore, data derived from such scales "make sense" when one is carrying out analyses.

A further important point which Mr Linehan raises (which is, as one can see, related to the previous point) is the question of the amount of variance "explained", i.e., the amount of variance in the dependent variable which is accounted for by one or more independent variables. He points out that in Tables 1 and 3, presenting analysis of variance results, the residual accounts for a very large per cent of the variance, with the implication that any given independent variable may not represent "an important difference", even though "its statistical significance is not in doubt". Demographic variables seldom account for any very large amount of variance when the dependent variable is an attitudinal (or subjective or perceptual) measure. The purpose of analysis of variance, particularly involving demographic variables, is to see whether or not there are significant differences between sub-groups in the population, while controlling for other characteristics, *not* to attempt to account for a maximum amount of variance. When that is

one's intent then one makes use of multiple regression. As Mr Linehan points out, Table 6, presenting stepwise multiple regression results, shows that 7 predictor variables account for 26 per cent of the variation in the dependent measure of Life Satisfaction. From the viewpoint of economists, who are used to dealing with very different kinds of variables which are frequently highly autocorrelated, this may not seem very promising. However, researchers familiar with attitudinal or perceptual data will realise that this is quite a respectable percentage in comparison with much research in these areas.

The situation which we have been discussing in purely statistical terms is very analogous to a very real problem in social psychology, namely, the question of the *validity* of attitudinal measures. There are several types of validity, but the most difficult one to achieve is predictive validity, where some behavioural measure is the criterion or dependent variable. Wicker (1969), in a pessimistic review of the validity of attitudinal research, complains that attitudinal measures seldom account for more than 10 per cent of the variance in the dependent (behavioural) measure. In a further article (Wicker, 1971) this same author expresses a more qualified criticism of the validity of attitudinal research and makes the point that the major problem in most studies that are published is a failure to properly measure and conceptualise the attitudinal constructs. As exceptions to much research which he criticises he cites (among others) the work by Davis and Triandis (1965; 1971) in which a single attitudinal measure explains as much as 31 per cent of the variance in the dependent (behavioural) measure and multiple regressions involving four or five variables explain between 42 and 60 per cent of the variance in the dependent measure. For a further discussion of this and related questions, see Davis (1973).

We welcome the comments by Dr R. C. Geary, a distinguished statistician who needs no further introduction to this audience. Dr Geary is concerned with the problem of measurement; however, as the good statistician that he is, he is concerned not only with the measurement of the "entities" which we are dealing with but also with measures of the "objective" variables that he is familiar with. We also note with great satisfaction that in recent years Dr Geary has increasingly concerned himself in his research with some of the most important social problems facing this society which, inevitably, involve some concept of subjective states. We are also very heartened by his words of encouragement to us to continue our efforts in this train of research.

We should like to thank Dr M. Casey for his remarks to the effect that attitudinal data are useful in relation to economic behaviour. We would agree with him that there are "definitional, measurement and policy-response problems". However, some of Dr Casey's concerns seems to be based on misunderstandings which we shall attempt to clarify here.

To start with, we not only did not use the terms "happiness" and "satisfaction" interchangeably, we did not use the term "happiness" with respect to our own research at all. This confusion apparently arises from the fact that we quoted Sir John Sinclair as having used the notion of the "quantum of happiness"; Campbell (1976) was, in turn, citing Sir John Sinclair when using the notion of "quantum of happiness". We would agree that an attempt to measure "happiness" would encounter some of the same difficulties incurred in concepts such as "welfare". We do not propose to measure "spiritual" factors! On the other hand, as we have pointed out, the field of psychometrics is considerably more developed than many non-psychologists would realise.

The term which we did use consistently was that of "satisfaction". This term was, in turn, *operationally defined*, that is in terms of the precise way in which it was measured. Having said this, we do not deny for a moment that there are problems in such measures. Technically speaking, however, the problems that arise are those of reliability and validity.

We have referred to the problem of validity in an earlier comment and we described in the paper the work of Andrews (1974) and co-workers, who found that subjective measures of the type which we have used here show a rather surprisingly high degree of validity and test-re-test reliability. Nevertheless, psychometricians themselves continue to be concerned with these problems. For example, Nunnally (1970), in referring to "construct validity" (the most relevant type of validity in referring to these kinds of subjective measures) states that a sufficient condition for same is that "the supposed measures of a construct ... behave as expected" (Nunnally, 1970, p.146). This statement is, however, preceded by the caution that "a discussion of how one can, if ever, obtain sufficient evidence that a domain of observables relates to a construct requires an analysis of some of the deepest innards of scientific explanation" (ibid. p.146). This author furthermore states that "validity is a matter of degree rather than an all or none property and validation is an unending process" (ibid. p.132). Kerlinger, in another standard text in this area, concludes that "though efforts to study validity must always be made, research should not be abandoned just because the full method is not feasible" (Kerlinger, 1973, p.466).

Turning to the question of policy relevance, again there seems to have been a misunderstanding of what we stated in the paper. In stating that the results are relevant to policy, we in no way meant to imply that in this first broad-stroke study we would be able to make concrete policy recommendations. The policy relevance of the findings lies in the fact that they have highlighted certain hitherto unknown relationships. Naturally, further research will be required before concrete policy recommendations involving large resources could be made. Perhaps we should have highlighted this fact more in the paper.

We would also like to thank Dr Casey for pointing out the extremely important notion of relativities. This is a question to which we will devote more effort in further research.

We should like to express our appreciation to Professor A. C. Cunningham for his astuteness in relating the comments made thus far to our "low key advocacy". Although we did not mean to be apologetic in putting forth the case for the use of subjective social indicators as a necessary complement to objective social indicators, we were, on the other hand, under no illusion about the resistance which such an advocacy would meet in certain quarters. However, we should like to go on record in the Proceedings of this Society as saying that this situation will have changed in five or ten years time. Professor Cunningham's statement to the effect that the kinds of indicators which we have been talking about are in common use by decision-makers in the private sector and that they "can, and should, play a much greater role in the management of public resources" is something with which we would agree very strongly.

We would also agree with much of what Mr P. A. Fahy has said. Obviously, this paper, and this first survey of its kind, have not yet completely bridged the "gap between promise and performance", and we would agree that the survey should be extended and that further refinement is necessary.

We are happy to note that Mr P. Duffy sees the paper as "a useful first step in the pursuit of satisfactory subjective indicators". Mr Duffy juxtaposes the statement which we cited by Mr M. Shanks (then Commissioner for Social Affairs of the European Communities) with the statement that "to date, the financial assistance provided by the EEC for housing in member countries has been extremely limited". This statement may be true, but it is equally true that the amount and quality of data in this area is also extremely limited. Surely Mr Duffy would not wish us to stop the collection of data

which are seen in the social action programme of the Community as “a means of facilitating and encouraging the progressive convergence of social conditions in the Community, and of providing an essential basis for Community decisions concerning common targets in the social field” (Shanks, 1975, p.8) until such time as more substantial financial assistance in that particular area (i.e., housing) has been provided. It does indeed become a rather chicken-and-egg problem.

This problem in turn is related to Mr Duffy’s second concern as to whether worthwhile international comparisons will be possible in the next three or four years on the basis of subjective social indicators. Whether or not this is true within the EEC and the OECD depends very much on the willingness of countries to work towards such comparative data. That it is in principle possible has been amply demonstrated by previous cross-cultural research such as that already mentioned by Osgood and his co-workers (Osgood, Suci and Tannenbaum, 1957; Snider and Osgood, 1969).

In his third point, Mr Duffy is kind enough to indicate that social indicators are “desirable”, but doubts whether they are “necessary”. We have argued that they are both desirable and necessary, and this view is shared by the EEC, the OECD and most researchers and governments in the developed countries. However, Mr Duffy’s cost-consciousness, expressed so explicitly in his final point, is foreshadowed in his third point in his doubts expressed in the phrase “having regard to other priority areas of expenditure”.

Mr Duffy’s fourth point would seem to be somewhat mischievous, implying as it does that there might be some sort of “hidden” costs – not open to public scrutiny – associated with this research as opposed to any kind of social research. We have already indicated that the field costs for the 1977 survey (as well as for the 1978 survey) are being borne by the Statistical Office of the European Communities. Apart from computer costs (a rather common feature of modern social research) the major costs which remain are those for scientific personnel. The scientific personnel associated with this project are listed in the ESRI Register of Current Social Science Research in Ireland; thus, there is no “hidden” component involved in this research. To put it another way, the cost of carrying out research of this kind is approximately the same as having the equivalent scientific personnel spending equivalent time speculating about the state of the nation instead of doing research on the state of the nation.

Thank you, Mr. Chairman, Ladies and Gentlemen, for affording us the opportunity to present this paper this evening, and for the lively discussion which many of you have participated in.

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