Draft for Discussion

POPULATION AND THE QUALITY OF LIFE

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POPULATION AND QUALITY OF LIFE

This paper is divided into three parts. Being the first paper of the seminar, the first part will briefly discuss the concepts, the measures and the potential utility of quality of life. In the second part, the paper identifies and discuss the theoretical assumptions of some of the population variables that can explain better the quality of life. And in the third part, the paper discusses some of the interlinkages that exist between population issues and quality of life, and their research implications.

Quality of Life

Quality of life is a very broad concept. In simple terms it means the state or level of living conditions of the people. But the terms state or level can be subjective, and therefore elusive in theorization. Hofstede (1981), for example found that people from different cultures exhibit systematic differences in their performances for quality, avoidance of uncertainty, collective responsibilities, and avertiveness. These differences would surely lend to differences in the quality of life between individuals, families and societies at large. Consequently, the importance and the utility of the concept will therefore, be very much a function of consistency in its operationalization in research applications.

Researchers tend to classify quality of life into two broad categories. For example, Andrews (1981) defines the concept into two dimensions: the objective conditions and subjective perceptions of quality of life. The objective conditions of quality of life are simply measures of physical well-being of responses. They include, for example, family and family per capita income, the nutritional status, conditions of the living quarters, level of education and infant mortality, as measured at the family

level. At the societal or national level, the quality of life can be measured through variables or aggregate of variables which include, for example, income distribution of the people, which can be measured by the Gini coefficient, Theil index and by population sub-group sizes; level of literacy, infant mortality, number of hospital beds per 1000 population, number of medical doctors per 1000 population and percentage of population that enjoy pipe water and electricity.

The subjective perceptions of quality of life is more difficult to quantify and measure. The difficultiy becomes more compounded when the study involves responses across different ethnic and cultural values and norms. However, it should not be interpreted that this dimension is of lesser importance. In fact, research have shown that both objectives and perceptual indicators had very often given different, but complimentary information (Andrews, 1974, 1981; Wasserman and Chua, 1980; Atkinson et. al., 1980). Equally important is the notion that objective/subjective distinction cannot always be sharply drawn and some measures have characteristics of both types - example, ratings by experts of housing conditions, air pollution, or the incidence of poverty.

This paper would like to stress the importance of subjective perceptions of quality of life, and it is important that researchers should look into this new frontier more seriously. This is especially so when view in the light of the current life style of Malaysian which are becoming more modernized and sophisticated fairly rapidly. There are many evidences indicative of this trend as more and more people tend to talk and aspire for more and better subjective quality of life above and beyond the physical quality of life. For example, very often we hear of people talking about the

importance of leisure, holidays and satisfaction with the neighbours and the state of the dwelling.

Unfortunately, the presentation of this paper is constrained by time. While recognising the importance and immense potential utility of subjective measures, this paper will only address the other dimension, or the objective measures of quality of life.

Objective Conditions of Quality of Life

The objective conditions or measures of quality of life can be broadly classified into two groups. The groups are the state of the socioeconomic status (SES) and demographic characteristics. Measures of SES is very broad and is here classified into five types of variables, namely; medical facilities, i.e. number of hospital beds per one thousand population, number of population per one medical doctor; the physical household status, i.e. type of dwelling and spatial configuration of dwelling both internally and relatively; and health nutritional status of population, i.e. calorie intake, foetal growth rate, bicep measurement etc; level of literacy, especially among women; and level of educational attainment and type of occupation indulged in.

The population or specifically the demographic measures of quality of life will include, for example variables like population size, infant mortality, maternal death, foetal wastage, life expectancy, migration etc.. The rationale for linking demographic variables to quality of life can be argued as follows.

The Relevance of Population issues to Quality of Life

Population issue is another broad concept that needs to be clarified. In this paper, the writer would like to limit the definition of

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measures of population into two sets of parameters, i.e. demographic characteristics and SES variables that are indicative of personal development, such as level of education, literacy rate and it is widely believed that there is a strong linkage, directly or otherwise, between demographic characteristics and quality of life. Changes in demographic parameters are assumed to affect the quality of life. Likewise, quality of life is assumed to affect or influent the demographic characteristics of the population. Some of the causal linkages between population characteristics are discussed as follows.

Population Size

It is appropriate to assume that many less developed countries (LDCs) experience high rate of population growth. And it is also true that many of these LDCs are blessed with scarce resources, and a big proportion of their population are poor. As there are many people in these countries, and are increasing at a rapid rate, inevitably there will be more people than the country can feed, house, clothe and educate. Consequently, in order to meet the demand of the masses, the scarce resources available will have to be spread out very thinly, and therefore inefficiently and unproductively. Under this circumstance, the quality of life of the people will not be enhance. On the other hand, many industrialized countries are experiencing a sustain negative rate of population growth. Under this condition the well-being or the quality of life of the population is also threathened, as sustained negative growth will give rise to not enough people to sustain the society, to defend it against intrusions, and to support its dependent members. Population size is one demographic measure that can affect quality of life. Other measures can

include crude death rates, infant mortality rates and life expectancy as can be seen in Table 1.

TABLE 1
CROSS COUNTRY COMPARISON OF SELECTED MEASURES OF QUALITY OF LIFE

COUNTRY	CRUDE DEATH RATE		INFANT MORTALITY RATE		LIFE EXPECTANCY	
INDIA	(1970)	17.0	(1970)	134.0	(1970)	48.0
	-	-	-	-	-	-
INDONESIA	(1970)	18.0	(1970)	126.0	(1970)	46.0
	(1975)	16.9	(1975)	125.0		
PHILIPPINES	(1970)	11.0	(1970)	80.0	(1970)	56.0
	(1975)	10.5	(1975)	58.9	(1975)	58.5
MALAYSIA	(1970)	6.8	(1970)	40.8	(1970)	64.0
	(1979)	5.6	(1979)	27.0	(1979)	69.8
SINGAPORE	(1970)	5.0	(1970)	21.0	(1970)	68.0
	(1976)	5.1	(1976)	13.7		
U.S.A	(1970)	9.0	(1970)	20.0	(1970)	71.0
	(1976)	8.9	(1976)	5.8	(1975)	82.6

Source: The Future of the Health Services in Malaysia, Malaysian Medical Association, 1980, 16 Table 2.7
World Table, second. edition, World Bank, 1980.

Mortality

The state of mortality or mortality rates are good measures of pyhiscal social well-being or objective quality of life of the population. The infant mortality, for example, can be influenced by factors like the health of the mothers, the medical attention the mothers obtained during pregnancy and the foods the mothers eat, the type of food the infant consume, and the medical attention the infant obtained. Level of availability and accessibility to adequate medical attention measures the equitability of distribution of

the services which can be reflected through infant mortality. In this light, it is persuasive to argue that infant mortality is a good measure of differences in level of quality of life, and distribution and access to adequate basic needs namely medical facility. As indicated in Table 1, infant mortality in 1970 for India, Indonesia, the Philippines, Malaysia, Singapore and the U.S.A. were 134.0, 126.0, 80.0, 40.0, 21.0 and 20.0, respectively. Based on the lassumption above, the differences in the rates of infant mortality between these countries should reflect differences in level of accessibility to medical and nutritional intakes among mothers and infant of these countries. In fact, it is reasonable to extend the assumption and equate the differences in the infant mortality rates between these countries to differences in level of under-development and the state of poverty that prevails in the countries.

Like infant mortality rates, crude death rates and life expectancy are also assumed to be indicative of quality of life: high infant mortality and lower life expectancy are assumed to be inversely related to level of quality of life. These assumptions are based on the argument that a more developed country, especially one with a more equitable distribution of wealth and basic needs will tend to have population with higher life expectancy and lower crude death rates. Conversely, it is expected that a less developed country, experiencing skew distribution of wealth and basic needs, will tend to have lower life expectancy and higher crude death rates.

To expound on the theory further, the paper would like to relate the association specific to that experienced in Malaysia.

Table 2 describes the infant mortality rates (IMR), perinatal mortality rates (PMR) and maternal mortality rates (MMR) by states. From the table, a pattern of association exists between the various mortality rates and states. The low income or poorer states like Kelantan, Kedah, Perlis and

Trengganu are associated with high infant, perinatal and maternal mortality rates, while high income states like Selangor, Johore and Federal Territory are associated with low infant, perinatal and maternal mortality rates.

TABLE 2
SELECTED DEMOGRAPHIC INDICATORS OF QUALITY OF LIFE
IN PENINSULAR MALAYSIA, 1983

STATE	IMR		PMR		MMR	
	(X)	(X-X)	(X)	(X-X)	(X)	(X-X)
JOHORE	17.8	-2.5	23.6	0.7	30.0	-10.0
KEDAH	24.5	4.2	28.9	6.0	51.0	11.0
KELANTAN	27.4	7.1	26.8	3.9	59.0	19.0
MALACCA	18.7	-1.6	23.6	0.7	20.0	-20.0
NEGRI SEMBILAN	16.0	-4.3	21.0	-1.0	16.0	-24.0
PAHANG	22.6	2.3	24.1	-1.2	78.0	38.0
PENANG	16.6	-3.7	20.7	-2.2	32.0	- 8.0
PERAK	24.7	4.4	25.7	2.8	50.0	10.0
PERLIS	17.7	-2.6	23.4	0.5	64.0	24.0
SELANGOR	14.6	-5.7	15.4	-7.5	32.0	- 8.0
TRENGGANU	26.5	6.2	30.4	7.5	47.0	7.0
WIL PERSEKUTUAN	12.5	-7.8	12.0	-10.9	9.0	-31.0
PENINSULAR	20.3(X)		22.9(X)		40.0(X)	

Source: Malaysia, Vital Statistics of Peninsular Malaysia, 1983, Department of Statistics, Kuala Lumpur.

The above association should hold true at the district level. We would expect that the poorer districts like Bachok in Kelantan, Baling in Kedah, and Besut in Trengganu to have high infant mortality. However, from the vital statistics report, this is not so. This is because cases of infant mortality is related to place of reporting. Therefore, districts like Kota Bharu in Kelantan, Alor Setar in Kedah and Kuala Trengganu would register highest infant mortality of the particular state.

As indicated earlier, population variables like level of educational attainment, the physical conditions of dwelling and the nutritional food intake are important SES indicators of physical quality of life. It is reasonable to assume that population of a more developed country would generally be more educated, be living in better housing conditions and be eating adequate nutritional food as compared to their counterparts in a lesser developed country. In Peninsular Malaysia, these differences are glaringly noticeable if we stratify the indicators by states and districts. In this respect, we would expect population from the states of Kedah, Perlis, Trengganu and Kelantan to be generally poorly schooled, living in less conducive dwelling or dwellings that are more harzardous to living, and consuming inadequate nutritional food than their counterparts in the states of Selangor, Johor and Penang.

These are only three examples of SES indicators of quality of life. Of course, there are many more. We can identify many more indicators from the SES measures. But this is not our intention. What would be valuable for our purpose would be to identify a number of manageable variables that can best measure (if not precisely) and explain the quality of life. The variables can be aggregates of SES characteristics or aggregates of demographic characteristics or a combination of both, depending on the social cultural environment and the theory to be applied. In connection to this point , the paper would like to present and briefly discuss the composite quality of life model formulated by Morris David Morris. He named the model as Physical Quality of Life Index (PQLI)

Physical Quality of Life Index (PQLI)

Morris identifies three variables for the PQLI. The variables are infant mortality, life expectancy and literacy rates among women. He uses these three variables, demographic and SES, in a composite form. His agruments for the indicators are as outlined in the criteria that he formulated.

Criteria for a Composite Indicator

Morris identifies six criteria for the PQLI

1. It should not assume that there is only one pattern of development.
2. It should avoids standards that reflect the values of specific societies.
3. It should measure results, not inputs.
4. It should be able to reflect the distribution of social results.
5. It should be simple to construct and easy to comprehend.
6. It should lend itself to internal comparison.

Morris stresses the importance of unthenocentric measures in developing a PQLI. Recognising the diverse differences in cultural values and norms, and the fact that these values and norms are very difficult to conceptualize, and more so to measure and operationalize, one needs to come up with measures that are able to take care of the differences, and yet relatively simple to construct and comprehend.

The model also stresses on the importance of measuring the results rather than inputs (this does not mean measures of inputs are not important), and the result should reflect the distribution.

In the light of the above criteria, the three variables identified by Morris in the PQLI are most apt. None of the three measures assumes any particular pattern of development or depends in any way on a particular

unethnocentric as it is possible to get in an imperfect world. Each of the three indicators measures results, not inputs. Each of the measures is fairly sensitive to distribution effects. The three indicators fit the requirements of simplicity and comprehensibility quite well. And above all, these variables are easily available.

Uti ity

The PQLI concept is a robust one and has a vast utility potential, especially in Malaysia This is so because data that are related to the welfare of the people, especially those measured in monetary forms, are so difficult to get access to. But more importantly, variables composed of PQLI are better measures of distribution and are easily available in documents and information on them are generally relatively current This is especially true when compared to data sets like income distribution Up to now, we are still in the dark as to the cut-off point of poverty line, not to mention the manner the data is compiled and analyzed View in this light, the PQLI provides a good alternative to measuring the social well-being, and perhaps a better measure of the state of under-development and poverty

Measurement and Operational Definition

It can be envisaged that the problem of measuring quality of life will centers around two basic issues: the establishment of a sound theorectical or conceptual framework and the employment of valid and reliable techniques for data collection and organization to which the concept is to be applied.

At the beginning of the paper the writer indicates that they are many indicators of quality of life. The strength of these indicators in measuring quality of life or social well-being differs from one to another in

different settings. Under this circumstance, aggregates of these indicators should provide a stronger explaining power to the quality of life. There are a number of ways in which these indicators can be aggregated into a composite component. In this paper I would like to draw the attention of the potential researchers who would like to dwell in the field to the following techniques.

Cluster Analysis

Assuming that we are given a set of data with many variables or measures of social well-being or quality of life. We are to analyze the data set to enquire into the state of the quality of life of the respondents as contained in the data set. One of the ways to investigate is to employ a cluster analysis to look for patterns of quality of life.

Cluster analysis is basically an exploratory technique inquiring into the structure of the data (Everitt, 1977; Nunnally, 1978; Spath, 1980 Johnson and Wichern, 1982). It is a method of classifying variables such that they correlate highly with one another and have comparatively low correlation with variables in othr clusters. To classify the variables into optimal homogeneous groups the analysis uses measures of similarity and dissimilarity (Osiris, IV, 1981) - which can employ the product moment correlation coefficients between the variables. For detail application of cluster analysis on social indicators, please refer to Appendix A.

Multidimensional Scaling Technique

Another useful way to measure quality of life is by using the multidimensional scaling technique. In this aspect, a number of variables are identified to be able to measure quality of life independently, but more so when combined. These variables can come from one dimension, for

example, demographic variables, or more than one dimension, for example, demographic and SES characteristics. We can combine these two types of variables and rescaled the newly recoded variables to strengthen the measure further.

For simplicity, lets assume the variables from two dimensions as infant mortality (IM) and level of educational attainment among women. The categories of these two variables are assumed as follows.

A. Infant mortality
   1. Low
   2. Medium
   3. High

B. Level of educational attainment among women
   1. Low
   2. Medium
   3. High

The new measure of quality of life would be defined as follws.

Quality of life	A1 + B1	level 1	- lowest quality of life
	A1 + B2	level 2	
	A2 + B2		
	A2 + B2	level 3	
	A2 + B3		
	A3 + B2	level 4	
	A3 + B3	level 5	- highest quality of life

By employing the multidimensional scaling technique, the operational definition of quality of life is nore refined. The tool can be

applied for both ojective conditions and subjective perceptions of quality of life. The number of variables and dimensions are however, limited, as many variables and categories will generate many levels of quality of life than intended to be, and when this happens, it becomes cumbersome and less manageable. It is therefore, important to limit the number of variables and categories, but not at the expanse of the precision of the measurement in formulating the scaling index in applying the multidimensional scaling technique.

Conclusion

Demographers have developed a sophisticated speciality that identifies and measures various population characteristics - such as size, growth/decline, density, age/sex structures, mortality, life expectancy, location and migration, but have done little to link these parameters to quality of life. In the last twenty years or so, the social indicators movement has made significant progress toward a broader and more comprehensive conceptualization of well-being than was available previous, and has developed a variety of approaches for measuring well-being at several level of specificity. Now the opportunity is before us to fill the vaccum and relate demographers' measures of population characteristics to the social indicator researchers' well-being or quality of life measures. The paper recognizes the potential of this new research frontier. However, though there are available data sets on the subject, new data may have to be amassed before meaningful analysis can be carried out.

At this point the writer would like to draw the attention of potential researchers in the area to the schema attached. The schema

suggests specific relationship that might be examined and to the various social aggregations to which they might be linked to.

Although the potential for productive research in the area seem great, they are however, methodological issues that need to be cleared - the inherent multilevel nature of the relationship being investigated (involving characteristics of individuals and of collectivities), the slow rate at which population characteristics change, and the absence of properly organized and measured well-being data.

EXHIBIT 1. Two-dimensional conceptual schema: Examples of population characteristics and of aspects of well-being

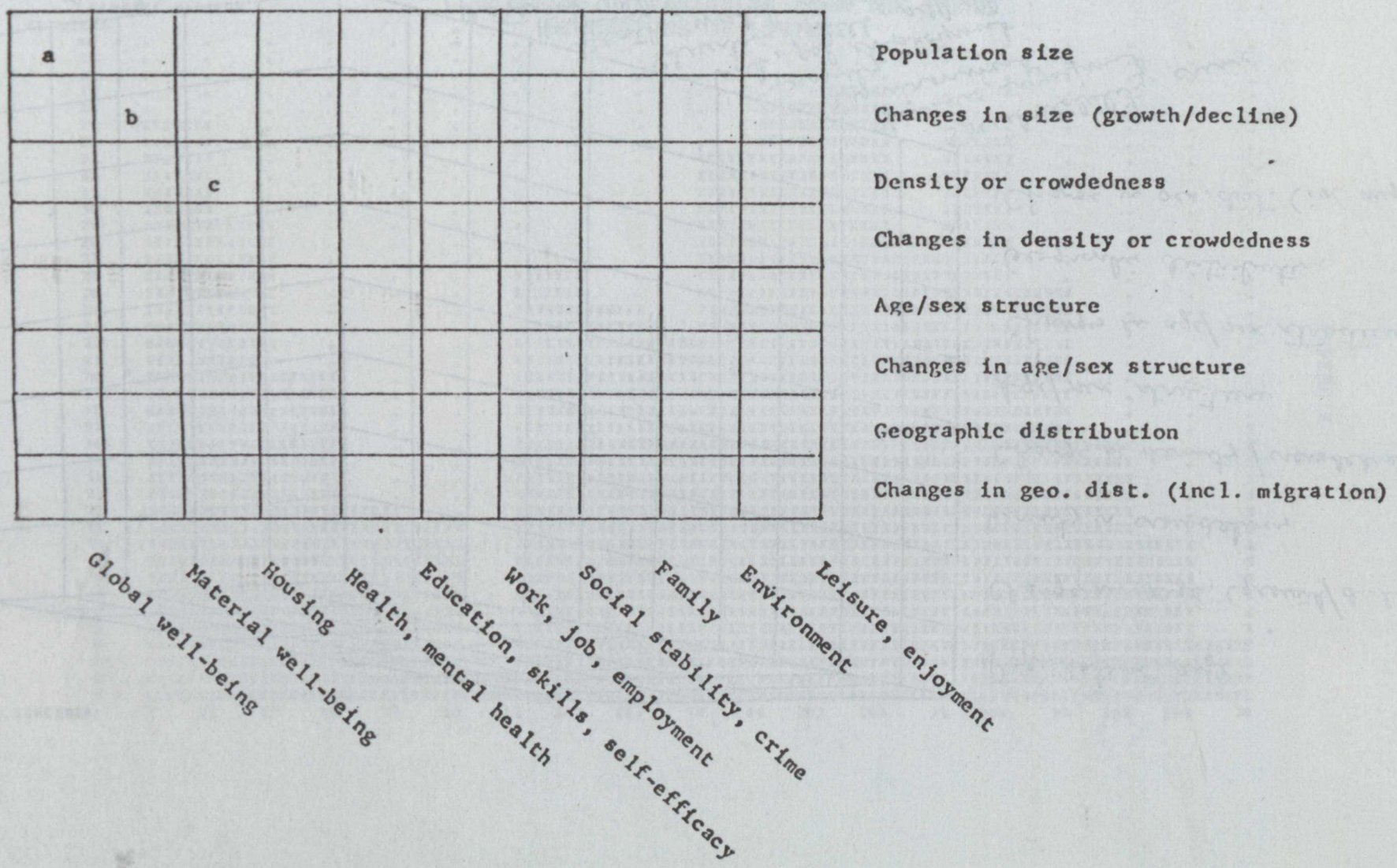
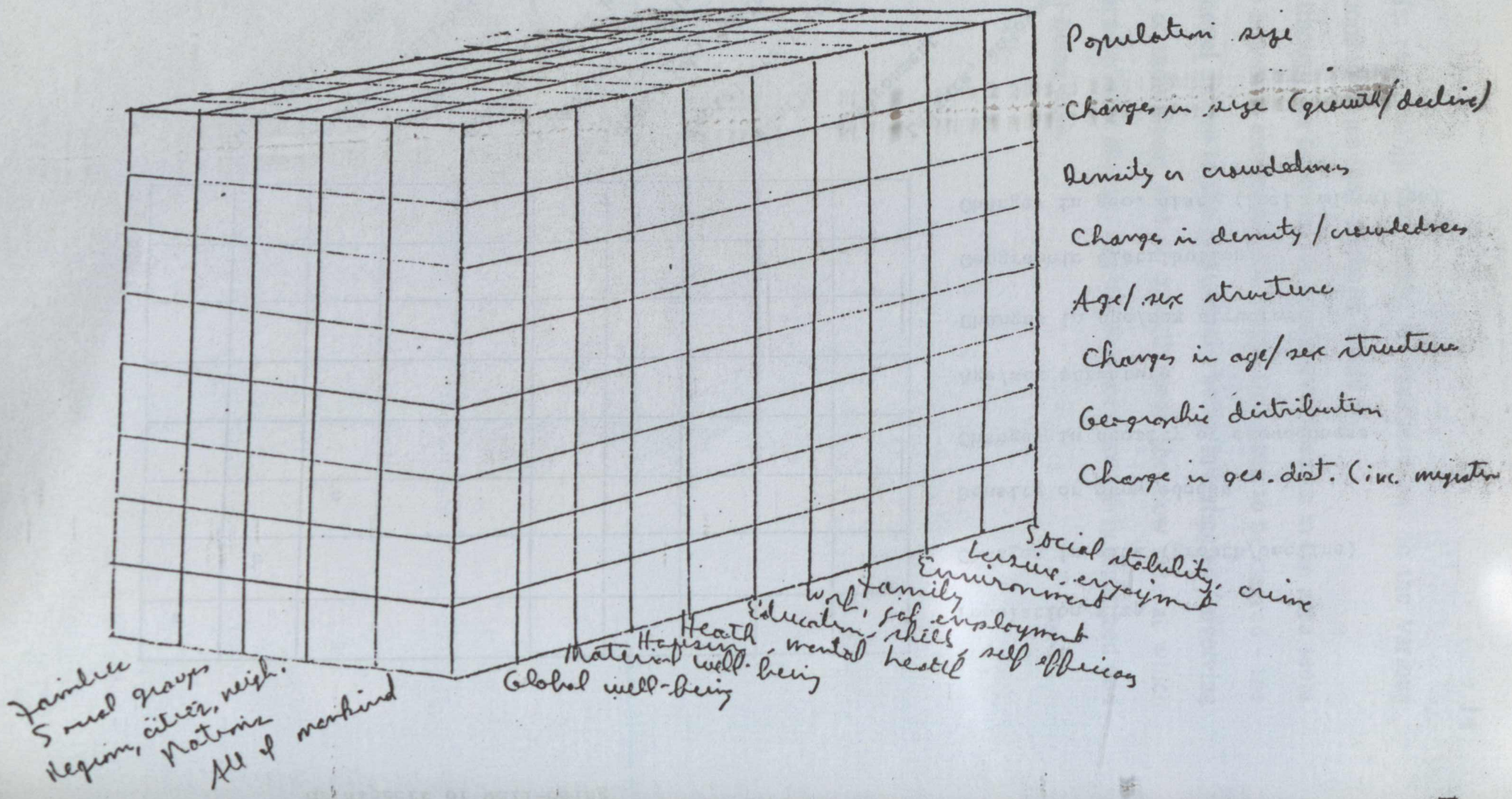
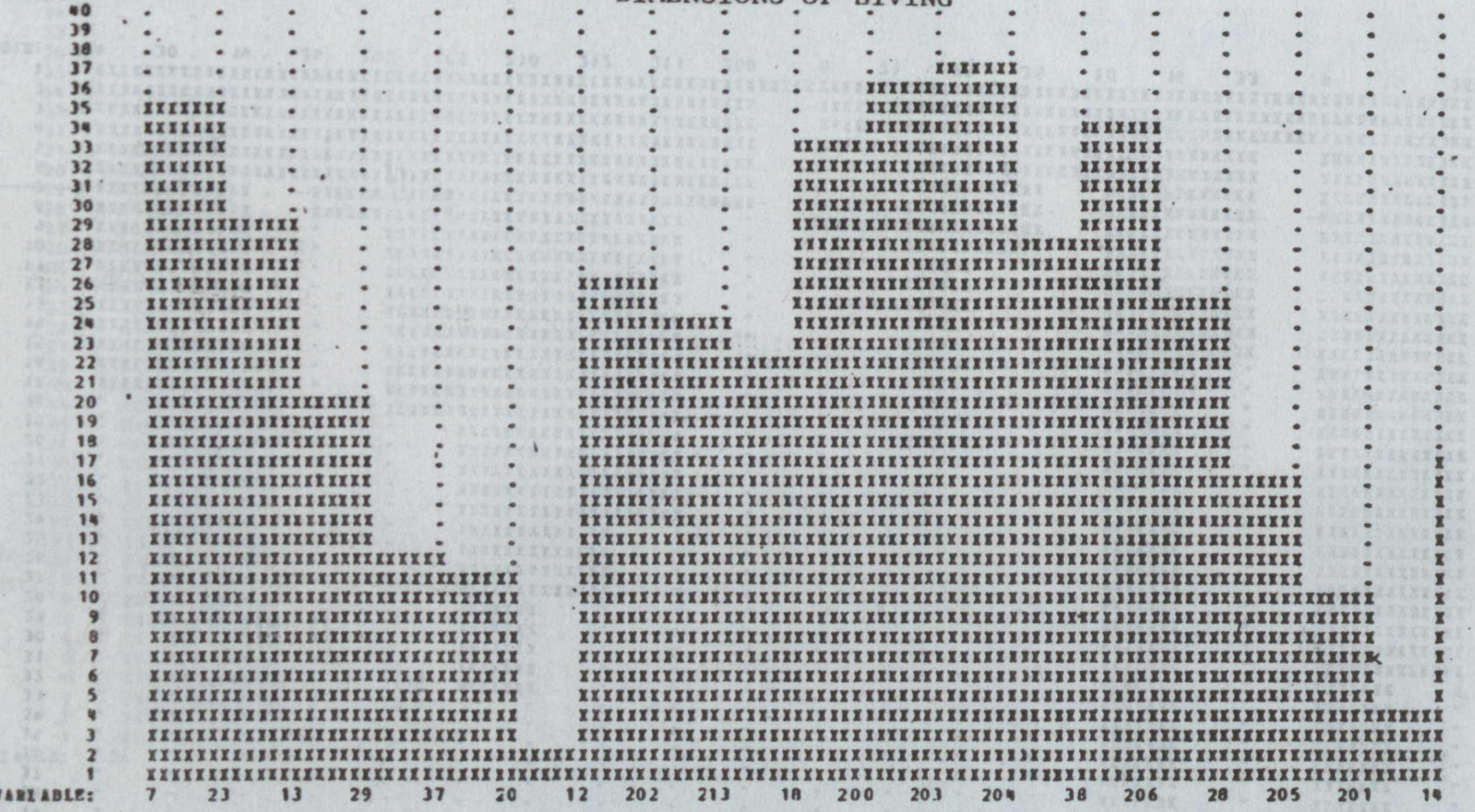


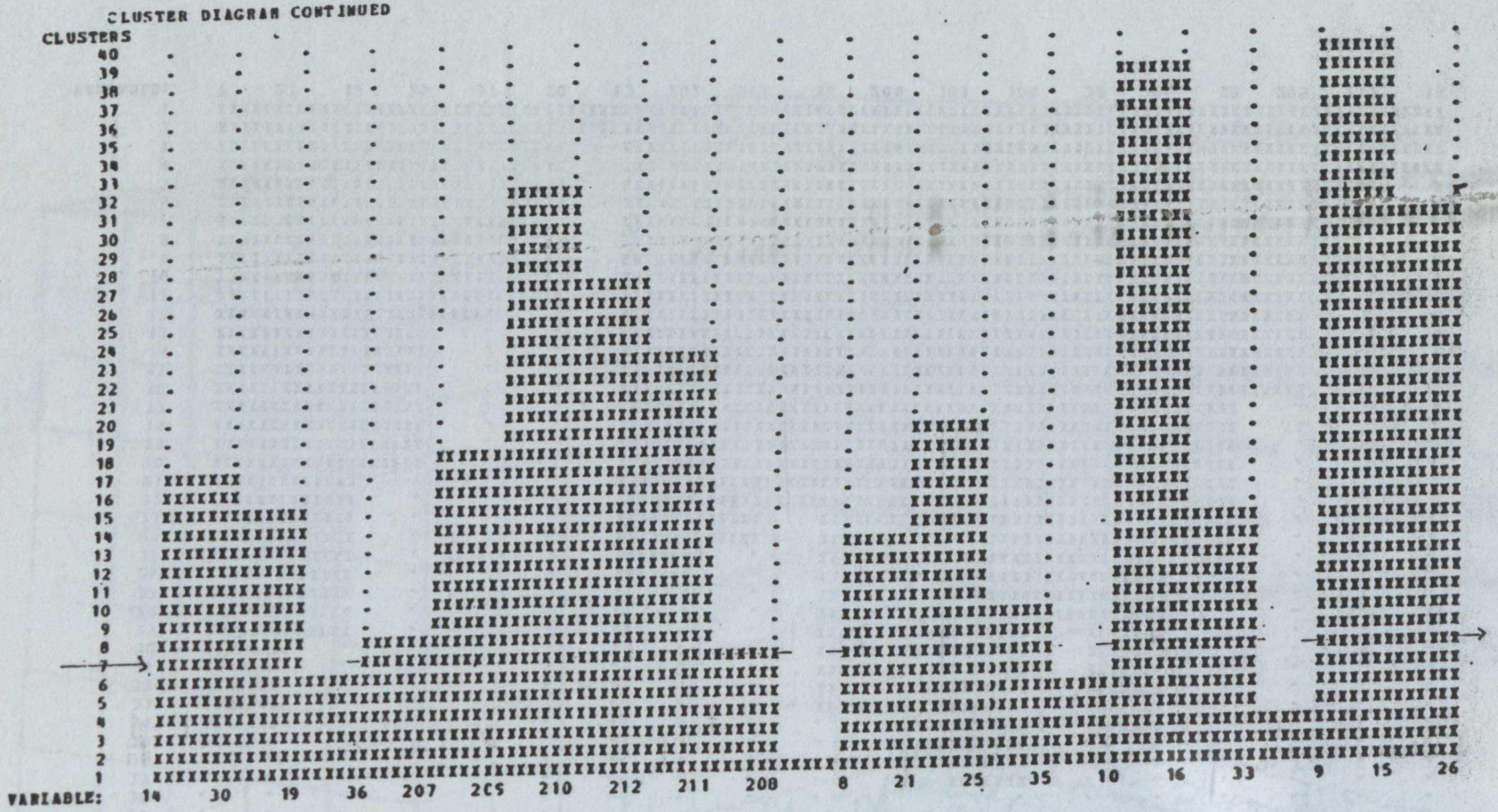
EXHIBIT 2. Three-dimensional conceptual schema: Examples of population characteristics, of aspects of well-being, and of levels of social aggregation

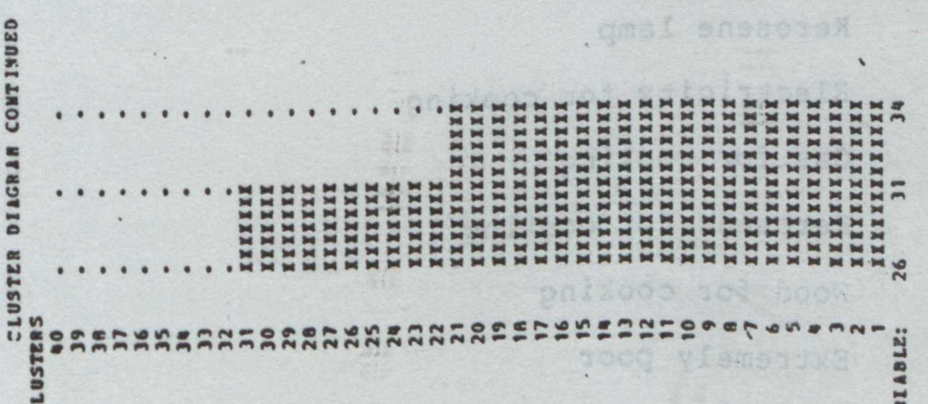


CLUSTERING OF VARIABLES FROM THE THREE DIMENSIONS OF LIVING



CLUSTER DIAGRAM CONTINUED





CLUSTER DIAGRAM CONTINUED
CLUSTERS
40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
VARIABLE: 26 31 34

IDENTIFICATION OF VARIABLES

Variable number	Description
V7	Private pipe water for cooking and drinking
V8	Road pipe for cooking and drinking
V9	Well water for cooking and drinking
V10	River water for cooking and drinking
V12	Bath, shower or both
V13	Bath tub
V14	Bathing with pipe water only
V15	Well water for bathing
V16	River water for bathing
V18	Flush toilet
V19	Pour toilet
V20	Bucket toilet
V21	Pit toilet
V23	Electricity from National Electricity Board
V25	Gas lamp
V26	Kerosene lamp
V28	Electricity for cooking
V29	Gas for cooking
V30	Kerosene for cooking
V31	Wood for cooking
V33	Extremely poor
V34	Poor
V35	Lower-middle income

Variable number	Description
V36	Middle-middle income
V37	Upper-middle income
V38	Upper income
V200	Telivision
V201	Rediffussion
V202	Telephone
V203	Electric fan
V204	Refrigerator
V205	Washing machine
V206	Motor car
V207	Motor cycle
V208	Bicycle
V209	Sewing machine
V210	Eletric iron
V211	Radio
V212	Clock
V213	Camera

Cluster number 1	variable number
pipe water for cooking and drinking	7
National Electricity Board	23
bathtub for bathing	13
gas for cooking fuel	29
bucket toilet	20
upper middle income	37
Cluster number 2	
bath and shower	12
telephone	202
camera	213
flush toilet	18
television	200
electric fan	203
refrigerator	204
car	206
electricity for cooking	28
washing machine	205
rediffusion	201
upper income	38
Cluster number 3	
only pipe water for bathing	14
cooking with kerosene	30
pour toilet	19

Cluster number 4

motor cycle	207
sewing machine	209
iron	210
clock	212
radio	211
bicycle	208
middle-middle income	36

Cluster number 5

road pipe for cooking and drinking	8
pit toilet	21
gas lamp	25
lower middle income	35

Cluster number 6

river water for cooking and drinking	10
river water for bathing	16
extremely low income	33

Cluster number 7

well water for cooking and drinking	9
well water for bathing	15
kerosene lamp	26
wood for cooking	31
low income	34

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