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Economic indicators such as per capita GNP have persisted as the principal means of evaluating the development plans as well as the policy achievements of Third World countries. There has been, however, an increasing awareness that these measures are inadequate to assess the negative spillover effects of economic growth and are an inaccurate indicator of the true purpose of national development: enhancing human well-being. This article proposes an alternative measure, which will permit a comprehensive and balanced assessment of the relationship between economic growth and the other principal domains which constitute the quality of life. We analyze the quality of life in Korea (1963-1979) in terms of physical, social, and personal development. Results show that the physical dimension of life in the 1960s and 1970s was greatly enhanced by Korea's well-known economic growth; but during this same period the domains of social and personal development deteriorated. As a result, the overall improvement in the quality of life has been substantially less than inferred by assessments that heretofore have been based on economic indicators alone.

ECONOMIC GROWTH, QUALITY OF LIFE, AND DEVELOPMENT POLICY

A Case Study of South Korea

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Growth due to the more natural run of events may serve to increase happiness and welfare but a crash program of forced growth may have the reverse effect [Ng, 1980: 161].

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Gross National Product (GNP) is the single most widely used measure of human progress. Policymakers both in developed and developing countries have more often than not relied uniquely on GNP per capita to assess the achievements of their previous policies and plan their country's future development. However, the standardized accounting procedures for measuring a country's GNP were not designed, nor have they been modified, to incorporate the social spillovers and other negative side effects of economic growth. GNP remains at best an imperfect means of evaluating human well-being. Governmental efforts to evaluate a nation's level of progress in terms of national income statistics have always failed to take into consideration the impact of economic growth on noneconomic or qualitative aspects of human life (Denison, 1971; Lekachman, 1971; Morgenstern, 1975; Wagar, 1970; Zolotas, 1981). In response to these omissions, serious efforts have recently been made in the United States and other industrialized countries to develop alternative ways of evaluating human progress (e.g., Bertsch, 1982; Galtung, 1976).

Most of these research efforts to date, however, have concentrated on the problems of defining and measuring the concepts of quality of life, net national welfare, net national product, and social well-being (Allardt, 1975; Andrews and Withey, 1976; Beckerman, 1978; Campbell et al., 1976; Drewnowski, 1974; Economic Council of Japan, 1973; Fox, 1974; Galtung, 1976; Hicks and Streeten, 1979; Juster, 1982; Liu, 1975; Morris, 1979; Nordhouse and Tobin, 1972; Organization for Economic Cooperation and Development—OECD—1973, 1976; Terleckyj, 1975). Less research has been undertaken to determine the relationship between economic growth and the more broadly based measures of human well-being. Generally, these research efforts have either focused on industrialized countries whose economies grow slowly (Barnett, 1974; Beckerman, 1978; Davis, 1975; Larson and Wilfred, 1979; Ruggeri and Jecchinis, 1974; Sametz, 1968; Zapf, 1979; Zolotas, 1981) or relied on "cross-sectional" analysis, i.e., comparing the standing of one country to another at a single point in time (Adelman and Morris, 1973; Easterline, 1974; Liu, 1980; Morris, 1979: 65). As a result, there is very little information on the effects of rapid economic growth on the human lot. There also do not appear to be any satisfactory answers to various questions concerning the proper role of economic growth in the process of national development.

The purpose of this article is to formulate an alternative measure of national well-being and thereby make a comprehensive and balanced

assessment of the effects of rapid economic growth on human life. Based on this assessment the article seeks to explore whether rapid economic growth is the optimal way to improve the well-being of citizens. To this end it examines systematically the temporal relationship between the rate of GNP growth and changes in the well-being of the Korean population during the period 1963 through 1979.

SOUTH KOREA AS THE FASTEST OF FAST-GROWING ECONOMIES

The Republic of Korea has been selected for this longitudinal analysis mainly because it has been widely regarded as the fastest of the fast-growing economies (Adelman and Robinson, 1978; Caporaso, 1981; Cole and Lyman, 1971; Mason, 1980; Wade and Kim, 1978). Indeed, South Korea has posted an enviable record of economic growth since the 1960s. From 1963 to 1981 the nation's annual per capita income, measured at current prices, grew to \$1636 from \$100.

During the 1970s, Korea's national economy made one of the greatest leaps forward, expanding at a rate of 10% a year, compared with 6% in Japan and 3% in the United States. In real terms its GNP more than doubled during the 10-year period from 1969 to 1979. More striking, the Korean manufacturing sector during the same period expanded at an annual rate of 17%, the highest rate of manufacturing growth in the world. In addition, Korea's overseas sales soared to over \$15 billion in 1979 from \$622 million in 1969, showing a growth of 24 times over the 10-year period. This is without precedent. Such impressive records of economic growth make the Republic of Korea an excellent country in which to examine the effects of rapid economic growth on citizen well-being.

MEASURING THE QUALITY OF LIFE

A systematic effort to investigate how economic growth affects human well-being requires a concept capable of allowing for a comprehensive and balanced assessment of all the important domains of human existence. In the present research the quality of life is employed as the primary conceptual tool for two reasons. First, unlike the older concepts of "standard of living," "level of living," or "welfare," the proposed concept includes both nonmaterialistic and materialistic needs and

wants of humans (Allardt, 1975: 3; Overhold and Kahn, 1976; Rescher, 1972: 61). Second, quality of life as compared to the age-old notion of the "good life" is a secular concept, and thus makes it possible to inquire about the meaning of human existence in a more scientific manner (Dannhauser, 1976: 54).

What does quality of life mean? It means different things to different people (Zehner, 1977: 24-25). As a result, numerous criteria have been advanced for a definition of the quality of life concept (Bair, 1974; Campbell, 1980; Gerson, 1976; McCall, 1975; U.S. Environmental Protection Agency, 1975; Wingo, 1973). Yet, amid a plethora of definitions, there seems to be only two general approaches within which a great deal of relatively narrow intellectual differentiation takes place. One approach proceeds from a subjective sense of well-being, while the other proceeds from objective control over resources. Because each of these approaches deals exclusively with either perceptions of life experiences or the conditions of life, a third, combined approach seems preferable. This would be one in which the quality of life is viewed as consisting of not merely a state of satiation, but also a state of viability (Juster, 1982; Wingo, 1973; Zapf, 1974).

It would be highly desirable to assess what changes have occurred in the objective conditions of life in Korea and in the way Korean people feel about their own life experiences. Yet the present inquiry focuses on the objective dimension of quality of life, i.e., the social and physical circumstances under which Koreans live and the various resources which they command individually or collectively. Qualifying the research in this manner was necessitated by the fact that time-series data about feelings of satisfaction or happiness are not readily available or easy to come by. Given this limitation, the quality of life is defined in this research as the capacity of citizens to satisfy their common needs. Underlying this conception of life quality is the assumption that, although needs vary from individual to individual, some common needs arise because of shared language and life experiences (Allardt, 1975: 64; Campbell, 1980: chap. 14; Etzioni, 1968a; Smith, 1973: 66-69).

Like prior research, the present study sought to determine the components of life quality in terms of the specific resources known to be necessary for the satisfaction of human needs. While previous research on the objective quality of life is concerned primarily with the satisfaction of physical needs, the present research encompasses the whole range of human needs, including elements not directly related to materialistic or economic notions of well-being.

Numerous theoretical and empirical studies on needs have produced a large body of evidence that, for their meaningful existence, humans have to satisfy not only the needs for physical life but also those for social and personal life.¹ Moreover, the empirical literature of subjective indicators and the perceived quality of life has generated useful information about the relative importance of the needs for physical, social, and personal life and about the kinds of resources known to provide their satisfaction (Andrews and Withey, 1976, Cantril, 1965; Campbell et al., 1976; Inglehart, 1976; OECD, 1973, 1976). Based on these studies and others on objective indicators of life quality, we identified the ten most widely acknowledged resources that affect physical, social, and personal life: (1) income, (2) housing, (3) health, (4) safety and security, (5) work, (6) leisure and recreation, (7) love and trust, (8) equality, (9) education, and (10) freedom. Figure 1 illustrates our strategy for measuring the quality of life.

For each of the ten components of life quality, five objective indicators were selected according to the following criteria. First, only those indicators having unambivalent normative relevance were included. Second, indicators were used only if time-series data were available and only if the indicators were sensitive to yearly variations. Finally, only those measures whose face validity could be reasonably established were also selected. This mode of indicator selection, based on precedent emphasis and existing data, was considered adequate at this early stage of experimental development, especially since no reasonable alternative is currently available. The fifty indicators chosen for this inquiry are enumerated in Appendix A.

Individual indicators were aggregated to develop composite measures—dimensional and global—of the quality of life. This approach for index construction has been suggested by McCall (1975: 230) and tested by Drewnoski (1972: 25-33) and Liu (1975: 6). Despite the admitted conceptual difficulties of the approach, it allows for arriving at a comprehensive, balanced, and yet concise assessment of various changes in the quality of life. The summary score of life quality meets the need for a synthetic measure of development. Moreover, as Drewnoski (1972: 87) pointed out, a measure of life quality is essential if ubiquitous GNP is to be eventually supplanted by a more comprehensive measure of human well-being.

We aggregated individual indicators according to the Diffusion Index technique in order to compute a composite score for each of the ten components of life quality.² Then the mean of composite scores of

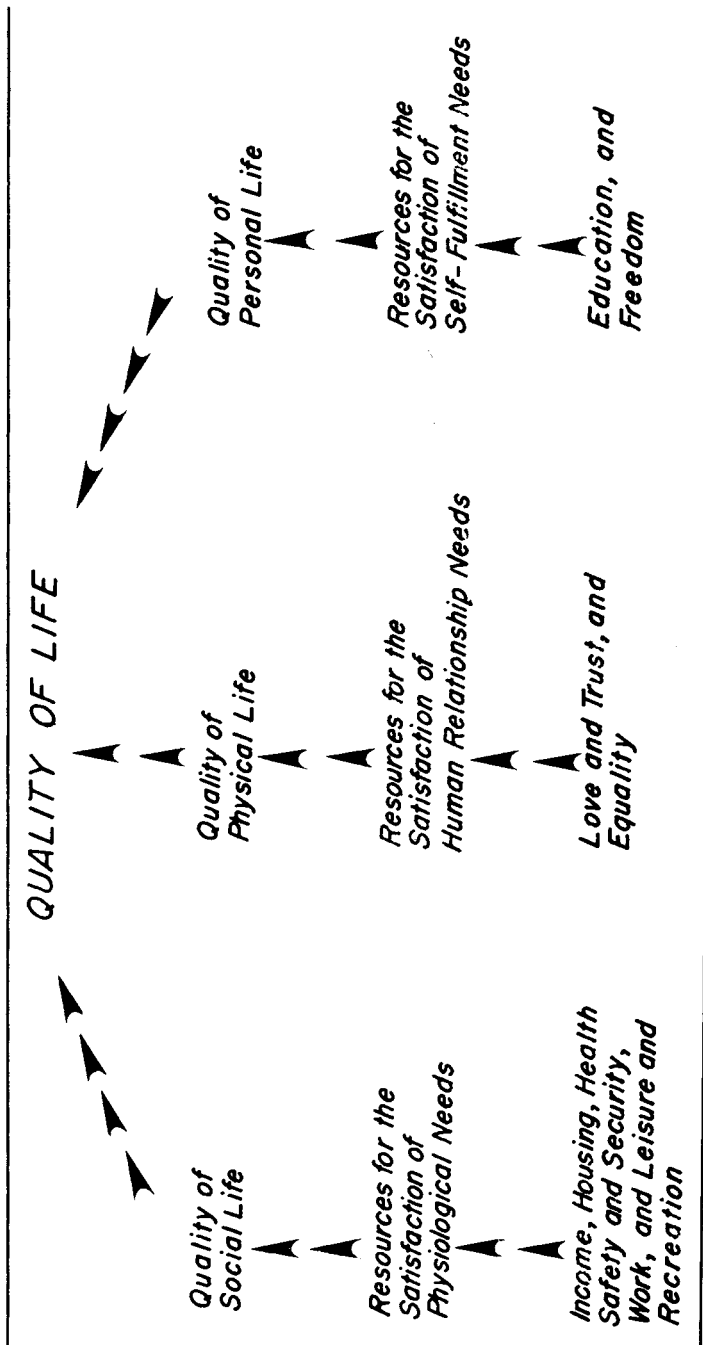


Figure 1: A Strategy for Measuring the Quality of Life

interrelated components were combined for each dimension of quality of life. Finally all three dimensional indices—physical, social, and personal—were combined to compute an Overall Index of Quality of Life. In combining dimensional indices, scores of the physical life dimension index were valued three times as much as those of the social or personal dimension index. This decision to give more weight to the satisfaction of physiological or biogenic needs reflects the general priority of concern of people living in less developed countries like South Korea.³ It also reflects the dual-level hierarchy of human needs (Lawler and Suttle, 1972; Maslow, 1970; Wahba and Bridwell, 1976).

FINDINGS

The data on the variables of economic growth and life quality were analyzed according to two different procedures.⁴ First, yearly scores of GNP growth were juxtapositioned in sequential fashion with similar scores of dimensional and global life quality indices starting from 1963 through 1979. The juxtapositioning was done to ascertain the patterns of temporal relationships between the independent and dependent variables. Second, correlation analysis was applied to the same data in order to estimate the importance of economic growth as a force shaping the quality of life in the Republic of Korea.

What really happens to the physical, social, and personal domains of life in a nation when its gross national product grows rapidly? Does rapid GNP growth affect the life domains differently, or is it associated with subtle forces that improve quality in some elements of human life while it reduces others? Figure 2 provides information directly relevant to these questions. The figure illustrates how each dimension of Korean life quality changed during the growth of gross national product for the period of 1963 through 1979, a period when Korea became more industrialized than any other country of a comparable level of income and population.

Careful scrutiny of the data reported in Figure 2 reveals considerable variations in the direction and strengths of temporal relationships across three dimensions of life quality. While economic growth and the physical quality of life were always covaried in the same, positive direction, its relationships with two other dimensions of life quality were a mixture of positive and negative movements. Between economic growth on the one hand and the social and personal dimensions of life quality on the other, negative covariations occurred more frequently than positive covariations.

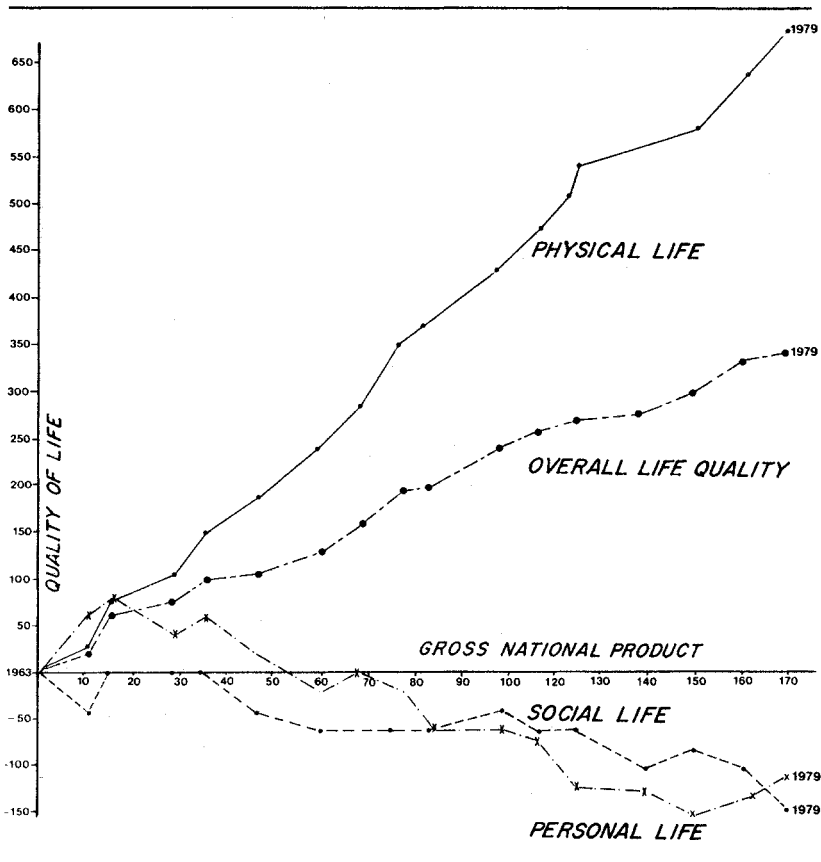


Figure 2: Changes in GNP and Quality of Life in Korea, 1963-1979

Two distinctive patterns of temporal relationships between economic growth and qualities of life in Korea are discernible in Figure 2. The first is one of uninterrupted, positive, temporal covariations. Specifically, GNP growth was always accompanied by positive index scores in the physical dimension of life quality. The second, in marked contrast, portrays interrupted, negative, temporal covariations between GNP growth and the two nonphysical dimensions of life quality. While economic growth was occasionally accompanied by improvements in social and personal life, the general nature of their relationships was negative over time. This means that, unlike the resources necessary for various physiological needs, the capacity to satisfy social needs and the opportunities for personal growth declined over the 17-year period in spite of the substantial expansion of national income.

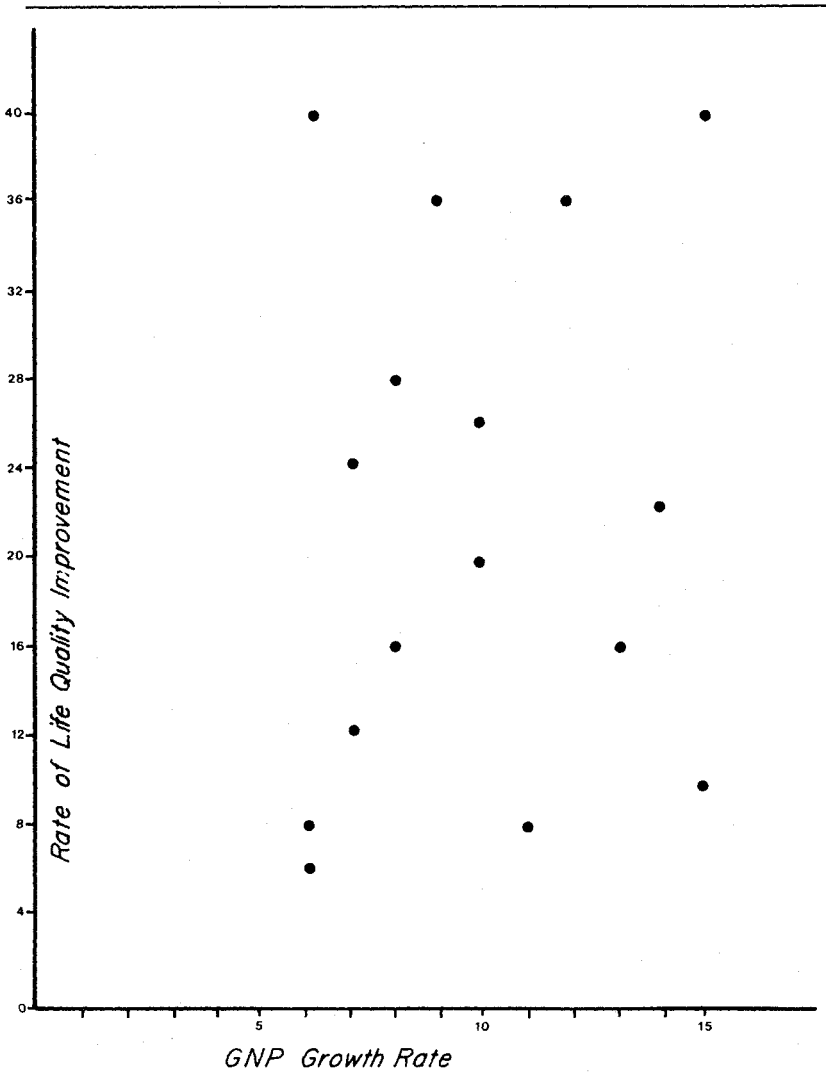


Figure 3: A Scattergram of the Relationship Between the Rates of GNP Growth and Life Quality Improvements

Comparing the 1963 and 1979 life quality profiles shows that the physical dimension of the quality of life expanded by 77% over the past 16 years, while both social and personal life qualities declined during the same period by 40% and 20% respectively. Although economic growth was a major enhancement of the quality of life, at the same time it was accompanied by a decline in both social and personal dimensions of life.

This finding can be interpreted as meaning that the quality of life is a multidirectional phenomenon that is not shaped by economic forces alone.

Changes in the GNP accounted for 22% of the variance in the index of physical quality of life, but the GNP explained only 5% of the variance in the social and personal dimensions of life quality. It is not surprising then that the rate of GNP growth influenced the capacity to meet basic needs more strongly than the capacity to satisfy the needs for relating and personal growth. What is surprising is that economic growth accounts for a relatively small proportion of changes even in the physical quality of life. This is unambiguous evidence that economic growth is neither a powerful nor principal force that would lead to improvements in the physical quality of life.

When all three dimensional indices of life quality are considered together for a summary assessment, it is clear that the variables of GNP growth and the overall quality of life moved consistently in the same, positive direction. Throughout the whole 17-year period, an increase in GNP is shown in Figure 2 to be accompanied by an improvement in the general quality of life in Korea, forming the pattern of uninterrupted, positive, temporal covariations. On the basis of this finding, one may argue that economic growth does contribute to a better quality of life in a developing country like Korea.

Nonetheless, the rate of GNP growth itself appears to have little effect on the rate of improvements in the overall quality of life. A correlation coefficient of .15 between GNP growth rate and the Overall Quality of Life Index testifies to the fact that additional national income has not been accompanied by greater well-being for the Korean population. As Figure 3 indicates, this is more evident when a comparison is made between the average rates of life quality improvement for the five years that experienced the highest rates of GNP increment (1966, 1969, 1973, 1976, and 1978) and for those five years that experienced the lowest rates of GNP growth (1964, 1967, 1972, 1975, and 1979). Surprisingly, the average life quality enhancement for the two groups of years were virtually identical, 44%. Such absence of a one-to-one relationship between the rates of GNP growth and life quality improvement disputes the validity of the widely-held assumption that rapid economic growth is the most effective means of improving human well-being.

CONCLUSION

Throughout history, promoting citizen well-being has been the supreme goal of public policy in civilized societies. In seeking to achieve

this development goal most governments, especially in the Third World, have chosen to accelerate economic growth under the assumption that the quality of citizens' lives is primarily determined by their capability to obtain jobs and consumer goods (Milbrath, 1979; Ruggeri and Jecchinis, 1974). Such a strategy of national development has been increasingly criticized in recent years by scholars from a variety of disciplines (Gross, 1974; Heilbroner, 1974; Hirsch, 1976; Sharkansky, 1975; Strumpel, 1976). Most of these criticisms have been made at the abstract level in the absence of empirical content, and have had little impact on development planners and policymakers (Nordhaus, 1972).

The preceding analysis of time-series data collected from South Korea provides empirical evidence directly relevant to the policy debate over rapid economic growth. Considered together, the evidence makes it imperative to reconsider the importance of rapid economic growth as a goal of national development policy; it also questions the value of rapid economic growth as an optimal means to achieve such policy.

Specifically, our results have significant implications for development policymaking in other less developed countries. First, the notion of national development should not be equated with material affluence; it should be broadened to capture both the physical and nonphysical elements of human well-being. Second, national development should not be measured and assessed by economic indicators, such as per capita GNP, alone. Third, economic growth should not be regarded as an end in itself, but only as one element of human well-being. Finally, the achievement of rapid economic development does not by itself guarantee the successful achievement of social and personal development.

APPENDIX A

Indices of Quality of Life

Human Needs	Resources	Indicators
<p>I. Needs for Physical Life</p> <p>1. Physiological Needs-- The need for food, water, sleep, shelter, reproduction, rest, etc.</p>	<p>Income</p>	<ol style="list-style-type: none"> 1. Price-deflated disposable income per capita 2. Price-deflated mean rural family income 3. Price de-flated mean urban family income 4. Percentage of farming households with less than three tanbo¹ 5. Per capita savings
	<p>Housing</p>	<ol style="list-style-type: none"> 1. Percentage of households with homes 2. New housing starts per 1,000 households 3. Percentage of households with access to safe drinking water 4. Percentage of households with telephones 5. Proportion of paved streets
	<p>Work</p>	<ol style="list-style-type: none"> 1. Employment rate 2. Underemployment rate 3. Productivity index 4. Real wage index 5. Ratio of employee compensation to property income
	<p>Health</p>	<ol style="list-style-type: none"> 1. Infant mortality rate 2. Death rate 3. Percentage of the working-age population disabled 4. Calorie intake 5. Epidemic death rate
	<p>Leisure and Recreation</p>	<ol style="list-style-type: none"> 1. Average weekly non-work time 2. Number of holidays a year 3. Radio and television sets per 1,000 households 4. Price-deflated entertainment expenses 5. Per capita passenger kilometers

<p>2. Protection Needs-- The need for protection from harm and for a life that is safe and secure, including assurances about the future satisfaction of physiological needs.</p>	<p>Safety and Security</p>	<ol style="list-style-type: none"> 1. Inflation rate 2. Traffic accidents 3. Fire incidence 4. Criminal offenses per 100,000 population 5. Percentage of population who are economically inactive
<p>II. Needs for Social Life</p>		
<p>1. Belongingness Needs-- The need for love and affection. These needs are of two kinds - passive need to be loved and accepted, and the active need to love others.</p>	<p>Love and Trust</p>	<ol style="list-style-type: none"> 1. Number of Red Cross members per 100,000 population 2. Contributions to the Red Cross as a percentage of GNP 3. Number of labor disputes 4. Number of people accused per 1,000 population 5. Proportion of registered mail
<p>2. Esteem Needs-- These needs include strength, achievement, adequacy, mastery, competence, prestige status, respect, fame, importance and appreciation</p>	<p>Equality</p>	<ol style="list-style-type: none"> 1. Females as percentage of college students 2. Females as percentage of people in the professional and managerial occupations 3. Differences between male and female unemployment 4. Differences between average urban and rural family incomes 5. Differences between male and female temporary employment rates

(Continued)

APPENDIX A (Continued)

Human Needs	Resources	Indicators
III. Needs for Personal Growth	Freedom	<ol style="list-style-type: none"> 1. Number of daily newspapers per one million population 2. Occupational freedom measured in terms of self-employment rate 3. Economic freedom as measured in terms of percentage of GNP taxed 4. Number of government workers per 1,000 population 5. Government expenditure as percentage of GNP
<ol style="list-style-type: none"> 1. Self-Actualization Needs-- The need to know and understand, to experiment and to be creative, to grow toward the full realization of one's potential. 	Education	<ol style="list-style-type: none"> 1. Percentage of elementary school graduate entering middle school 2. Percentage of middle school graduates entering high school 3. Percentage of high school graduates entering post-secondary school 4. Percentage of population attending school 5. Number of library users per 1,000 population

1. Tanbo is equivalent to 0.000992 km². The families who cultivate less than 3 Tanbo are officially defined as the poor families.

NOTES

1. Useful discussions of these three types of needs are presented in Allardt (1975) and Campbell (1980: 224-230). See also Adler, 1969, 1975; Fromm, 1976; Knudson, 1972; Lawler and Suttle, 1972; Maslow, 1970; and Wahba and Bridwell, 1976.
2. The Diffusion Index proposed by Moore (1954) computes the proportion of time-series experiencing positive changes less those experiencing negative changes. This technique has undisputable advantages over other techniques in measuring and aggregating multidirectional changes in a complex, evaluative concept like quality of life. Unlike the arithmetic mean statistic used by Drewnowski (1974) in his Level of Living Index, this technique is not unduly affected by the missing values and extreme values of the time-series considered. For further details, see Bonham (1974: 73-80).
3. Public perceptions of the importance of these resources are discussed in Shin et al. (1982: 308).
4. The data for this analysis were obtained from two disparate sources. Information on the magnitude and duration of university closure came from newspapers' accounts of the events. Information on all other variables was collected from government publications, including *Major Statistics of the Korean Economy* and *Social Indicators of Korea, 1981*.
5. Undesirable consequences of the growth-maximizing strategy for national development are discussed in detail by Beitz (1981).

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