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OBJECTIVE QUALITY OF LIFE IN KOREA AND THE OECD COUNTRIES

ABSTRACT. This study attempts to compare the current state of Korea's quality of life with that of more developed countries in their past, and seeks to derive suggestions for Korea's further development towards a more balanced quality of life. To this end, it analyzes income and five other objective indices of life quality by means of principal components analysis. Korea's real income in 1995 corresponds to the per capita income of many of the Organization for Economic Cooperation and Development (hereinafter the OECD) countries in the late 1960s. Education is the aspect of life in which Korea compares most favorably to the developed countries, approaching the level they experienced in the mid-1980s. In terms of Equity and Work, Korea's current state is much worse than that of the OECD countries in the late 1960s – the years marking the beginning of the time series data used in this study. In light of the OECD countries' past experiences, our analysis clearly indicates that improvements in work conditions and gender equality should be given priority for Korea's further social and economic development.

INTRODUCTION

Rapid economic growth over the past three decades has transformed Korea from one of the world's poorest countries to an upper-middle income country. During the thirty-five years between 1960 and 1995, its economy expanded at an average annual rate of nearly 9 percent. However, in terms of income, and especially quality of life, Korea appears to still lag far behind the developed countries. Despite its economic success, many people are still struggling to secure the necessary means for a basic livelihood (Ministry of Health and Welfare, 1999).

In the field of social indicators research, it is widely understood that economic growth alone does not adequately indicate the overall development of a society, and that monetary income alone does not reflect the multi-dimensional aspects of quality of life (Land, 1983).



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This argument applies both to the developing and developed countries. The United Nations Development Program's (hereinafter the UNDP) Human Development Report (hereinafter the HDR) gives many examples of developing countries, whose quality of life has advanced above their respective levels of income, and vice versa (UNDP, 2000). A study comparing income growth and improvement of quality of life in the developing countries revealed that maximization of income and enrichment of human lives do not necessarily move together in developing countries (Mazumdar, 1999).

This study attempts to diagnose Korea's current state of objective quality of life from the perspective of the past experiences of a specific group of advanced countries, viz., the members of the OECD. It reviews Korea's current state and process of development regarding quality of life during the past thirty-five years, dating back to the start of its all-out industrialization efforts in the early 1960s. A key question here is whether Korea's economic development has been appropriately transformed into actual development of its society. More pointedly, the issue is how much and in which ways Korea's objective quality of life has been advanced or neglected during its process of economic growth, compared to the advanced countries' past experiences. According to the HDR, among developing countries, Korea is recognized as a relatively well-balanced country in terms of both economic growth and social development. Korea's ranking in terms of human development is a little bit higher than its income ranking (the 31st vs. the 35th, respectively, among a total of 174 countries in 2000).¹

In light of the advanced countries' past experiences, has Korea been passing through a similar tandem process of social development and economic growth? Korea has economically grown much faster than the developed countries have within a very short period of time. Yet it would appear that it has neither had sufficient time nor the means to translate its rapid income growth into an equally rapid improvement in its quality of life. Until the early 1960s, Korea's Gross National Product (hereinafter the GNP) per capita was less than U.S.\$500, and more than two-thirds of its workers labored in the agricultural sector. In the span of less than half-a-century, what was once a poor, predominately agrarian country has transformed itself into an industrialized one with income per

capita exceeding U.S.\$10000. Accordingly, again in comparison to the more developed countries' past experiences, it is not surprising to find that such fast economic growth was not matched by a comparable social development.

On the other hand, there are reasons to expect that in many of the developing countries, quality of life may increase faster than income. The advanced technology in medicine and other domains of life of the Western countries have been introduced into the developing countries, often in the absence of accompanying economic growth. Therefore, we can conjecture that the developing countries' quality of life might be better in certain respects compared to their respective levels of income, than could be inferred from the developed countries' past experiences. In other words, when the developed countries arrived at a given level of income in their past, their quality of life might have been much worse than that of the current developing countries at the same level of income. There might be some "late comer advantages" with regard to quality of life for developing countries – advantages that by definition were not available in the past to the advanced countries.

Income growth outpacing quality of life, and quality of life outpacing income growth – both cases seem quite plausible. Which case, then, is more prevalent for the currently developing countries? With regards to the specific case of Korea, this study finds that the former condition prevails. That is, Korea's social development lags behind its economic growth from the perspective of the developed countries' past experiences. According to a recent study, this is also the case for other East Asian newly industrializing countries (Tang, 1999). Which particular area of social development lags more behind economic growth is considerably dependent upon a country's peculiar development process and historical context. For example, in the case of Korea, educational levels do not lag much behind the advanced countries due to its cultural and historical background. This study attempts to identify which aspects of quality of life lag behind income growth, and offers possible explanations for these gaps.

BACKGROUND

A principal tenet of social indicators research is that objective quality of life cannot be reduced simply to income. However, devising a mean to measure the many facets of quality of life is no easy task. How many summary measures are to be conceptualized and made operational? Which individual indicators are to be chosen for constructing a valid measure of quality of life? And how should they be weighted? These are the main questions that need to be addressed in order to capture an objective quality of life.

There seems to be agreement among scholars that there are no hard and fast rules, which one can apply uniformly to all countries concerning these questions (Diener and Suh, 1997). The initial purpose of social indicators research in its start-up stage, the 1950s, was to monitor social development independently of economic growth, because the latter, it was posited, did not automatically accompany the former in advanced countries in the post-war period. Researchers attempted to provide guidance toward a desirable direction of social development by means of monitoring such development directly (Estes, 1999; Terleckyi, 1975; Zapf, 1987).

Guidance of social development for developing countries may be different from that for advanced countries. This is because the development strategy with regards to quality of life for countries with U.S.\$5000 income per capita may not be the same as that for countries with income per capita exceeding U.S.\$20000. Accordingly, perhaps a measure of quality of life for the developing countries should be different from that for the developed countries. The United Nations (hereinafter the UN), which developed the most basic system of social indicators, the "System of Social and Demographic Statistics (hereinafter the SSDS)," recommended a set of indicators focused on the necessities of human material survival. This reflects one of the UN's primary concerns, which is the satisfaction of the basic necessities of life for all people in the world (UN, 1993). In contrast, a group of advanced countries, the OECD, recommended more sensitive measures of quality of life for pursuing a better quality of it beyond the minimum level of material survival (OECD, 1976; Davis and Fine-Davis, 1991; Boelhouwer and Stoop, 1999). Therefore, it is hard to determine a common set of social indicators for measuring social development

of both developing and developed countries' at the same time – as is attempted in this study.² Since the major subject of this study is a developing country, viz., Korea, which could not satisfy minimum material life for the majority of its people until three decades ago, the most basic social indicators are primarily used for measuring objective quality of life, though supplemented by a few of the more sensitive indicators appropriate to the advanced countries.

There are various ways to summarize individual indicators into a measure of quality of life. The Human Development Index (hereinafter the HDI) and Physical Quality of Life Index (hereinafter the PQLI) are examples of measuring it by means of one composite index. Despite their strength of simplicity, overarching indices have serious weaknesses in terms of reflecting the multi-dimensionality of quality of life. They do not indicate which domain of life is better or worse than others, and which domain of life should deserve more emphasis in further development.³ Indices vary considerably regarding the number of dimensions of quality of life, or in other words, the domains of life they intend to measure. Morris's PQLI and the UNDP's HDI divide a human's life into 3 domains. The OECD's Social Concerns as well as the Japanese government's People's Life Indices (hereinafter the PLI) divide it into 8 domains. The UN's SSDS divides it into 11, and Zapf's study divides it into 16 (Bureau of Economic Planning, 1993; Morris, 1979; OECD, 1976; UN, 1993; UNDP, 1990; Zapf, 1987). As a society becomes more complex, or as people lead more complicated and affluent lives, life domains become, accordingly, more diversified. In this study, a middle position is taken, and life is divided into six domains. This decision is made in consideration of data availability and comparability, as well as conceptual validity of the domain division. The six domains are Income, Health, Education, Work, Culture & Information, and Equity. Each domain of life includes a cluster of individual indicators. The environment, security, and leisure are domains missing in this study due to the problem of data availability or comparability.

Both flow and stock indicators should be included in measuring each domain of life. A flow indicator is a measure to address the amount of resources newly obtained as a result of activities during a given period of time, while a stock indicator is a measure of

the amount accumulated from the continued activities thus far. For example, enrollment ratio is a flow measure of education, while the ratio of high school graduates to the whole population is a stock measure. In the case of rapidly developing countries like Korea, their current state measured by stock indicators is prone to be worse than that measured by flow indicators. Therefore, including both kinds of indicators is important for a valid comparison of the developing and the developed countries.

There are various ways to give weight to individual indicators for constructing a composite index of quality of life. Some studies give equal weight to each domain of life or to each individual indicator, as is done in the HDI. This weighting is based on the deductive argument, that each domain of life is equally important for a well-rounded human life. On the other hand, some studies choose an inductive strategy to summarize information from data by using multivariate statistical methods, such as principal components analysis or regression analysis with proxy variables (ex. Boelhouwer and Stoop, 1999; Slottje et al., 1991). Both approaches have advantages and disadvantages. A deductive approach takes composite indices through a somewhat arbitrary process, while indices thus constructed are easy to understand intuitively, as far as the deductive grounds are persuasive. On the other hand, an inductive approach brings out indices by using complicated statistical methods; while these indices are harder to understand, they are less subject to the criticism of arbitrariness. In this study, principal components analysis is used to combine a set of indicators into a composite index for each life domain, except for Income. This method maximizes the sum of variance explained, and the factor score coefficient of each component become weights of indicators to make composite indices. Income represents an exceptional case, as only one indicator, the GDP per capita, is used for simplicity of understanding.

MEASURE OF OBJECTIVE QUALITY OF LIFE

The data used in this study are collected from publications from the UN and other international organizations. Starting in the late 1960s, six time periods at five-year intervals are selected for longitudinal

comparison: 1969–70, 1974–75, 1979–80, 1984–85, 1989–90, and 1994–95.⁴ Data for the twenty-three OECD countries and Korea are collected on these six time intervals, which makes a total of 144 time-country cases.⁵ Objective quality of life is measured by income and five composite indices in this analysis. The five composite indices are constructed by using principal components analysis. The principal components displaying eigen values exceeding 1 are selected. In the case of principal components analysis, the problem of missing values should be dealt with carefully, since all the data for a variable are excluded in an analysis if only one case of the variable is missing. The problem of missing observations is particularly evident in the data for the 1969–70 timeperiod, and more generally, for a few of the variables (such as mortality rate for children under five years old, indices of income inequality, and ratio of the government welfare expenditures). These missing cases are replaced by estimates calculated from regression models, in which those missing variables are set apart as dependent variables.

When more than one principal component is selected for a domain of life, interpretation of those multiple components is problematic. Two principal components with eigen values exceeding 1 were selected in the domains of Education, Work, and Equity. In order to simplify the analysis, two components are combined into one index by giving weight of variance explained to each component.⁶

A major method of analysis in this study is to compare the extent of development between advanced countries and Korea in the context of various domains of life. Standardization of unit of measurement across different composite indices is required for a comparison among those indices. Units of composite indices are standardized by replacing raw scores with the standard deviation from the mean. Setting the lowest and the highest value observed in the advanced countries as the lower and the upper boundary of each composite index, provides a useful means to compare Korea with more developed countries. This is because the upper and the lower limits provide a benchmark enabling us to know intuitively how far Korea lags behind the standard of the advanced countries.⁷ The lower boundary is set at 0 by using the lowest value observed, and the highest boundary is set at 100 by using the highest

value observed. From these two stages of standardization, the five composite indices are uniformly transformed into variables having values ranging from 0 to 100. Table I provides factor loadings together with brief descriptive statistics for Korea and the OECD countries for each individual indicator.

A BRIEF DESCRIPTION OF EACH INDEX

Income. This index roughly indicates an individual's purchasing power of goods and services, as measured by the GDP per capita. Income is the most important means of enhancing overall quality of life and is closely related to other indices. In order to keep comparability of income across different periods of time, all income values are expressed in terms of constant 1990 US dollars by using the consumer price index.

Health. The index is constructed from six individual indicators: (1) life expectancy at birth, for males and females respectively; (2) infant mortality per 1000 births; (3) mortality of children under the age of 5 years per 1000 children born; (4) percentage of population aged 65 and over; (5) physicians per 100000 persons; and (6) percentage of population with access to safe drinking water. One component with an eigen value exceeding 1 emerged, and it explains 75.9 percent of the total variance. The factor loadings are in the expected direction and of a substantial size, which suggests that the index is valid and reliable.

Education. This index is constructed from four variables: (1) enrollment ratio in post-secondary education for males; (2) enrollment ratio in post-secondary education for females; (3) percentage of population of age 25 and over with post-secondary schooling; and (4) pupil-teacher ratio in primary education. Two components with eigen values more than or close to 1 emerged from the analysis. The first component, explaining 69.1 percent of the total variance, displays relatively high factor loadings on variables indicating quantitative aspects of education, such as enrollment ratio on post-secondary schooling and percentage of population with some post-secondary education. The second component, explaining

TABLE I
Results of the Principal Components Analysis and the Descriptive Statistics

Domain of life – Individual indicators	The 1st/2nd components	Korea 1994–95	OECD 1994–95	OECD 1969–70
Income GDP per capita		\$10124	\$20417	\$8165
Health				
Life expectancy, Male	0.412	69.5	74.8	68.5
Life expectancy, Female	0.422	77.4	80.7	74.3
Infant mortality rate	-0.397	12	6.8	22.7
Under 5 infant mortality rate	-0.405	13	6.5	22.1
% pop. Aged 65 or over	0.302	5.9	16.8	11.0
Physicians rate	-0.365	893	336	755
Access to safe drinking water	0.330	93	99.3	88.8
Eigen value/ variance explained	5.64 / 0.759			
Educ.				
Enrollment ratio, post-second., Male	0.558 / 0.308	67.9	40.2	20.9
Enrollment ratio, post-second., Female	0.570 / 0.154	40.9	44.4	12.2
% pop. w/ post-secondary educ.	0.512 / 0.098	21.1	19.7	8.3
Pupil/teacher ratio – primary educ.	-0.318 / 0.940	28	14.1	23.5
Eigen value/ variance explained	2.75; 0.82 / 0.691; 0.210			
Work				
Labor force participation rate, Male	0.559 / 0.392	76.1	77.6	56.9
Labor force participation rate, Female	0.610 / 0.151	48.7	58.6	27.5

TABLE I
Continued

Domain of life – Individual indicators	The 1st/2nd components			OECD 1969–70
	Korea 1994–95	OECD 1994–95	OECD 1969–70	
Unemployment rate	2.0	8.6	3.1	
Deaths from accidents at work in mfg.	17	5.4	14.8	
Work hours per week in mfg.	49.2	38.3	41.3	
Eigen value/ variance explained	2.28; 1.15 / 0.462; 0.228			
Culture	334	449.7	255.7	
Number of TV receivers	74.2	131.2	73.2	
& Info. Number of book titles published	41.2	52.7	28.3	
Number of telephones	407	320.3	307.0	
Circulation of daily newspapers	2	4.2	1.5	
Scientists and technicians per 100	3.03 / 0.608			
Eigen value/ variance explained	-0.598 / 0.231			
Equity	5	6.0	7.9	
Income ratio of the highest 20% to lowest	21	19.8	17.1	
Income share of lowest 40%	0.60	1.07	0.58	
Sexual inequality in education	0.64	0.75	0.48	
Sexual inequality in labor participation	10	36.2	25.6	
Gov. expenditures on soc. security and welfare	17.4	24.5	21.9	
Gov. expenditures on education and health	2.32; 1.88 / 0.390; 0.325			
Eigen value/ variance explained				

21.0 percent of the total variance, displays high factor loadings on variables indicating qualitative aspects of education, such as pupil-teacher ratio. These two components are combined into one composite index by using amount of variance explained as the weighting.

Work. This index is constructed from five variables: (1) labor force participation rate for males; (2) labor force participation rate for females; (3) unemployment rate; (4) average annual deaths as a result of accidents at work in the manufacturing sector per 100000 workers; and (5) work hours per week in the manufacturing sector. Two components with eigen values exceeding 1 emerged from the analysis. The first component, explaining 46.2 percent of the total variance, displays relatively high factor loadings on variables indicating quantitative aspects of work, such as the labor force participation rate. The second component, explaining 22.8 percent of the total variance, displays high factor loadings on variables indicating inferiority of working conditions, such as work hours per week and industrial accident rate. These two components are combined into one composite index by using amount of variance explained for the weighting, with the second factor's direction being reversed.

Culture and Information. This index indicates the availability, access, and the development of cultural and informational facilities. It is constructed from five variables: (1) number of TV receivers in use per 1000 inhabitants; (2) number of book titles published per 100000 people; (3) number of telephones in use per 100 inhabitants; (4) circulation of daily newspapers per 1000 inhabitants; and (5) number of scientists and technicians per 1000 persons.⁸ One component with an eigen value exceeding 1 emerged, explaining 60.8 percent of the total variance.

Equity. The index captures several dimensions of equity in a society. It includes a cluster of variables measuring income and gender inequality, as well as measuring the government's efforts at redistribution and general state of welfare policy. Specific variables include: (1) the ratio of the highest quintile's income to the lowest quintile's income; (2) income share of the lowest 40 percent; (3) enrollment

TABLE II
Correlations of Six Life Domains

	Income	Health	Education	Work	Culture & Info.
Health	0.635				
Education	0.601	0.642			
Work	0.456	0.704	0.742		
Culture & Info	0.769	0.672	0.642	0.470	
Equity	0.287	0.368	0.619	0.523	0.289

*All the coefficients are significant at $p < 0.01$.

ratio of males to females in post-secondary education; (4) ratio of labor force participation rate of males to females; (5) government expenditures on social security and welfare as a percentage of total government expenditures; and (6) government expenditures on education and health as a percentage of total government expenditures. Two components with eigen values exceeding 1 emerged from the analysis. One indicates income inequality, while the other indicates gender inequality. Factor loadings show that the two components are substantially independent from each other. The amounts of variance explained are not much different between the two components; 39.0 percent for the first component, and 32.5 percent for the second one. These two components are combined into one composite index by using amount of variance explained as the weighting.

Table II shows zero-order correlations among these six indices. As expected, these indices display a large degree of correlation with each other, with correlation coefficients typically exceeding 0.60. On the other hand, Equity shows less correlation with other indices, apart from Education and Work. Equity, in particular, shows a low degree of correlation with Income ($r = 0.287$).

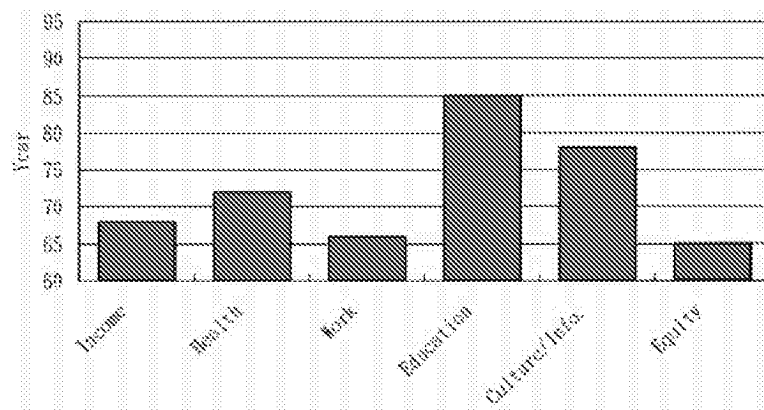


Figure 1. Korea's current condition relative to other OECD countries' experiences (1995).

RELATIVE STANDING OF KOREA IN COMPARISON TO THE OTHER OECD COUNTRIES

In order to diagnose Korea's current state of social development from the perspective of the advanced countries' past experiences, this analysis initially attempts to identify the year when the developed countries arrived, on average, at Korea's current level of quality of life in each domain of life. Figure 1 shows the point in time when the OECD countries approached Korea's current level of quality in each life domain.

The figure shows that except for Education and Culture / Information, Korea's current level is lower in all life domains, than that of the other OECD countries in the early 1970s. In the case of Education and Culture/Information, Korea's current level corresponds to that of the OECD countries in the mid-1980s and mid-1970s, respectively. In the case of Health, Korea appears to be at the level the other OECD countries experienced in the early 1980s. On the other hand, in terms of Income, Work, and Equity, Korea's current levels are lower than those of the OECD countries in the late 1960s.

We can compare development trends between the other OECD countries and Korea in each domain of life from the late 1960's through the mid-1990's. The OECD countries' average income, in the 1990 constant US dollars, has increased 2.1 times, from \$8165 in 1969 to \$17518 in 1995, while Korea's income has increased 9.8 times, from \$885 to \$8686 during the period in question (Figure 2a).

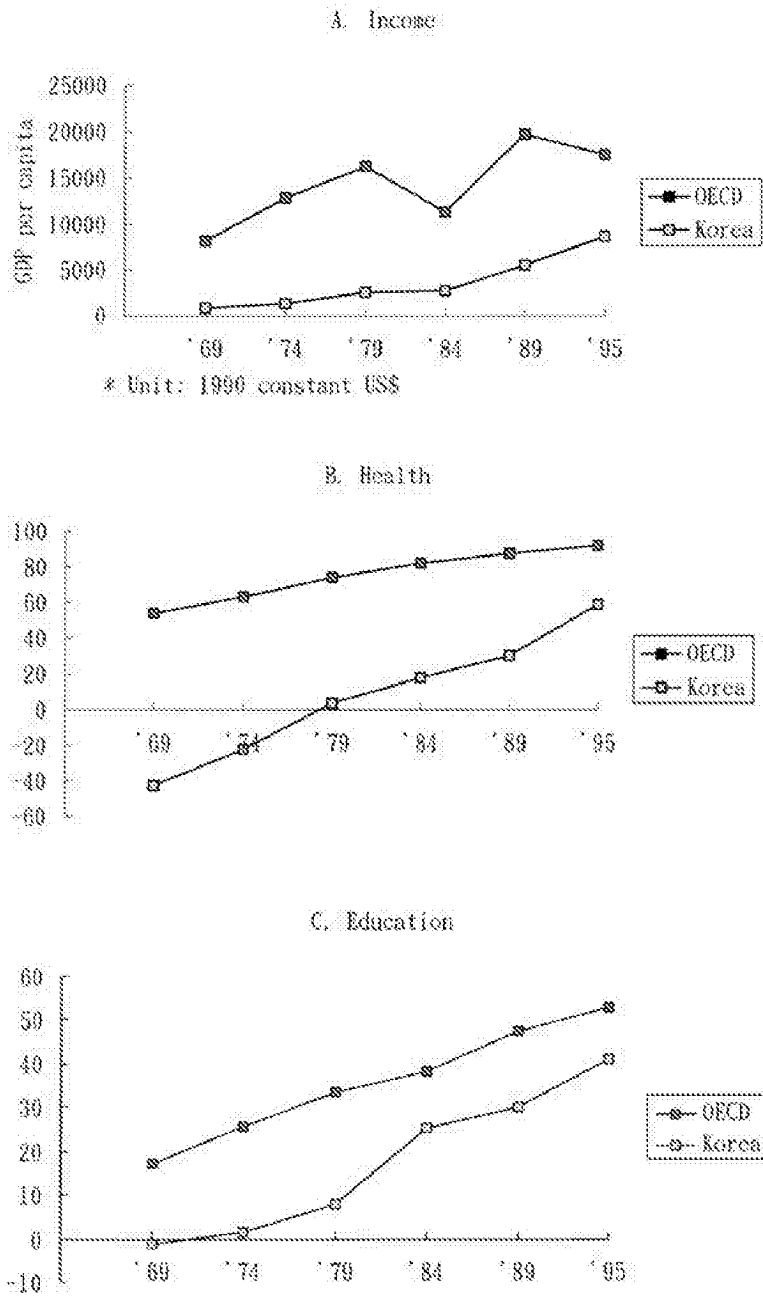


Figure 2. Trend of development in each area of life.

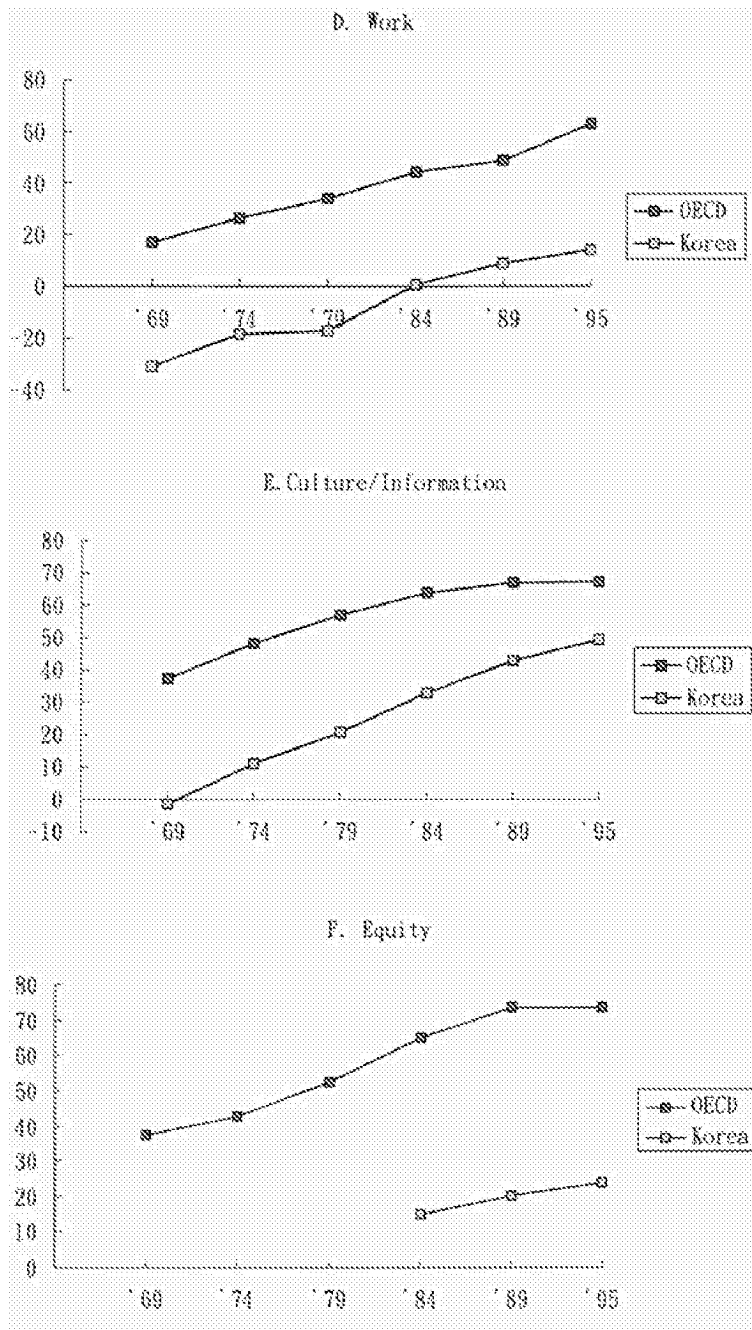


Figure 2. Continued.

When we take into account the huge gap in income between Korea and the OECD countries in 1995, it is clear that Korea should continue efforts to increase income in order to enhance its general quality of life.

Health has interesting characteristics different from other domains of life. That is, gaps in health levels among the OECD countries have narrowed in recent years. Their state of Health was relatively homogeneous in the late 1960s in comparison to other domains, and then became much more homogeneous by 1995. This is reflected in Figure 2b, where the OECD countries' value on the vertical axis is close to 100 in 1995, which means that the OECD countries' mean is close to the highest value observed among all the OECD countries. It also suggests that, relative to past experiences, further improvements in Health for the developed countries will be harder to achieve (at least in terms of the measures employed here). Korea's state of Health in 1995 arrived at the OECD countries' early 1960s levels, even though its level of Health has improved rapidly so far. We can expect that the gap between the other OECD countries and Korea will decrease faster in Health than in other domains of life, because the developed countries appear to be reaching a plateau, while Korea's improvement has yet to slow down.

It is noteworthy that Korea started at a relatively high level of Education even in the late 1960s, and has been consistently narrowing the gap with the OECD countries since then. Figure 2c indicates that Korea's level of Education in the late 1960s was comparable to the lowest level observed among the OECD countries at the time. Particularly in the quantitative aspect of Education, Korea's level in 1995 was equal to or even higher than the OECD countries' mean. For example, Korea's enrollment ratio in higher education, one of the representative flow indicators, was 67.9 percent for males, and 40.9 percent for females in 1995, while the OECD countries recorded 40.2 percent, and 44.4 percent, respectively. In 1995, Korea also displayed a better record than the OECD countries in stock indicators such as the ratio of high school graduates among those 25 and older. Korea's ratio was 21.1 percent, while the OECD countries' figure was 19.7 percent. On the other hand, Korea is still far behind the level the OECD countries experienced in the late 1960s in the qualitative aspects of Education, such as

pupil-teacher ratio (23.5 pupils per teacher for the OECD countries in 1969, versus 28 pupils for Korea in 1995).

From Figure 2d, we can ascertain that Work is the most inferior domain of life in Korea compared to the OECD countries' past experiences. The current level of Korea's Work life remains at a much lower level than that of the OECD countries in the late 1960s. Moreover, the gap is not narrowing significantly, as Korea's pace of improvement during the past thirty-five years appears not to be higher than that of the OECD countries. Each individual indicator of Work was examined in an effort to determine the cause of this huge gap. Korea's labor force participation rate is not much lower than the OECD countries. The rate of participation of Korean males in 1995 approaches the early 1990s levels of the OECD countries, and the rate of participation of Korean females in that year approaches the OECD countries' levels of the late 1980s. On the other hand, Korea's rate appears to be extremely inferior to the OECD countries in the qualitative aspects of work life, such as deaths from industrial accidents and work hours per week. There is a large gap between, the 17 deaths per 100,000 manufacturing workers Korea experienced in 1995, versus the 14.8 deaths experienced by the OECD countries in 1969. A similarly large gap persists in work hours per week in the manufacturing sector, with Korean workers averaging 49.2 hours per week in 1995, while the comparable figure of the OECD countries in 1969 was 41.3 hours. Korea's difficult working conditions reflect a long-standing, if unspoken, policy to sacrifice workers' well-being (and indeed suppress their political power) for the sake of rapid economic growth.

In the domain of Culture and Information, Korea has been improving rapidly and consistently, while the OECD countries' development appears to have slowed down as of the 1990s. This is because this index is composed of indicators reflecting the use of basic facilities for information and cultural dissemination, such as televisions, telephones, books, and newspapers, and the OECD countries seem to have approached a stage of saturation with regards to their availability and use. On the other hand, there is a huge gap between the OECD countries and Korea in terms of the ratio of scientists and professionals to the general population, a ratio cited by Daniel Bell (1973) as a representative indicator of an information-

based society (2.0 per 1000 persons in Korea, and 4.2 in the OECD countries in 1995).

In Figure 2f, we can infer that the developed countries in recent years have been converging in terms of Equity, as in the case of Health. The OECD countries' values on the vertical axis in the figure are close to 80 in 1995, which are higher than in any other life domain, except for Health. Korea's level of Equity is much worse than that of the OECD countries. Since the Equity index is a combination of two relatively independent dimensions of inequality, income inequality, and gender inequality, we need to examine which aspect of inequality accounts for the poor state of Equity in Korea. The OECD countries and Korea do not show any meaningful difference in income inequality in 1995 (refer to Table I). On the other hand, gender inequality in Korea is enormous compared to the OECD countries, even though it has been improving slowly during the past thirty-five years. According to the recent UNDP HDR's Gender Empowerment Measure (hereinafter the GEM), Korea ranked close to the lowest level of all the observed countries (ranked 63rd out of 70 countries) (UNDP, 2000). This indicates that Korea's inferior state of Equity is principally due to the very poor status of women relative to men.

GAPS BETWEEN THE OECD COUNTRIES AND KOREA

There are various ways to longitudinally compare the OECD countries and Korea in each domain of life. A simple way is to compare the serial trends between the two groups of countries for each life domain as was done above. However, this type of straightforward comparison suffers from a weakness. This is because it ignores casual influences among variables, particularly the impact of income on other variables. Income has considerable influence on other domains of life, and income growth is a principal means to enhance the general quality of life, especially in developing countries, such as Korea. Therefore, a comparison of quality of life can be more meaningful among countries of comparable income, than among those showing great differences in income. This type of comparison can show in which domains of life Korea is better or worse, given a certain level of income, than the advanced countries.

TABLE III

Comparison of Korea and OECD Country Cases with Income \$7000–\$9000 (Unit: 1990 constant US\$, percentile of principal component value)

Domain of life	Korea 1995	OECD (24 cases)	
		Mean	S.D.
Income (GDP/person)	\$8686	\$7402.1	\$1034.2
Health	59.0	65.2	13.6
Education	41.0	20.9	9.4
Work	14.1	24.7	12.7
Culture & Info.	49.3	33.9	12.4
Equity	22.9	44.8	23.8

In order to compare Korea and the other OECD countries, when the latter experienced income levels comparable to Korea's current income level, 24 cases out of the 138 OECD time-countries data points were chosen. These correspond to income between \$7000 and \$9000 (1990 constant US\$).

Table III shows a comparison of Korea in 1995 and the mean values for the OECD countries' 24 cases in each domain of life. It is noteworthy that Korea displays a much better state of Education than the OECD cases. Korea's cheap but well-educated workers are often cited as one of the most important factors having contributed to her rapid economic development. Korea's good state of Education is a result of the people's strong demand for education, which is often attributed to a Confucian cultural tradition, which places great emphasis on both studying and the role of scholars. Another important factor lies in Korea's historical background. Korean society is unusually homogeneous in terms of language, ethnicity, and culture. Moreover, its traditional social class system was largely destroyed in the long period of socio-economic and political upheavals that accompanied colonial subjugation and the Korean War. These series of historical events weakened substantially the influence of heritage, that strongly conditions social mobility in other countries, and left education as a uniquely important means of individual advancement. For this reason, to this day, people strive

for as much schooling as possible, which results in an extremely high level of Education in comparison to Korea's income (Kim and Hong, 1997; McGinn et al., 1980).

Given a comparable level of income, Korea displays a relatively better state in the domain of Culture and Information than the OECD cases. This probably reflects the high level of Education, since people's capability to read and write leads to more familiarity with, and demand for, cultural and information facilities. Another reason might be due to different time periods in question. That is, since real unit costs of those informational means have declined over time due to technological development, more Koreans are likely to enjoy those facilities at a cheaper price in 1995, than did the OECD countries' of two or three decades ago.

Korea's state of Health is worse than that of the OECD cases in a similar income range. When we take into account the fact that unit costs associated with improving Health have also typically declined due to medical advances, the large gap is troubling. One could infer that Korea has not made due effort to improve health in its development process in comparison to the advanced countries' past experiences.

Korea's state of Work is much worse in 1995 than that of the OECD cases at a similar level of income. This is because Korea's economy has been driven, until recently, by laborers working long hours under dangerous working conditions. Combining this with significant gender discrimination against women, and the result is a large gender gap in terms of health, in which males fare poorly. Life expectancy at birth shows a great differential of 7.9 years between males and females, and the probability of dying between the ages of 40–45, the peak period for a person's social and economic participation, is 2.87 times higher for males than females (National Statistical Office, 2000b). Job insecurity and long, stressful working hours are partly responsible for the high risk of death among economically active men, to which women are less exposed due to gender discrimination in the labor market.

Finally, Korea's state of Equity is also worse than that of the OECD's 24 cases. As mentioned above, this is principally due to gender inequality rather than to income inequality. The improvement of women's social status has been minimal during the process

of economic growth in Korea. This is attributable to discrimination against women, which stems from a deeply rooted Confucian, male-oriented cultural tradition and patriarchal family system. Women's social status has improved more rapidly in terms of ability development than in the *use* of these abilities in social participation (Sen, 1993). Gains, made by women in Health and Education, have outpaced those made by men over the same period. However, opportunities for educated and healthy women to participate in social, economic, and political life have increased very slowly. Less educated, less healthy women remained largely blocked from social participation, and have shown little improvement relative to men during the period in question (Korea Women's Development Institute, 1998).

In truth, the comparisons above – of countries of similar income at different time intervals – are implicitly based upon a suspect assumption. Implied is the argument that Korea should take a path of development similar to the developed countries' past experiences. However, Korea might be placed in a developmental context that differs from the developed countries' past, even though the two groups of countries enjoyed comparable levels of income. Even though industrialization and improvement of quality of life generally tend to move together, in the case of developing countries, late-comer's advantages (or disadvantages) might enhance (or worsen) its quality of life compared to the advanced countries of an identical level of income (Inkeles, 1993; Tang, 1999). To obviate comparability problems associated with this period effect, it is necessary to make a comparison between nations of similar income during the same period of time. Thus, this study also compares quality of life between Korea and those OECD countries with similar income levels in 1995. Greece and Portugal are the OECD countries whose real incomes are close to Korea's in 1995. Results are displayed in Table IV.

As indicated in the table, overall, Korean's quality of life seems to be worse in general than that of Greece or Portugal. On the one hand, in the domain of Culture/Information and Education, Korea looks better than the two countries. On the other hand, we can ascertain a huge gap in Health, Work, and Equity between Korea and the other two countries. This comparison suggests that Koreans enjoy

TABLE IV

A Comparison of Korea, Greece, and Portugal in 1995. (Unit: PPP\$, percentile of principal component value)

	Income	Health	Education	Work	Culture & Info.	Equity
Korea	\$11,594	61.1	41.2	14.3	50.2	22.3
Greece	\$11,636	96.7	30.2	54.1	37.1	64.8*
Portugal	\$12,674	81.9	38.1	41.3	28.4	—

*data for 1984.

a much worse quality of life than the level possible from Korea's income level. This is most probably the result of Korea's development strategy, which first emphasizes increasing the sheer size of the economic pie. Moreover, Korea's extremely rapid economic growth has not allowed sufficient time and energy for the transformation of income growth into an improved quality of life.

Even though the effects of Income on other domains of life draw attention in most studies, there exist reciprocal effects of other life domains on Income, as well as among each other. For example, improvement in Education contributes to income growth, and improvement in Work or Equity can also lead to income growth. When a country departs from absolute poverty, and arrives at a substantial level of income, the transformation of income growth into improved quality of life is necessary for continued development towards a still higher level. At the current stage of Korea's development, emphasis should be put on this transformation as well as income growth itself. The priority of improvement should be placed, appropriately, on various domains of life besides Income for Korea's further economic and social development.

In much the same way as Korea can be compared to the other OECD countries with similar Income, matching according to other domains can be done, and the remaining domains compared. For example, countries matching the Education level Korea enjoyed in 1995 can be chosen, and then a comparison of their Work and Equity levels can be done as well. Table V presents the results of such domain-wise comparisons. When Health is chosen as the reference domain for comparison, fifteen OECD countries/time periods with

TABLE V

Priorities for Korean Social Development (as indicated by domain-wise comparison)

Reference domain	Priority for improvement*
Income	Work, Equity, Health
Health	Equity, Work, Income
Work	Equity, Income
Culture & Info.	Equity, Income, Work, Health
Equity	Health, Work, Income, Culture & Info

*After matching by reference domain, the domain in which Korea most lagged behind the other countries is listed first, followed in order by domains in which Korea lagged behind less, suggesting an ordering of priorities for the sake of further social development.

Health levels similar to Korea's in 1995 are chosen for comparison. The results of the comparison indicate that Korea is the furthest behind these 15 countries in terms of Equity, and lags somewhat less behind in terms of Work conditions. Korea compares least invidiously to these countries in terms of Income. Thus, on the basis of this comparison alone, Korea's highest priority for social development would be improving Equity, followed by Work, and then Income.

When matching is done on the basis of the Education level Korea enjoyed in 1995, forty-four OECD country cases are selected. Given comparable levels of Education, Health is shown to be the most inferior domain of life in Korea, followed by Work, Equity, Income, and Culture. When Korea's 1995 Work level is used as the reference domain, 13 country cases are selected. Given a similar Work index score, Korea's Equity compares most invidiously, followed by Income. In the same way, if Culture and Equity are set to the level of Korea in 1995, thirty-two cases and 7 cases, respectively, are selected for comparison. To summarize the results of all these domain-wise comparisons, the following ordering of priorities for social development emerges: Equity, Work > Health, Income > Culture & Information > Education.

In other words, on the basis of the other OECD countries' past experiences, it would appear that Korea lags furthest behind the norm in the domains of Equity and Work. Thus, these are the domains in which Korea would be well advised to focus its efforts for further social and economic development. The next highest priorities are Health and Income. After that follow Culture/Information and then Educational improvement. To conclude, gender inequality and poor working conditions should be given the highest priority in terms of improving the current state of Korea's quality of life.

SUMMARY AND DISCUSSION

This study attempts to compare the current state of Korea's quality of life with that of more developed countries in their past, and seeks to derive suggestions for Korea's further development towards a more balanced quality of life. Toward this end, in addition to income, five composite indices are constructed and analyzed by means of principal components analysis.

Korea's real income in 1995 corresponds to the per capita income of many OECD countries in the late 1960s. In other words, there exists a gap of about 30 years between the OECD countries and Korea, as far as income is concerned. Education is the aspect of life in which Korea compares most favorably to the developed countries, approaching the level they experienced in the mid 1980s. With respect to the domain of Culture and Information, Korea corresponds to the developed countries' levels of the mid 1970s. In terms of Equity and Work, Korea's current state is much worse than that of the OECD countries in the late 1960s, the years marking the beginning of time series data used in this study.

Since Korea's pace of economic growth has been very fast, there has not been sufficient time and energy to transform income growth into improved quality of life. This is particularly true of the life domains of Health, Work, and Equity. A growth-at-all-costs development strategy is mainly responsible for the seriously poor state of Work life in Korea. A Confucian cultural ethos, and a number of historical upheavals in this century, have contributed to an exceptionally high level of Education. The analysis makes clear that

improvements in Work conditions and gender Equity should be given the highest priority for Korea's further social and economic development, in the light of OECD countries' past experiences.

Finally, it should be noted that a painful economic crisis struck Korea, along with several other East Asian countries, in 1997. The crisis created a great deal of unemployment and homelessness. In the span of a year, the GDP per capita fell by one-third – from U.S.\$10363 in 1997 to U.S.\$6920 in 1998. As a matter of fact, this precipitous decline was partly due to a tremendous decline in the value of the Korean *won* vis-à-vis the US dollar, so the nominal decline in income does not necessarily mean that purchasing power and standards of living fell to a similar extent. Nevertheless, the standard of living is reported to have substantially declined, particularly among lower income groups, while the impact of the crisis on higher income groups was minimal (Korea Institute for Health and Social Affairs and Korea Labor Institute, 1999). By 1999, the national economy had begun to significantly recover. Income and consumption for middle- and high-income groups had largely returned to pre-crisis levels, though there is evidence that a similar recovery for lower income groups has yet to materialize fully.

In keeping with these developments, many recent surveys suggest that income distribution worsened during the crisis and is likely to worsen further (National Statistical Office, 2000a). In addition, the economic crisis has led many people to reduce consumption and redouble their work efforts. Increasing length and intensity of work effort has been the norm for many in the wake of the crisis. Resulting stress from overwork, and an increasingly harsh and insecure labor market, have led to deterioration in health, and more cases of illness among lower income people (Ministry of Health and Welfare, 1999). Thus, unfortunately, the recent economic crisis would only seem to have worsened the problem areas of poor Work conditions and Inequality that were highlighted in the analysis. This further underscores the need to give priority to improving these areas of quality of life.

NOTES

¹ Refer to UNDP and KIHSA (1998) for a review of Korea's current state of human development.

² This problem is attributable to cultural differences as well as to the huge gap in income. Particularly, in a comparison of East and West, this problem is concerned with the matter of which domain of life is given more weight in their definition of quality of life (Mukherjee, 1989; LeeKakulthanit and Day, 1993).

³ This is the same reason why many researchers of practical orientation studying subjective quality of life prefer multiple measures of life satisfaction to one overarching measure of happiness (Campbell et al., 1976).

⁴ For each time period, data are collected for one year, for example, 1969 or 1970 (not the two-year period of 1969–70). The choice of the year was largely dependent on data availability and reporting conventions of the organization publishing the data.

⁵ Among the OECD countries, Mexico, the Czech Republic, and Hungary are excluded in this analysis since those countries entered the organization in the 1990s. Turkey is also excluded since it is an outlying case in every indicator, which reduces the validity of measurement.

⁶ Combining more than one component in this way is controversial since those components are not related to each other (orthogonal). Nevertheless, since the purpose of principal component analysis lies in summarizing information, this combination method can be justified as an extended way of summarizing information (Slotte et al., 1991). As a matter of fact, interpretation of an index constructed in this way should be made with caution.

⁷ Refer to Desai (1990) concerning various methods of standardization for comparison.

⁸ The inclusion of this last variable is intended to capture the extent to which Korea lags behind these more information and knowledge-based societies wherein scientists and technicians occupy an increasingly important role. Moreover, unlike the first four included variables, which are of the more basic type of indicator typically used to assess developing countries, and in which developed countries have largely experienced saturation, this last variable is a more sensitive one in which variation among developed countries indeed exists.

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