

COMPOSITE INDEX FOR MEASURING THE DIRECTION AND PACE OF DEVELOPMENT

Burton T. Oñate¹

I. *Measuring Development*

A. *Major Movements*

1. "Social Indicators" movement is one of several movements which are currently sweeping the intellectual, financial and developmental worlds.² The other movements are referred to as the "Quality of life Components of GNP"³ and the Developmental Indicators".⁴ Since Man is the primary concern of development, we may refer to these efforts as measuring the "Quality of Life" or more precisely as measuring the "Improvement in the Quality of Man Himself."

2. There are still many technical, philosophical and conceptual difficulties which are associated in measuring "Quality of Life". This endeavor appears to be more relevant to developing economies and probably more exciting than the measurement and interpretation of the purely economic variables. A study for example of efforts around the world indicates that there is wide agreement about the role of the Fundamental Social Concerns such as population, health, housing, nutrition, education and culture, employment and social security, personal

¹ This composite index was applied by Dr. Oñate to some selected developing countries of the Asian region and he came out with some empirical results of the possible relation of the Index with that of GNP growth rate. The author is presently Chief Statistician, Asian Development Bank. The views expressed in this paper are primarily those of the author and do not reflect those of any institution.

² ESCAP Committee on Statistics. *Social Indicators*. Manila 1971. New Delhi in 1973 and Jakarta in 1974.

³ Moss, Milton (Editor). *The Measurement of Economic and Social Performance*. Studies in Income and Wealth, No. 38. U.S. National Bureau of Economic Research. Columbia University Press, New York. 1973. Of relevance are Japan's Net National Welfare (NNW) approach (1974) and the UN Committee on Development Planning (1973) on Net Beneficial Product (NBP).

⁴ Basten, Nancy. *Development Indicators: An Introduction*, Journal of Development Studies. Vol. 8, No. 3. April 1972.

security, consumption, wealth and social welfare as basic framework for the development of appropriate "Social Indicators."¹ Whether prepared and adopted by ESCAP Committee on Statistics, or OECD (has only 8 Basic Fundamental Concerns but there are numerous sub-concerns very difficult to obtain under conditions of DC), France, USA, Japan (also similar to OECD - 8 BFC), Malaysia, (emphasis on races), the Philippines, Indonesia, Thailand, or by other countries, one will note that the basic structure will include these Fundamental Social Concerns. The difference will be in terms of the depth and complexity of the measurements or indicators developed for each sub-concern within a major concern. The complexity in the indicator will of course depend upon the stage and level of urbanization, modernization and industrialization of a given economy. Also, the more developed the economy, the more sophisticated and detailed are the indicators adopted. The collection and generation of these indicators are the responsibilities of the statistical system and services of the country which are more efficient and elaborate in the developed world. But the specifications of such a list of concerns and their elaborations can only be done by those who have had an intimate knowledge of the country's culture and social structure.

3. Another movement which focuses on the major issues of poverty, unemployment and inequality² has been the topic in regional and international forums. But, if one analyses critically the major social concerns mentioned in Para. 2, then one can derive, with the availability of sufficient data, level of poverty for each major or sub-concern as well as the distribution of poverty by concern. The latter will give us a picture of the inequality not only of income but of each major or sub-concern as the case may be. Unemployment, as a component of the labor force, could be a sub-concern under population and its relationship with poverty and inequality could be analyzed critically. In fact, we may wish to add agricultural

¹ For example, the Asian Development Bank Annual Report, 1974 (p. 11) states the following on Social Impact: "An important objective in project formulation—is to insure—that within the framework of economic justification, the benefits of the Bank's development assistance are as widely spread as possible and the needs of lower-income groups in particular are taken into consideration."

² Friedrich-Ebert Stiftung, ESCAP Workshop. 77effective Anti-Poverty Strategies, Bangkok, 12-21 December 1973.

land per capita as a measure of "population pollution". This framework was suggested by the author in 1974.¹

B. *Some Conceptual, Technological and Philosophical Difficulties*

4. Although GNP as an overall economic index has many shortcomings, its economic sectors are generally mutually exclusive and there is unity in the use of the national currency for each economic sector of GNP. Indicators of major social concerns for measuring the "Quality of Life" are not mutually exclusive and the units in the major concerns are different from one concern to another. As stated earlier there are difficulties with regard to concepts, both technical and philosophical. A mixture of inputs, facilities, outputs and impacts is generally available for each concern and the problem of deriving a general index of the quality of life is still an open and exciting field.

C. *Who Measures and For Whom*

5. Indicators attempt to measure the pace of development with special reference to the "Quality of Life" or the "Quality of Man". But the philosophical and other interpretations will depend upon whether the points of view of the national government prevails or that of the group of experts commissioned to develop the measurements, or that of the financial or bilateral or multilateral agencies. Also, if one applies the "phenomenological" approach, then the views of the people comprising the given society must prevail in measuring or evaluating the pace of development. Another complication arises if the area under study is at the national/regional or at the project level as in the case of an integrated area development scheme. In the latter case, the participants in the project area should be given an opportunity to indicate their position before, now and possibly in the future on the basis of a scale developed with regard to their own views and interpretations. Probably, the objective of higher per capita GNP for the developing world or the third world may have to be revised or reconsidered on the basis of the possible impact of modernization, urbaniza-

¹ Onate, B.T. *Measuring the Quality of Life: Man as the Concern of Development*—Philippine Statistical Association Annual Conference. July 1974. GNP may grow rapidly without any improvement on these three criteria; so the place of development must be measured more directly. See also Dudley Seers paper "What Are We Trying to Measure?", *Journal of Development Studies*, Vol. 8, No. 3, April 1972, pp. 20-36.

tion and industrialization on the "Quality of Life or "Quality of Man; on the destruction of wholesome national family life, customs and traditions; and on the loss of irreplaceable natural resources.

D. *Sectoral Performance Indicators - Philippines*

6. The Philippines Sectoral Performance Indicators Project is a very comprehensive program and is the product or output of independent and interaction of the inputs of many experts' minds from each of the sectors on agriculture, industry, infrastructure/utilities, housing, education, social welfare and community development, foreign trade, tourism and health and nutrition. The usefulness of these indicators can not be overemphasized. However, along the guidelines given above, the following points may be considered:

- a. who are the ultimate participants or recipients of the developmental efforts of each sector?
- b. with these ultimate participants in mind, are we not spawning more poverty and generating more inequality and more unemployment if we pursue the current developmental strategies in the NEDA plans?
- c. for each sector, have we considered performance indicators which will measure the improvement in the quality of life of the ultimate participants and perhaps more importantly are we actually improving the quality of this man himself?
- d. what are the possible trade-offs between sectoral and national GNP growths and the improvement of the quality of life criterion?

In brief, the sectoral performance indicators should focus on Man as the concern of development. The suggested performance indicators are focused on the "Industry" rather than on this "Man" who should be the ultimate participant or recipient of developmental efforts in each particular sector.

7. In the absence of this contemplated performance indicator, it may be worthwhile to suggest a form of a composite index as a possible measure of the direction and pace of development. This index is described in the succeeding paragraphs.

II. *Direction and Pace of Development: Composite Index*

8. A developing country would be at a given stage of development which may consist of a structural mix between the old and the modern technologies. The level and growth of real per capita income (GNP) are economic indicators which are considered as very rough approximations or measurements of the possible direction and pace of development. Real per capita GNP is often referred to as a level of "poverty" but due to varied reasons it is considered not a good single indicator of the developmental potential. Firstly, the income data for most developing member countries (DCs) are either poor or fair in quality¹ and of the 20 DCs, about one third has no official income series. Per capita income data as an index does not reflect major conditions of development such as income distribution or structural change. Secondly, a given DC may be in a given stage of dual technological structural mix so that at this stage of development real per capita income may be stagnant or may even decline during the period. Under these conditions real per capita income is not an adequate single indicator for measuring the pace of development. GNP has a built-in tendency to give an exaggerated picture of the material wealth produced by complex, market-oriented economies and has an equal tendency to overlook significant activities in the simpler, more self-sufficient societies. Applying the same measure to both can lead to serious distortions.²

9. Thus, depending on the stage of development of its statistical system, other indicators may be available or could be collated to serve also as possible determinants of the developmental³ potential. In measuring and quantifying development during these stages of structural mixes, it might be worthwhile to consider other indices of development. Some possible determinants of development have been identified and may be measured through the combined impact of the growth in these determinants such as (a) Managerial or Enterpreneurial Ability; (b) Capital; (c) Skills; (d) Employment of Labor; and (e) Technological Changes. See attached Table as an empirical study for the Philippines.⁴

¹ Onate, B.T. Improvement of the Quality of Current Statistics in the Asian Region. ADB Occasional Paper No. 5, May 1971. Manila.

² UN. Development Forum. Not by GNP alone. UN Center for Economic and Social Information. 1974.

³ Divatia, V.V. and V.V. Bhatt. On Measuring the Pace of Development. Banca Nazionale del Lavoro Quarterly Review. No. 89, June 1969. Rome.

⁴ Onate, B.T. Empirical Results on Measuring the Pace of Development in Selected Asian Developing Countries. Unpublished. 1973.

10. The identification of the variables or indicators which must be collated to approximate these determinants is a difficult problem. However, certain statistical series are currently available in each DC which could be used as approximate proxy variables of these determinants. Thus, the first step would involve a critical study and evaluation of the statistical series, both economic and social, in physical or monetary terms, which could be used as possible initial measurements of the development potential. The number and type of these proxy variables may change depending upon their availability in a given DC.

11. Some of the social and other indicators are highly correlated with GNP at current prices. In fact, these indicators can serve as excellent predictor variables for GNP. These correlations are surprisingly high. For example, the correlation between GNP and enrollment in secondary schools is 0.992 for the Philippines and is 0.999 for another DC.

12. The index of developmental potential seeks to measure the real changes going on in the country during a given stage of the developmental process. In the Philippines, the composite index showed a compound annual growth rate of 10.9% while GNP grow at a rate of 10.6% at current prices and 5.8% at 1967 constant prices. Thus, the grow rate of the developmental potential is almost double the rate of growth of real GNP.

13. The comparative Table below will show that as a DC rises along the stage of development in terms of per capita GNP, then the ratio of the composite index (B) to the GNP index (A) decreases. This result implies that a DC with US\$100 per capita showed that the composite index is double that of the GNP index. This rate will decrease from 1.8 to 1.5 as the per capita GNP increases from US\$200 (as the case for the Philippines) to US\$450 for another DC in 1970. Thus, the composite index reflects a more rapid rate of growth in the overall process of developmental transformation in the three DCs than is shown by the more conventional real GNP index.

14. The empirical results seem to indicate that as a country moves from the lower scale of development as measured by per capita GNP, then the ratio of B/A will approach unity which implies that at higher levels of modernization, urbanization and industrialization, the Composite Developmental Index would approach the real per capita GNP index. Probably, at the higher development stage, real per capita GNP index would

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be an appropriate single index to use. The development and improvement of such a Composite Index as a measurement of the developmental potential should be recognized as a concomittant part in the process of structural transformation. While the major movements in the measurement of the "Quality of Life" at the national level is still in its developmental stage, the Composite Developmental Index illustrated in this paper may be used to supplement the per capita GNP indicator with special reference to developing countries in the Asian Region.

Comparative Table on Development Potential

Index (Per cent per year)	Developing Member Country (Per Capita GNP in US \$ in 1970 ^a)		
	A	B	C
	(US \$100) 15 years ^b	(US \$200) 11 years ^b	(US \$450) 18 year ^b
(A) Real GNP	3.5	5.8	8.5
(B) Composite Development Index	7.0	10.9	13.1
Ratio B/A	2.0	1.8	1.5

^a Source. Onate, B.T. Empirical Results on Measuring Pace of Development in Selected Asian Developing Countries. Unpublished. 1973.

^b Length of series in years.

BURTON T. OÑATE
 INDEX OF DEVELOPMENTAL POTENTIAL
 Philippines: 1958-1969
 (Equal Weight = 1/25)

Determinants	1958	1963	1969
I. Managerial/Entrepreneurial Ability			
A. Factory Establishments (Number)	100.0	119.9	151.2
1. Small	100.0	117.2	114.7
2. Large	100.0	119.2	141.9
3. Total	100.0	93.4	109.4
B. Professionals, Managers, etc.			
II. Capital			
A. Power Capacity - Electricity Production	100.0	195.1	399.2
B. Transport Capacity			
1. Length of Railways	100.0	106.8	109.1
2. Registered Trucks	100.0	127.9	224.3
3. Registered Passenger Cars	100.0	131.3	349.0
4. Seaborne (loaded)	100.0	102.1	257.8
5. Seaborne (unloaded)	100.0	217.9	433.8
6. Passenger Traffic (air)	100.0	282.4	797.3
7. Cargo (air)	100.0	184.5	686.7
C. Number of Banks	100.0	197.4	410.4
D. Communication: No. of Telephones	100.0	183.6	367.6
E. Output			
1. Food Manufactures	100.0	218.4	356.3
2. Transport Equipment	100.0	396.1	547.5
3. Textiles	100.0	219.5	345.3
F. Imports			
1. Intermediate goods	100.0	125.0	213.5
2. Capital goods	100.0	176.4	361.1
III. Skills			
A. Elementary Schools Enrolment	100.0	129.2	179.1
B. Secondary	100.0	142.6	255.1
C. University College	100.0	147.5	381.2
D. Vocational/Technical	100.0	132.7	187.9
E. Clerical, Salesman, etc.	100.0	108.9	122.5
IV. Employment in Industry (Total)	100.0	108.3	121.7
Simple average of 25 Indicators	100.0	165.5	312.2
Estimated overall Annual Growth Rate of composite Index			10.9%
Annual Growth Rate of GNP (current)			10.6%
Annual Growth Rate of GNP (1967 prices)			5.8%

Dr. Burton T. Oñate
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