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TRENDS AND PATTERNS IN AFRICAN PARTICIPATION
IN INTERNATIONAL RELATIONS, 1960-1970:
TOWARD A THEORY OF INTERNATIONAL
DEVELOPMENT

by

Herb C. Addo, M.A.

A thesis submitted to the Faculty
of Graduate Studies,
Carleton University,
in partial fulfilment
of the requirements for the degree
of Doctor of Philosophy

Department of Political Science
Carleton University
Ottawa, Ontario, Canada
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ABSTRACT

The purpose of this study is to provide a detailed analytical examination of international development in the decade 1960-1970. In particular, the purpose is to examine how African nations fared relative to others in terms of closing the gap between the developed (Centre) and the underdeveloped (Periphery) nations in the international system.

Johan Galtung's theory of dynamics of social change is used as the basis from which to examine the extent to which the international system and the African subsystem developed during this period. Galtung defined feudal systems in terms of large inequalities in the distribution of attributes between the Centre and the Periphery (high rank-concordance) and in terms of the Periphery interacting very little among themselves and more with the Centre (high interaction-dependence). Conversely, he defined egalitarian systems in term of low rank-concordance and low interaction-dependence. International development is therefore conceived in this study as inversely related to the levels of rank-concordance and interaction-dependence.

The study takes the view that an underdeveloped system is a feudal system and a developed system is an egalitarian system and hence a developing system is one in which rank-concordance and interaction-dependence both tend from high to low over time. The theses then, are: the international system

did not develop between 1960 and 1970 to the extent that the system did not become less rank-concordant and less interaction-dependent; and African nations did not develop during this period to the extent that they did not contribute to making the system less rank-concordant and less interaction-dependent.

The attributes aspect of the study is based on the following thirteen indicators: Combined Adjusted Primary and Secondary Enrolment Ratio; The Number of Students in Third Level Education per 100,000 Population; Circulation of Daily and Non-Daily Newspapers per 1,000 Population; Radio Receivers per 1,000 Population; Steel Consumption per capita; Percentage of Gross Domestic Product (GDP) Originating in Industry; Percentage of Gross Domestic Product (GDP) Originating in Agriculture; Gross National Product (GNP) per capita; Energy Consumption per capita; Calories per Day per Inhabitant; Population per Hospital Bed; Population per Physician; Infant Mortality Rates. The interactions aspect is based on Structure of Diplomatic Representation, Partner Concentration Index, Commodity Concentration Index and Trade Composition Index.

The techniques of analysis used in this study were chosen principally for their ability to describe the gap separating the Centre and the Periphery in terms of equality. The attribute techniques to analysis are: Spearman's correlation coefficient (ρ), Systemic Inequality Measure,

Gini Index, Equal Share Coefficient and Ratio of Discrimination. The interaction techniques of analysis include the Feudal Score Measure and the Dependence Ratio.

The study demonstrates that the international system did not change its 1960 feudal structure by 1970 and also that African nations remained as much in the Periphery in 1970 as they were in 1960.

A discussion of the findings in relation to Galtung's formulation leads to the new formulation that international development depends essentially on decreasing interaction-dependence of the Periphery on the Centre. This latter formulation is discussed, and suggestions for future research in international development are offered at the end of the study.

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My very special thanks go to my wife Lily for bearing it all so gracefully for so long; to Dr. Johan Galtung for reading earlier chapters of the study and commenting so helpfully on them.

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 SDR Performance and Interpretation
 Interaction Findings: African Nations'
 PCI Performance and Interpretation
 Interaction Findings: African Nations'
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CHAPTER I

INTRODUCTION

1.1~ Purpose

My major purpose in undertaking this study is to provide a detailed analytical examination of international development in the decade 1960-70, the period of the much-heralded United Nations Development Decade.¹ I am particularly interested in examining how African nations fared relative to others in terms of closing the gap between rich and poor nations in the international system.

Most of the available evidence appears to support a very pessimistic view of international development in that decade. Robert McNamara, in his various addresses as President of the International Bank for Reconstruction and Development (IBRD), points out that the gap between rich and poor nations has been widening rather than closing.² Many reports and studies by international agencies including the Pearson Report, the Jackson Report, the various United Nations Conference on Trade and Development (UNCTAD) proceedings, and, most dramatically, the proceedings of the 1972

¹U Thant, "The United Nations Development Decade," in Richard A. Falk and Saul H. Mendlovitz (eds.), The Strategy of World Order, IV (New York: World Law Fund, 1966), pp. 605-641.

²Robert McNamara contends that the gap between the privileged and the underprivileged nations may be increasing in the absolute sense; but what is worse even the relative growths within the underprivileged nations do not seem to benefit the poor there. See his address to the United Nations Economic and Social Council, October 15, 1973, p. 7 or his address to the Board of Governors of the IBRD in Nairobi, Kenya, September 24, 1973, p. 10.

2
Stockholm Environmental Conference also support this sad view.³

A study by Theodore Caplow⁴ and another by Kurt Finsterbusch⁵ deserve special mention here. Caplow refers to an "inflexible future" for international development and predicts in no uncertain terms the bleak future of international development. He concludes his study with these observations:

In this century there has been a relatively immutable hierarchy of development among nations. If present trends can be projected into the future, that hierarchy will remain. Nuclear war, world economic collapse, and other imaginable cataclysms and changes could alter the picture. But barring such unpredictable events, as long as the present structure of nations persist we can expect to live in a world whose nations are vastly unequal in wealth.⁶

Caplow's conclusion suggests that the structural changes needed to develop the international system have not yet begun and are not likely to begin in the near future.

³Lester B. Pearson, Partners in Development (New York: Praeger, 1969). A report prepared by the International Commission of International Development for the International Bank of Reconstruction and Development; Sir Robert Jackson, A Study of the Capacity of the United Nations Development System (Geneva: United Nations, 1969). A report prepared by Sir Robert Jackson for the United Nations International Development Plan; Barbara Ward, J. D. Runnells and Lenore D'Anjou (eds.), The Widening Gap: The Development in the 1960's (New York: Columbia University Press, 1970). A report on the Columbia Conference of international economic development, Williamsburg, West Virginia and New York, February 15-21, 1970; see also "Earth Politics", International Journal, XXVIII, No. 1 (Winter, 1972-73), especially articles by Walter Klemens, F. H. Knelman, Clyde Sanger and A. J. Miller.

⁴Theodore Caplow, "Are the Rich Countries Getting Richer and the Poor Countries Poorer?", Foreign Policy, No. 3 (Summer, 1971), 90-107.

⁵Kurt Finsterbusch, "Recent Rank Ordering of Nations in Terms of Level and Rate of Development," Studies in Contemporary International Development, VIII, No. 1 (Spring, 1973), 52-70.

⁶Caplow, Foreign Policy, No. 3 (Summer, 1973), 107.

One is hard pressed to find a study which suggests a happy or an optimistic future. By focussing on the relative growth rates of nations,⁷ Kurt Finsterbusch finds that, on the average, the poor nations are developing faster than the rich nations on some indicators. This, however, means little in developmental terms, for, as Caplow rightly points out, because the "bases, the 'starting paces' for growth of rich nations and poor nations, differ so greatly the gaps between them tend to increase."⁸ If the impression is that the international system is performing badly, then we need to know how badly it is performing, why it is performing so badly and what could be done to make it perform better.

1.2 Evaluation of System Performance

There are many ways of evaluating the performance of social systems. For example, Karl Deutsch, discussing a possible way of uncovering changing trends and patterns in social systems, suggests that:

It starts with the problem of recognition—with the tentative and often intuitive identification of important qualities or aspects of the situation which we are trying to understand....Without such a preceding qualitative matching no quantitative work is possible. Nothing can be counted that has not been recognized first: counting is repeated recognition. Out of the quantitative stages of

⁷Finsterbusch, Studies in Contemporary International Development, VIII, No. 1, 70.

⁸Caplow, Foreign Policy, No. 3 (Summer, 1973), 107.

our enquiry, however, should come the recognition of new trends and new patterns.⁹

Robert Dahl¹⁰ proposes that the process of evaluating the performance of any system inescapably requires empirical data. He argues that those basic conditions must be met in order to judge how well a political system performs. They are:

1. criteria of value, worth, goodness, excellence and desirability;
2. data about behaviour of the system;
3. ways of applying the criteria to the behaviour of the system in order to measure the degree to which the criteria of value have been achieved.

The criterion of value for this study is greater equality.

We want to see the structure of the international system change from states of low levels of equality to states of higher levels of equality. This desire is related directly to a fundamental concern in the post World War II world for international development. The idea of international development is often cast in terms of "bridging the gap" between the privileged and the underprivileged nations. Johan Galtung has described the outward expression of this idea in the international system as the "egalitarian pretenses" of the international system.¹¹ Gustavo Lagos sees this idea as embodied in

⁹Karl W. Deutsch, "The Intellectual Context," in Charles Taylor (ed.), Aggregate Data Analysis (Paris: Mouton and Co., 1968), p. 33.

¹⁰Robert Dahl, "The Evaluation of Political Systems," in Charles Taylor (ed.), Aggregate Data Analysis (Paris: Mouton and Co., 1968), pp. 47-63.

¹¹Joseph Berger, Morris Zelditch and Bo. Anderson (eds.), Sociological Theories in Progress I (New York: Houghton Mifflin, 1966), p. 190.

an "ideology of equalitarianism."¹² I adopt the idea of perfect equality between nations as a goal for international development and use it as the criterion for evaluating the development performance of the international system. With this criterion, we are able to confront more directly the major question of how far the underprivileged nations of the world are becoming more equal to the privileged nations in the possession of the more important social values of the international system.¹³

I use this criterion not because I am so naive as to expect the idea of perfect equality between nations to be realized in the near future, or even ever; but because I regard the most desirable state of the international system to be an approximation of the state of perfect equality between nations. Such a situation is desirable because it promises to reduce exploitation between nations, and most likely between groups and individuals within them, to an unimportant minimum. In this study, the concept social gap refers to the amount of inequality in the distribution of values in the international system between the privileged and the underprivileged groups of nations. It is the fact of this social gap, the elimination of which is the ultimate aim of international development, which is expressed as the equality gap in this study.

If the aim of international development is to make nations

¹²Lagos refers to this ideology as one of the basic principles of Wilsonian thought. See his International Stratification and Underdeveloped Countries (Chapel Hill: University of North Carolina Press, 1963), p. 22.

¹³Some of the social values considered important are those used in this study. See p. 11 below.

of the world equal, then the pertinent question is "equal in what?" Here we can follow Harold Lasswell and say equal in human dignity; ¹⁴ and also follow the United Nations Declaration of Human Rights to define human dignity as the economic, social and cultural rights indispensable for respectable human existence and therefore for the development of human personality. ¹⁵ Thus, when I define international development in terms of the equality gap, what I am really referring to is the inequality in the human condition between the privileged and the underprivileged. While most nations would want more human dignity for their subjects, it is the underprivileged nations which are usually regarded as most in need of increasing human dignity.

¹⁴ Harold Lasswell, "Forward," in Charles Taylor (ed.), Aggregate Data (Paris: Mouton and Co., 1968). Lasswell postulates (on p. 16) that the goal in world affairs should be specified as "the realization of human dignity rather than human indignity."

¹⁵ For a brief but direct discussion of the human values embodied in the Universal Declaration of Human Rights, see the preface of Bruce Russett et. al., World Handbook of Political and Social Indicators (New Haven: Yale University Press, 1964), pp. 5-6. In this book, the authors undertook to attempt to compare nations on a great variety of politically relevant value indices. They derive their multi-dimensional and related sets of indices from the Universal Declaration of Human Rights' proclaimed aspiration to work toward, among other things, (1) the political right of every man "to take part in the government...directly or through freely chosen representatives"; (2) the economic right "to just and favourable remuneration insuring for himself and his family an existence worthy of human dignity"; (3) the health right "to a standard of living adequate for the health and well-being of himself and of his family..."; (4) the education right to read and write in order to inform and express himself properly. A fifth right which by its nature sums up the above 4 rights is the right to respect and dignity, meaning the right to economic, social and cultural rights indispensable for a pacified existence. The authors are aware that these rights are not universally in effect and are no more than proclaimed norms to guide aspirations towards those ends, but state that their relevance for comparing nations is not in doubt. This study fully accepts this view.

I have observed¹⁶ as an African that the idea, human dignity, is of special significance in the aspirations of individual African nations, particularly, in their dealing with other nations of the international system.¹⁶ This observation as well as the fact that African nations featured so prominently in dramatizing international development issues in the 1960's are the primary reasons for my particular emphasis on Africa in this study.

The overriding concern of African and other underprivileged nations in the international system, since these nations became politically independent and therefore full-members of the international system, has been the improvement in their underprivileged situations. And since the Second World War, especially since the mid-fifties, both policy-makers and scholars have described the African situation as one defined both descriptively and causally by ignorance, poverty and disease. Thus if we view the African situation as described by low scores on these three dimensions, then it is not strange that African nations have tried hard lately to raise their levels on these social dimensions. The frantic pursuit of education, wealth and good health by African nations attests to the existence of the belief that the raising of levels on these three value dimensions is regarded as the

¹⁶Colin Legum discussing the importance of the concept dignity in the context of Pan-Africanism has described this idea as "Dignity: that majestic magical word in the vocabulary of Pan-Africanists; to regain dignity is the main-spring of all their actions," in Pan-Africanism (London: Praeger, 1965), p. 15. The feeling of lacking human dignity shows through many of the pronouncements of African leaders. One such pointed pronouncement is Kwame Nkrumah's, made before the 1958 General Assembly where he said "and now I, an African, stand before this august assembly." In this context Ali Mazrui's discussion of African attitudes in the U.N., principally their interest in human

achievement spearhead in the general effort to improve their positions. The above suggests the choice of Wealth, Education and Health as the appropriate attributes by which to evaluate both the total system's and African nations' performance in the context of international development.

These three rank-dimensions or rank structures cover some of Galtung's "more important" rank-dimensions. The Health structure is synonymous to his Medical structure, the Wealth structure refers to his Economic structure and the Education structure covers his Educational cognitive, technical, ethical and possibly his esthetic cultures.¹⁷ Our three rank-dimensions also bear close resemblance to Harold Lasswell's value orientations categories of Wealth, Well-being, Enlightenment and Skill.¹⁸

The choice of Education, Wealth and Health dimensions enables us to present the problem multi-dimensionally. Despite what has just been said, one could still ask why we did not include specific structures for military,

dignity as opposed to the older nations' interests in "just peace" is a case in point. See his "U.N. and Some African Attitudes," International Organization, XVII, (1965), 499-520.

¹⁷ Johan Galtung "Rank and Social Integration: A Multi-dimensional Approach," in Joseph Berger, Morris Zelditch and Bo. Anderson (eds.), Sociological Theories in Progress I, p.187.

¹⁸ Harold Lasswell, Politics: Who Gets What, When, How (Cleveland: World Publishing Co., 1958) and his "Introduction: The Study of Political Elites," in H. Lasswell and D. Lerner (eds.), World Revolutionary Elites (Cambridge: Massachusetts Institute of Technology Press, 1966), pp.3-28.

political and possibly cultural aspects of social reality.

I find the military structure, intuitively, to be largely irrelevant to the concerns of this study. Changing military statistics are not likely to reflect the extent to which the nations of the world are becoming more or less equal in any meaningful way; especially if there is no reason to think there is a confrontation between the centre and the periphery.¹⁹ Besides, the analysis in World Handbook of Political and Social Indicator shows that the "measure of military efforts—defense expenditure and military personnel—are notable for the absence of any strong and theoretically interesting correlations" with the other developmental indicators used in that study.²⁰

Specifically cultural structures are difficult to quantify with any degree of confidence and so do not lend themselves easily for comparing nations. For example, McClelland's achievement motivation index²¹ could have been used to study the extent to which the nations of the world are becoming more equal in achievement motivation. But

¹⁹It is conceivable though that the centre nations would use their military strength to cow the periphery nations into submission. In fact, some people will say instances like the Vietnam war, the Cuban Crisis of 1962, the Congo Crisis of 1960 and the Dominican Republic Crisis of 1964 are cases of the centre nations using military strength to control the peripheral nations involved. But we must also admit that to do this the centre nations do not have to change their military strengths—they certainly do not have to increase them to intimidate the peripheral nations. See Daniel Lerner, "Some Comments on Centre-Periphery Relations" in R. Merritt and S. Rokkan (eds.), Comparing Nations (New Haven: Yale University Press, 1966), pp. 259-265.

²⁰B. Russett, et al., World Handbook of Political and Social Indicators, p. 194.

²¹David McClelland, The Achieving Society (Princeton: Van Nostrand, 1961), chapter 3.

again Russett et al. have shown that the achievement motivation index is not related to rates of development. They regard the achievement motivation approach for comparing aspects of the developmental ecology of nations as an approach still in its experimental stage.²²

With reference to specific political structures, the indicators usually used in studies of this sort are revenue of central government as a percentage of Gross National Product, the number of people employed by government and domestic voting statistics. These indicators should be viewed as governmental indicators rather than political indicators when the comparison is among nations as the basic units in the global context.²³

This study takes the view then that the political problem is the definition of the structural problem; and the political essence of analyses is the "ways and means" of solving the structural problem. In this study, the political problem has been expressed above as the lack of structural equality among nations in the share of the international systems output; and the political end has been defined as

²²Russett, et al., World Handbook I, p. 193. This study also found the effects of Protestantism and Catholicism on nations' developmental achievements to be indistinguishable.

²³Russett, et al., use such indicators in the World Handbook. The authors perhaps are justified in referring to such indicators as "political" as the main focus of their program is on the social conditions conducive to political change. As they put it "the central concept is the political solvency of governments: that is, the balance between the natural resources, administrative capabilities and popular support of any particular government on the one hand and its formal and informal commitments, both foreign and domestic on the other." "The Yale Political Data Program" in Merrit and Rokkan (eds.), Comparing Nations, p. 81.

the desirability of such structural equality among the nations.

Choosing the broad structural categories of Wealth, Health and Education is not the end of the researcher's job. He has to choose indicators along these dimensions. He also has to collect quantified data for these indicators in order to perform the comparability operation on nations' developmental performance within the time-slice. The indicators which could possibly represent these rank-dimensions are many. The researcher could not possibly handle them all with the resources at his disposal. He must select a few that meet two conditions. First, the few he selects must have what De Grazia has called the "teleological form."²⁴ By this he meant the goals for which the indicators are the evidence should dictate the indicators to be chosen. Only the selected indicators as well as being reflective of the structures they represent must lend themselves to quantified comparisons, as far as is possible by the state of existing data.

With these considerations in mind, the following thirteen rank indicators have been chosen as meeting the criteria of relevance:

Wealth

1. Steel Consumption per capita.
2. Percentage of Gross Domestic Product (GDP) Originating in Industry.
3. Percentage of Gross Domestic Product (GDP) Originating in Agriculture.

²⁴Alfred De Grazia, "What Indicates What?", American Behavioral Scientist, VIII, No. 4 (December, 1964), 29-31.

4. Gross National Product (GNP) per capita.
5. Energy Consumption per capita.

Education

1. Combined Adjusted Primary and Secondary Enrolment Ratio.
2. The Number of Students in Third Level Education per 100,000 Population.
3. Circulation of Daily and Non-Daily Newspapers per 1,000 Population.
4. Radio Receivers per 1,000 Population.

Health

1. Calories per Day per Inhabitant.
2. Population per Hospital Bed.
3. Population per Physician.
4. Infant Mortality Rates.

Gross National Product per capita was chosen to represent the Wealth structure because it is widely believed in the literature that the GNP is one of the best indicators of wealth that the social scientist has. Russett et. al., state the existing belief when they write that GNP is employed as a measure of production, of total wealth or resources of a country and it is frequently used as a measure of comfort or well-being that a nation has the capacity to bestow on its citizens.²⁵ However, in view of some problems with the reliability and comparability of GNP as a measure of wealth, many social scientists have questioned its use for such purposes. One comment on these

²⁵ World Handbook of Political and Social Indicators, p. 150. See also Russett's Trends in World Politics (New York: Macmillan, 1965), p. 112.

problems is cast in this fluent form.

"In the light of history, the GNP may appear to have caused as much harm as the slogan Blut and Boden. [Bussett et. al.] know this but are rather helpless in the face of legions of economists, politicians and statisticians. GNP does not measure relative wealth and well-being at all well. It is confounded by accuracy differences, differences of industrial organization, omission of many non-monetary services here and there, vast differences in living costs between hot and cold lands, differences in the social cost of surviving in a high GNP country, differences in pricing many things and processes and inventorying, differences in the internal distribution among social strata of GNP activities, and differences in commitments to world charity and violence of high and low GNP countries. To further obscure truth, the GNP is calculated in most countries by something like witchcraft."²⁶

And yet despite this powerful indictment, De Grazia does realize that GNP and GNP per capita, with all their imperfections, still remain two of the most reliable measures of wealth that social scientists have to work with.

Steel consumption can be used as an indicator of a nation's wealth. This is not surprising since the wealthier the nation, the more advanced its industrial needs and hence its consumption of steel. The same arguments go for energy consumption. Sophistication in production and the attendant improvements in the quality of life are usually accompanied by increasing use of energy, either in the form

²⁶ Alfred De Grazia, American Behavioral Scientist, VII, No. 4 quoted by Charles Taylor (ed.), "Further Problems: A Consideration of Other Views," in his Aggregate Data Analysis, p. 122. For another lucid criticism see Erwin K. Scheuch, "Cross-National Comparisons Using Aggregate Data: Some Substantive and Methodological Problems," in Merritt and Rokkan, Comparing Nations, pp. 142-145.

of coal, petroleum, hydro or in nuclear power.²⁷

It is also believed today that as a nation's GNP increases there is a tendency to have a decrease in the percentage of the GDP originating in agriculture and an increase in the percentage GDP originating in industry. Not only is this evident from observing the economic history of the developed nations, the developing nations frantic attempts to industrialize and to seek markets for their manufactured and semi-manufactured goods in the developed nations attest to this belief.

The indicators for the Education structure are meant to tap the changes which have occurred in the degree to which people in different nations are being made aware of themselves, their problems and the issues in the environments around them, including the international environment. It is pretty obvious that such awareness can be obtained through both formal and informal education. The combined school enrolment ratio and the number of students in higher education indicators are meant to tap the formal aspects of education. The other two education indicators, circulation of newspapers and radio receivers, even though they are listed by the United Nations Statistical Yearbooks under "Culture" and by the World Handbook under "Communication," we feel could represent the informal aspects of education adequately. Perhaps a more direct indicator is the change in the percentage of literate people, but problems of reliability

²⁷ For these reasons, Austin Robinson, The Economic Journal, LXXV, No. 3 (September, 1965), 616-617 questions the omission of energy and steel indicators from the World Handbook I.

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and comparability of this indicator foreclosed it being chosen.

The Health indicator represents the medical side of the general concept "well-being." The calories per day indicator is to help measure the extent to which people are well-fed in different countries. And should they fall ill, the two indicators of inhabitants per physician and population per hospital bed are meant to gauge their chances of receiving the proper medical attention. The infant ~~mortality~~ indicator should reflect the survival chances of infants until they are one year old. Together these four indicators should give us an approximate idea of changing health conditions in different countries.

These thirteen indicators were chosen because, as we have tried to show above, we believe they are "obvious" empirical referents for the structures they represent. But to be "obvious" is not to be appropriate. The appropriateness of these indicators can be inferred from Hayward Alker's important contribution referred in World Handbook Of Political and Social Indicators. Alker found that many of our thirteen indicators and some similar ones show high correlation among themselves to form what he calls the "developmental cluster." He explains that the developmental cluster includes "most of the communications indices, the health and well-being indicators and most of the education indices."²⁸ From Alker's analysis we can say that nations which are high on economic indices are most likely to be high on education and health indices as well, thus, supporting our conception

²⁸ Russet et al., World Handbook on Political and Social Indicators, p. 288.

of the world as a stratified system.²⁹ The existence of significant correlations between those indicators suggest to us that our choice of these thirteen indicators as the empirical bases for a study into the extent to which nations of the world are becoming more equal in their share of the international system's outputs is justified as representing different aspects of an underlying phenomenon.³⁰

Available data will be collected for all nations with population of one million or more for 1960 and 1970 on each of the above indicators. The aim of the analysis is to calculate what the status of the equality gap between the privileged and the underprivileged were on each of these indicators in 1960 and 1970 and from this determine whether the equality gap between the privileged and the underprivileged nations did narrow or widen during the 1960-1970 decade. The analytic techniques used in this study are based on the rank-orders of nations and nations' absolute values for each of the indicators for 1960 and 1970. From this base, five main techniques are used to

²⁹ This underlying phenomenon as it is revealed by Alker's work is economic development.

³⁰ It must be added, however, that Alker's aim was to uncover possible correlations between clusters of structural attributes of nations, while the aim of this present study as will be seen in chapter IV is to regard the different structures as different aspects of the differences among nations and to uncover any gap-bridging tendencies that may exist on each indicator. For this reason this study prefers to regard the selected three structures and the thirteen indicators as different lines along which to study the international developmental phenomenon.

describe different aspects of the idea of equality. The techniques are: Level of Concordance, Gini Index, Systems Inequality Measure, Equal Share Coefficient and Ratio of Discrimination. The measures are fully described in section 4.8 below. These measures are employed in this study because of their ability to relate the distributions of the values between the privileged and the underprivileged groups of nations in terms of the idea of perfect equality. This is a very important point to note because this study differs from many others in that it stands firmly on the distributions of social values between the privileged and the underprivileged groups of nations relative to equal distribution. This approach to the study of international development may be referred to as the "equality gap approach" and is to be regarded as distinct from the usual mode of studying international development which compares the growth rates of the privileged and the underprivileged nations. We may refer to this latter mode of analysis as the "rate of growth" approach.

The main difference between the two approaches is that while both may use per capita attributes and both may base their analysis of international development on rank-order of nations along similar, or even, identical indicators the rate of growth perspective analysis of the basic data is principally concerned with the rate at which individual nations change their per capita possessions

of these values relative to others, while the equality gap perspective analyses the distribution of the values between the privileged and the underprivileged groups of nations with respect to equality. The equality gap approach conceives the international system as an integrated system, and it attempts to deal directly with the degree of relative deprivation between the broadly defined privileged and underprivileged groups within the system. The rate of growth approach tends to ignore the existing degree of relative deprivation between these two broad groups of nations. Another distinction between the two approaches is that while the rate of growth perspective regards nations as individual entities, the equality gap perspective tends to consider the privileged and the underprivileged groups of nations as two single entities which may be studied as units.³¹

The gap cannot be fully studied in terms of the relative growth rates of nations. To study the gap this way, is to ignore the vital facts about the size of the gap. In fact, a knowledge of the size of the gap must

³¹Pierre Jalée was perhaps the first to employ the use of the so-called Third World and advanced nations as single entities in the analysis of economic development. He says, "It appeared, however, that to study the economic relations between the Third World and the advanced capitalist nations—taking each of these as a single entity—was, if not to open up an entirely original field of research, to explore little known territory." The Third World in World Economics (New York: Monthly Review Press, 1969, p. ix.

precede the study of the relative growth rates of nations, since for effective policy purposes a knowledge of the size of the gap is indispensable. I suggest that the size of the gap can be studied most conveniently and relevantly in terms of equality.

Examples of studies based essentially on the rate of growth approach include the works of Everett Hagen and Oli Hawryryshyn, P. N. Rosenstein-Rodan as well as the study of Theodore Caplow and that by Kurt Finsterbusch.³² In his study Caplow defines development as "the process by which a society improves its control of the environment through technology or organization,"³³ and consequently development is analysed solely in terms of the rate at which the poor nations were catching up with the rich nations. Caplow's study examined the proposition that the rich nations were getting richer and the poor nations poorer. All the analytic techniques employed were variants of the rate of growth idea. At no point in his study did Caplow tackle the absolute size of the inequality gap between the poor nations as an entity and the rich nations as an entity and the changes relating to this gap.

³² Everett Hagen and Oli Hawryryshyn, "Analysis of World Income and Growth," Economic Development and Cultural Change, XVIII, No. 1 (October, 1969) Part II, 516-571; P. N. Rosenstein-Rodan, "International Aid for Underdeveloped Countries," in Falk and Mendlovitz (eds.), The Strategy of World Order, IV, pp. 517-571.

³³ Caplow, Foreign Policy, No. 3 (Summer, 1973), 90. Finsterbusch, Studies in Contemporary International Development, VIII, No. 1, 52-54.

Clusterbusch's definition of development is identical to Caplow's; and his tripartite measurement³⁴ of development is done exclusively by the rates of change along each of the three aspects.

The works of many scholars including S. Sideri, Johan Galtung, Tord Hoivik and Pierre Jalée suggest but do not fully utilize the equality gap methods of analysis in the international setting.³⁵ Bruce Russett has used Lorenz curves to study equality among nations in the international system, but the usage is restricted to the incomplete discussion of Gini indices.³⁶ Tord Hoivik despite a thorough discussion of the properties and potentialities of using Lorenz curves to study inequalities confines the analysis in his study "Social Inequality - The Main Issues" to the Mexican experience for the 1950's.

³⁴The tripartite measurement consisted of: (1) using a single indicator (Telephones per 10,000 Population and GNP per Capita), (2) obtaining a development factor by factor analysis, and (3) combining measures of aspects of development into a single index.

³⁵In addition to Jalée's The Third World in World Economics, he has The Pillage of the Third World (New York: Monthly Review Press, 1968); Johan Galtung, "Structural Theory of Imperialism," Journal of Peace Research, VIII, No. 1 (1971), 81-117; S. Sideri, "Prospectives for the Third World," Internationale Spectator, XXV, No. 5 (March, 1971), 469-480; Tord Hoivik, "Social Inequality - The Main Issues", Journal of Peace Research, V, No. 5 (1968), 119-142.

³⁶Bruce Russett, Trends in World Politics (New York: Macmillan, 1965).

As will become clear in chapter IV, I do not use the rate of nations' per capita accumulation of values over time for individual nations as the measure of development rather I employ nations per capita distribution of the values between the privileged and the underprivileged group of nations with respect to equality as the critical test of whether the international system did develop between 1960 and 1970. Hence, the techniques employed to analyse the data (see section 4.8) all define different aspects of the degree of equality between the privileged and the underprivileged in their possession of the international system's scarce values.

However, the two approaches are not mutually exclusive. Indeed, the rate of growth approach, being a less comprehensive form of analysis of international development, can be incorporated into the equality gap method of analysis. Conversion of the growth rate method into the equality gap method can be achieved by adopting the appropriate framework,³⁷ aggregating the data for the privileged and the underprivileged entities and analysing the data with the aid of the appropriate techniques in terms of any of the social aspects of the concept of equality.³⁸

³⁷As will be seen below in this chapter, Johan Galtung's Feudal-egalitarian framework provides one such framework. See Herman Schmidt, "Peace Research and Politics," Journal of Peace Research, V, No. 3 (1968), p. 95.

³⁸See Hayward R. Alker Jr. Mathematics and Politics (New York: Macmillan Co., 1965), as well as Hoivik, Journal of Peace Research, VIII, No. 3, 119-142.

1.3 A Structural Theory of Development

The scholars who use the rate of growth approach to study international development tend to be, in Andre Gunder Frank's terminology, "Dualists" or "Diffusionists." He describes dualism, the perspective of the dualists in these terms:

Dualism is not only theoretically inadequate because it misrepresents and fails to analyse the capitalist system on the international, national and local levels, but also because it fails to adhere to the standards of holism, structuralism and historicity. Dualists contravene holism in explicitly getting up two or more theoretical wholes to confront a single social whole which they cannot or will not see. As for structuralism, dualists fall far short because if they see and deal with any structure at all it is at best the structure of the parts. They do not deal with, and even deny the existence of, the structure of the whole system through which the parts are related—that is, the structure which determines the duality of wealth and poverty, of one culture, and so on.³⁹

Frank's views of the diffusionists is no less tame. He says of them:

[They see] development as occurring through the diffusion of cultural elements from the developed to the underdeveloped countries. This involves, of course, acculturation to these elements on the part of the underdeveloped countries....

According to this view...underdevelopment remains because of the obstacles or the resistance to this diffusion. Underdevelopment is taken to be the original 'traditional' state as much as it is in the first mode. There is even less inquiry into the causes and nature of underdevelopment than in the [dualist mode].⁴⁰

³⁹For thorough definitions of these terms and their relationships see Andre Gunder Frank, Sociology of Development and Underdevelopment of Sociology (Andover, Mass: Warner Modular Publications, 1973), p. 43.

⁴⁰Frank, Sociology of Development and Underdevelopment of Sociology, p. 43.

In short, the diffusionists tend to view the privileged and the underprivileged nations as isolated individual entities rather than as related individual entities forming a single entity with respect to underdevelopment. They do not claim any meaningful sociological relations between the privileged and the underprivileged entities with regard to underdevelopment; in particular they do not consider the underprivileged situation of nations as the historical creation of the privileged nations. They rather tend to see underdevelopment of nations as historical accidents. The diffusionists share the dualist view of underdevelopment, except the former tend to believe that development can come about only through the diffusion of cultural norms from the privileged to the underprivileged.

The scholars who use the equality gap method of analysing international development are usually referred to as structural theorists of development. Apart from considering the privileged and the underprivileged groups of nations as sociological entities, these scholars tend to regard the relation between them as sociologically meaningful in exploring underdevelopment. They tend to see the underdevelopment of the underprivileged nations as the consequence of the development of the privileged nations. Further, these scholars consider the privileged and the underprivileged entities as hierarchically related, study the phenomenon of underdevelopment in its historical terms and ascribe the underdevelopment of the underprivileged nations to the exploitation of the underprivileged by the privileged. Structural theorists usually see the underdevelopment not as the self-created problem of the underprivileged nations but as the result of exploitation of the underprivileged by the privileged.

They tend to define the developmental problem as the removal of the exploitative relation between the privileged and the underprivileged. Consequently, they tend to be holistic in their approach to international development.

Part of structural theorists conception of international development is the idea that inequality between nations is sustained by the dependence of the underprivileged on the privileged. Thus, some structural theorists see underdevelopment not only as attributes inequality gap between the privileged and the underprivileged but also as the dependence of the latter on the former. The concept dependence is complex, but whichever way it is viewed, it can be resolved into the reliance of the underprivileged on the privileged in their social interactions.⁴¹

Johan Galtung is the foremost structural theorist among those who conceive the problem of international inequality in its dual senses of attributes inequality and interaction inequality. Galtung's theory of social inequality is complex and it is discussed fully in chapters II and III. Essentially, the theory is set in the rank-dimension framework and conceives the international system as a stratified system of the feudal kind. By stratified system is meant the fact that both units and groups of units of the international system (nation-states and groups of nation-states) are "conceived of as constituting higher and lower differentiated strata in terms of

⁴¹See chapter III for further discussion of this idea.

some specific or generalized characteristic or set of characteristics."⁴² A feudal system is a stratified system which displays two structural properties: first, the system is rank-concordant, meaning the particular sets of characteristics which differentiate the units of the system into higher and lower strata are heavily concentrated in the higher stratum and very scarce in the lower stratum; and second, the interaction patterns between the units of the system are interaction-dependent. Interaction-dependent means interaction intensities and directions depend upon rank.

Interaction between units of the system is most intense between the units in the higher stratum, followed by interaction initiated by the higher stratum toward the lower stratum, the next intense interaction being from the lower to the higher stratum; and the least intense interaction being between units of the lower stratum.

Galtung's basis for differentiating the units of the system into higher and lower strata is the degree of relative equality and inequality, or the amount of "social justice", that exists between the units of the system with reference to the units' aggregate possession of the output values of the system.

The part of Galtung's theory which is of immediate relevance to this study is the model's treatment of the dynamics of social movement from a feudal system, where the level of equality between

⁴²Seymour Lipset, "Social Stratification: Social Class," in David L. Sills (ed.), International Encyclopedia of Social Sciences, XV (1968), 297.

units is low to an egalitarian system, which is defined by low rank-concordance and low interaction-dependence, and which as the name suggests, has a high level of equality.

Galtung argues that systems left to themselves will remain or will return to the feudal state, since this is the most stable system. He posits that if we do not want systems to remain feudal then one of two conditions must be fulfilled. The first is that the units of the lower stratum should increase their rank at the expense of some of the higher stratum units. The other is that the lower stratum units must associate more, that is, intensify interaction among themselves, to strengthen themselves relative to the units of the higher stratum. Thus, we see that a world that is becoming more egalitarian will be one where the poorer and weaker nations are gaining more of the system's output over a period of time and where the interactions between these nations are intensifying relative to other possible interactions between the units of the system.

Galtung further states that the movement from the feudal system to the egalitarian system may occur via the class or the mixed system. The class system is defined as the situation where attributes distribution between nations is still highly rank-concordant but where the interaction pattern between the privileged and the underprivileged is low on interaction-dependence. The mixed system is defined as the situation where attributes are evenly distributed between the units of the system, but underprivileged units interactions are still highly dependent upon the privileged nations.

It must be emphasized that the feudal-egalitarian transition of social systems is defined by decreasing rank-concordance and

decreasing interaction-dependence; and that a comprehensive study of a social transformation expressed in terms of equality changes between units must incorporate the attributes as well as the interaction aspects of equality. The reason for considering both aspects of equality is simply that, as we have seen above, the two aspects of equality together define a social system as possessing optimal equality or optimal inequality.

This study takes the view that an underdeveloped system is a feudal system and a developed system is an egalitarian system and hence a developing system is one in which rank-concordance and interaction-dependence both tend from high to low over time. A system is considered to be developing fully only if it shows changes in both the feudal-mixed and the feudal-class directions. If a system shows change in only one direction, it is considered to be only "partially developing." I, therefore, posit that: the international system did not develop between 1960 and 1970 to the extent that the system did not become less rank-concordant and less interaction-dependent; and that African nations did not develop during this period to the extent that they did not contribute to these changes.

This study will, therefore, consider the interaction aspect of inequality as well. The interaction indicators that will be used in this study are fully discussed in chapter VI, especially in section 6.5. They are:

1. Structure of Diplomatic Representation.
2. Partner Concentration Index.
3. Commodity Concentration Index.

4. Trade Composition Index.

The tools used to analyse the interaction data, discussed in chapters VI and VII, were selected in their ability to measure and compare changing intensities of interactions among underprivileged nations and interactions between underprivileged and privileged nations between 1960 and 1970.

Galtung refers to the higher stratum of the hierarchy of nations as Centre and the lower stratum as Periphery. The Centre differs from the Periphery in that the former possess disproportionately more of the attribute values than the latter and also, as will become clear in chapters III and VI, the Periphery interact less among themselves and more with the Centre. Thus, a feudal international system is one where the attributes gap between the Centre and the Periphery is very large and the Periphery's mutual interaction is very low compared to their interaction with the Centre. Conversely, an egalitarian international system is one where no attributes gap (or very little attributes gap) exists between the Centre and the Periphery and where the Periphery interacts as much (or nearly as much) among themselves as they do with the Centre.

Thus, when I state that my major concern in this study is to provide an analytical examination of international development during 1960-70, I essentially mean to analyse the extent to which the equality gap between the Centre and Periphery narrowed and the extent to which the Periphery's interaction-dependence on the Centre decreased during the period. I intend to discuss and critically analyse the trends that characterized the distribution of the attribute values between the nations of the Centre and the Periphery as well as the changing

patterns of interaction within the Periphery and between the Periphery and the Centre.

In conclusion, the reader should also note carefully that this study is an exploratory one. My goal is to establish some first approximations of the trends and patterns that seem to characterize international and African development experiences in terms of more equal distributions of attributes and interaction patterns. Any effort of this nature—both because of its dimensions as well as its exploratory nature—is fraught with severe methodological problems. These problems are fully discussed in chapters IV and VI. Despite these difficulties, I believe that the need for at least tentative answers to the international development questions raised in this study is so great as to justify the effort.

CHAPTER II

DIALECTICS OF NATIONAL INTEREST: A STRUCTURAL INTERPRETATION OF THE POLITICAL ESSENCE OF INTERNATIONAL DEVELOPMENT

2.1 The Contemporary International System

One historical international system is said to differ from others because some prominent features and phenomena present in one are hardly noticeable or even absent in the others.¹ The post World War II international system is undeniably distinct from any previous such system. None of the preceding international systems created an arsenal of over-kill through nuclear weapons, bluffed with these deadly weapons, divided itself into contending ideological halves and irresponsibly fought a senseless cold war to decide which side was going to "bury" the other. The unpleasant spectacle of pockets of human dignity existing in the mass of human indignity—oppression, exploitation, poverty, ignorance and disease—reached its intolerable height during this historical period.

But then in no previous international system did men have the courage, and the sense, to choose mass human dignity above mass human indignity.² In the contemporary international system, men have

¹It is now very much appreciated in the international relations field that one historical system is unlike another and that noting these differences and studying how one system changes into another should perhaps be the core concern of the discipline for both theoretical and policy formulation purposes. See Stanley Hoffmann (ed.), Contemporary Theory in International Relations (Englewood Cliffs, N.J.: Prentice Hall, 1960), pp. 171-190 and J. W. Burton, International Relations (London: Cambridge University Press, 1967), pp. 5-28.

²See Harold Lasswell, "Foreward," in Charles Taylor (ed.), Aggregate Data Analysis (Paris: Mouton and Co., 1968), p. 16.

consciously decided on development as a goal. A significant number of actors in the contemporary international system have chosen to perpetuate what is dignifying to man and to make them available to all men.³ Falling within this contemporary international commitment is the desire to move the international system from a state where the degree of equality between nations is very low to one where the degree of equality between them would be very much higher. And by equality we mean, among other things, the even distribution of the scarce values of the international system among the nations of the world as well as the even distribution of interaction initiatives and intensities between pairs of nations within the system.

When historians of the future come to evaluate the distinctiveness of contemporary international system they will most probably dismiss the nuclear weapon phenomenon and the cold war facts as careless adventurisms into insanity. They must, however, praise concern in that system for international development. The importance of international development to future historians would derive from the fact that its aims related directly and bore decisively on the quality of life of the peoples of the "underprivileged nations" of the world, who account for about two thirds of humanity.

In another respect international development would be even more lauded. It is that the idea of international development was

³See Bruce Russett et al. (eds.), World Handbook of Political and Social Indicators, pp. 5-6.

bred by the universal realization, the first time in the history of man, that the excessive inequality between nations and the seemingly sempiternal exploitation of man by man, group by group, and nation by nation were unethical because they restrained the full realization of human potential.⁴ International development is part of the attempt to make the reduction, or even the removal, of these social injustices a finite goal, a moral end, indeed a moral excellence, to be consciously pursued at the international level.

When, therefore, we come to discuss international development the question that will not be discussed is whether or not it is a good thing, a desirable thing. In this regard, the natural and the important questions to raise relate to how to achieve the august aims of this process in the shortest possible time.

Scholarly effort to answer this question has an interesting, but largely irrelevant history. A large part of the effort has been concentrated in economics. The economic writings on this subject, with the exception of a few,⁵ have tended to be narrow and tactical in form rather than broad and strategic. Mainstream political

⁴Johan Galtung discusses these ethical considerations in his "Violence, Peace and Peace Research," Journal of Peace Research, VI, No. 3 (1969), 170-171.

⁵The few exceptions include Paul Barran, The Political Economy of Growth (New York: Monthly Review Press, 1962); Pierre Jalée, The Pillage of Third World (New York: Monthly Review Press, 1968), and his The Third World in World Economy (New York: Monthly Review Press, 1969); Harry Magdoff, The Age of Imperialism: The Economics of U.S. Foreign Policy (New York: Monthly Review Press, 1969); Gunnar Myrdal, Economic Theory of Underdeveloped Regions (London: Methuen, 1965).

scientists should have been in the forefront tackling the broad strategy of this huge problem. Instead, they have shied away from this worthy obligation and, when they have attempted to say something on it, they have been uninspiring and meaningless. The few relevant writings on this subject have come from political scientists who are considered on the periphery of the discipline.

Political scientists did neglect this area of concern for a variety of reasons. Part of the neglect is explained by the fact that traditionally political scientists have viewed the international system as not being political enough for their tastes, because the system at that level lacks a clearly identifiable authority which allocates values of that system. To many political scientists, the international system is identified as being in a state of anarchy and therefore not fit for a meaningful treatment in the context of orderly value-allocation.⁶

One would have expected international relations scholars, because of their familiarity with the international system, to be more concerned with the issues under discussion. But one comes with such expectations only to be disappointed. When international relation scholars turn their attention to the problems of international development, they have usually begun analyses

⁶See Fred Riggs, "International Relations as Prismatic System," World Politics XIV No. 1 (October, 1961), 144-182, and Chadwick Alger, "Comparison of Intranational and International Politics," American Political Science Review, LVII, No. 2 (June, 1963), 406-419.

from premises which tend to see the international system in its imagined anarchic state and have gone on from there to discuss the problems and issues of international development in terms of the inherent circularity of the "power theory."

It is doubtful that the international system is best conceived as anarchic, that the search for power exhausts the pre-occupations of the actors in the system, and that values are not allocated in the absence of an identifiable authority.

What political scientists and international relation scholars have left largely undone, political sociologists have attempted to do. Prominent among the latter whose contributions in this field are invaluable and worthy of comment are I.L. Horowitz, J.P. Nettl, Roland Robertson, Andrew Tudor, Gustavo Lagos and above all, Johan Galtung.⁷

William Mitchell suggests in connection with the presentation of his paradigm for the new political economy that political scientists describe their activities in such terms as "who gets what, when and how" or as "authoritative allocation of values," but very "little" research and theory is actually directed to these notable, universal choices and events....very little identifies and measures the incidents of benefits which governments create and distribute....We must be able to explain who

⁷Some of these authors are discussed later in this chapter.

gets what, when, how and why."⁸ One reason, Mitchell believes, why we should measure the received benefits "is to resolve the 'power attribution' dilemmas...; perhaps it is more useful and easier to determine power structures by who gets what and how much of the output, than to identify power by who governs."⁹

Mitchell's view is very pertinent to concerns about how to reduce international inequality. It directs our minds to analyse the problems of inequality, in the international system, in simplified systemic terms. We can say that the source of inequality resides in inequality in environmental inputs of the system and/or in inequality in the ability to influence the "rules of the game" and the international political process as such. Therefore, it seems clear that the starting point from which to study how the inequality in the international system could be decreased should be the study of the sources of the structural inertia which constrains the system from moving toward equality.

This paper posits then that international development involves allocation or re-allocation of the international system's output values in favour of the underprivileged

⁸William Mitchell, "The Shape of Political Theory to Come: From Political Sociology to Political Economy," American Behavioral Scientists, XI, No. 2 (November-December, 1967), 8-37.

⁹Mitchell, American Behavioral Scientists, XI, No. 2, 14.

nations and hence it is political par excellence in essentials. It assumes that a peaceful re-allocation of these values in favour of the underprivileged means, in essence, the willingness of the privileged group of nations to give to the underprivileged; and the ability of the underprivileged to keep for themselves large parts of the outputs which previously went to the privileged.

We propose to discuss these assumptions through the review of the major writing on this subject in order to suggest the most useful approach to the study of the policy problems associated with the important question of how to develop the world.

2.2 Political Essence of International Development

International development, as we have mentioned above, is primarily political. This becomes clear when we view politics not merely as the allocation of values, but when we view it processually as the politics of this allocation. International development is political not merely because it involves the allocation of resources; it is political because the political/essence of this allocation resides in the strategy of the allocation. The political essence of international development resides in how the allocation is done so as to answer the questions entailed by the why, who and when implications of international development.

This position becomes even clearer when we view international development not so much in terms of the kind of end being sought, but as a strategy-forming chain of tactical decisions, or a process, leading to the distribution or the redistribution of the output values of the international system. If we view international development as a goal-directed process and conceive politics analytically, as the relevant aspects of all actions concerned with the function of the collective pursuit of collective goals,¹⁰ then as Talcott Parsons puts it, "if commitment to the collective goals may be considered as given, at the relevant levels, political judgement must concern the probability that implementative measures will in fact bring about the desired changes; that is, one must judge whether the available resources are adequate and the organization of their use competent."¹¹

At all levels of analyses, the political dimension lies not so much in what goals are attained or in what resources are allocated as in how the goals are attained or how the resources are allocated. The political dimension lies more in the way and manner in which the actors behave in pursuit of the chosen goals. It is true, of course, that how much actors possess of the end sought would dictate

¹⁰Talcott Parsons, "The Political Aspect of Social Structure and Process," in David Easton (ed.), Varieties of Political Theory (Englewood Cliffs, N.J.: Prentice Hall, 1966), p. 171.

¹¹Easton (ed.), Varieties of Political Theory, p. 173.

their behaviour in pursuit of the end; but precisely the point being made here is that political problems, do not reside primarily in the end as such but in the ways and means which actors adopt to attain the end. The end sought, once stated, ceases to be the prime concern of political analyses. The end, and its choice, may be viewed as the pre-political considerations out of which flow the political problems of how to achieve the stated end.

Ali Mazrui sums up this interpretation of the political very well when he said "the soul of /International/ development does not reside in the end, it resides in the means."¹² The political end is related to the political means only because the end helps define the political problem by showing the distance, or the difference between the prevailing situation and the desired situation. The end helps in measuring the political problem and in measuring political achievement.¹³

It is when we come to discuss the chain of strategic decisions or the implementative measures needed to attain

¹² In an address at the Canadian Association of African Studies meeting held at Carleton University, Ottawa, February, 1973 L. Adele Jinadu interprets Franz Fanon as holding a similar view. See his "Some Aspects of the Political Philosophy of Franz Fanon," African Studies Review, XVI, No. 2 (September 1973), 255-289.

¹³ The political problem as defined by the distance between the situation and the end concerns itself with such questions as: What is the problem? How best is it solved? How far has the problem been solved? Indeed, it is in the contexts of such questions that a discussion of whether or not "the end justifies the means" has relevance.

the postulated end of international development that scholarly contributions by political scientists display their weakness and their potential strength.

The few political writings which have addressed themselves to the essential dimensions of this process have attempted to show its fundamental political nature. They have sought to point out that the diverse issue areas¹⁴ within international development have a political core.

Most of the issues within international development revolve around the power relations between nations. Power, whose functional aspect is influence, defined as the ability to get people to do what they would not otherwise do, is seen here as the central concept in politics among nations.

No contemporary writer has expressed the political nature of the issues involved in international development more clearly and forcefully than Hans Morgenthau. In

¹⁴James Rosenau in his essay "Pre-Theories and Theories of Foreign Policy" in R. B. Farrell (ed.), Approaches to Comparative and International Politics (Evanston, Ill.: Northwestern University Press, 1966), pp. 27-92 conceives the concept issue-area to consist of (1) a cluster of values, the allocation or potential allocation of which (2) leads the affected or potentially affected actors to differ so greatly over (a) the way in which the values should be allocated or (b) the horizontal level at which the allocation should be authorized that (3) they engage in distinctive behaviour designed to mobilize support for the attainment of their particular values. That is an issue-area calls forth from participants, in the values allocation, distinctive motives, actions and interaction.

discussing the role of foreign aid in economic development, Morgenthau raises the point that foreign aid has been the primary area for theoretical analysis and speculation by the economists, who tend to look at foreign aid as though it were "self-sufficient technical enterprise to be achieved with the instruments, and judged by the standards of pure economics."¹⁵ He rejects this view and concludes that:

The problem of foreign aid is insoluble if it is considered as a self-sufficient technical enterprise of a primarily economic nature. It is soluble only if it is considered as an integral part of the political policies of the giving country.... In this respect a policy of foreign aid is no different from diplomatic or military policy or propaganda. They are all weapons in the political armoury of the nation.

As military policy is too important a matter to be left ultimately to the generals, so is foreign aid too important to be left...to the economists. The expertise of the economist must analyse certain facts, devise certain means, and perform certain functions of manipulation for foreign aid. Yet the formulation and overall execution of foreign aid policy is a political function. It is the province of the political expert.¹⁶

When Morgenthau says this he does not mean that foreign aid cannot be motivated by purely economic, humanitarian, military or prestige reasons. His position is that, the principal factor, however viewed, is the gain in

¹⁵Hans J. Morgenthau, "A Political Theory of Foreign Aid," American Political Science Review, LVI, No. 2 (June, 1962), 304.

¹⁶Morgenthau, American Political Science Review, LVI, No. 2, 309.

power to pursue "national interest." He means further that the political sphere is autonomous and hierarchically superior to other spheres of international relations in that it is the political sphere which performs the co-ordinating and the directing functions of international social life.¹⁷

Another writer who sees the underlying political nature of the economic interpretation of international development is David Baldwin.¹⁸ Baldwin states that despite the myth that the International Bank of Reconstruction and Development (IBRD) is non-political in its dealings with nations, it is very much political in reality. He shows quite convincingly that the IBRD cannot ignore political considerations, despite a formal ban on doing so. The activities of the IBRD affect the distribution of influence both within and among international actors, which means they have political effects. It performs as an international actor when it attempts to get governments—especially those of poor nations—to do what they would not otherwise do.¹⁹

¹⁷Hans J. Morgenthau, Dilemmas of Politics (Chicago, Ill.: McGraw-Hill, 1958), pp. 98-100.

¹⁸David Baldwin, "The International Bank in Political Perspective," in Robert Gregg and Michael Barkun (eds.), The United Nations System and its Functions (Princeton, N.J.: D. Van Nostrand Co., Inc., 1968), pp. 340-350.

¹⁹Gregg and Barkun, The United Nations System and its Functions, p. 340.

The very fact that the International Bank is formally banned from political considerations should alert us to two of the Bank's raisons d'etre. The first is that the framers of the Bank's ruling principles appreciated the primary importance and the omnipresent intrusiveness of politics in the dealings between nations. Secondly, the banning of political considerations would ensure that the political forces and influences, which formed the Bank initially as an institution, will continue to direct its activities along prescribed lines. Gregg and Barkun summarize Baldwin's essay as saying essentially that "redistribution of the world's wealth by international organizations and by the Bank pre-eminently, continues to be controlled by the 'have' states and proceeds largely according to criteria common to their own domestic capital transfer practices."²⁰

This quotation implies the position that, so long as the "haves" continue to control the distribution of the system's output in their interest, the aims of international development are far from being effectively attained. We must admit though, that it is conceivable that incremental gradualism could change the political tenets supporting the IBRD as a redistributive agency and so, in the long-run achieve its redistributive function. When we recall that the tone of Baldwin's essay is one of impatience with the Bank's rules and principles, because they make its

²⁰ Gregg and Barkun, The United Nations..., p. 388.

distributive function ineffective (that is, impatience with the Bank's operational culture), then it should be realized that in order to make the Bank's redistributive function effective, we need to appreciate the necessity of far-reaching political decisions with regard to the Bank's ideology.

Michael Haas,²¹ in an essay on the functional approach to international organizations, spells out the prominent role power plays in international relations in the context of changes in the international system. Haas defines international organization in two senses:²² one, as an institution in which structure is defined by a set of rules, members, agenda, places and times of meeting; and the other, as the co-ordination of parts into a whole. The former he refers to as the formal co-ordination machinery; the latter as the informal co-ordination involving an unwritten system of practices in which units of the system assume such roles as the leaders and non-leaders. The author refers to international organization in this informal and stratified sense as world organization.

Haas hypothesizes that international organizations, as structures in the international system, can be investigated either as dependent or independent variables with respect to world organization. Investigated as dependent variables, international organizations are reflections of world order, but as independent variables international organizations are factors which may alter world organization. That is, they are factors which could reduce the social distance between the

²¹Michael Haas, "Functional Approach to International Organization," in James N. Rosenau (ed.), International Politics and Foreign Policy (New York: The Free Press, 1969), pp. 131-141.

²²Rosenau, (ed.), International Politics and Foreign Policy, p. 132.

leaders and non-leaders or, put in our context, they are factors which could increase the level of equality between nations.

The only thing preventing international organizations considered as independent variables from performing this equality function effectively is the factor of power. The leader-nations have the power and the resulting influence to direct and control the performance of the international organizations in this regard. In Haas' own words, "as an independent variable, it is a factor which may alter world organization. Until states are willing or coerced to surrender their sovereignty to international organizations, however, effects of international institutions will not transform the world polity. Powerful states will keep the effectiveness of international structures within bounds."²³ By "within bounds," the author means no changes will be allowed that would cost the leader-nations their leadership roles, that is result in a comparative reduction in their power and influence.

2.3 The Dialectics of National Interests

Most western political writings on international development, for both analytical and policy purposes, are based on one or the other of the following two broad interpretations of the concept of national interest defined in terms of power.²⁴ Robert Good puts the two

²³Rosenau, International Politics and Foreign Policy, p. 132.

²⁴Hans J. Morgenthau, Politics Among Nations: The Struggle for Power and Peace (New York: Alfred Knopf, 1967), p. 10. This is not the place to sustain a detailed discussion of the concepts "national interest" and "power." For such discussions, see Morgenthau above, his "National Interest and Moral Principles in Foreign Policy: The Primacy of National Interest," The American Scholar, XVIII, No. 2 (Spring, 1949), 207-212 and his In Defence of National Interest (New York: Alfred Knopf, 1951); as well as George Kennan, The Realities

interpretations expertly when he says:

Debates on the national interest proceed from two perspectives. One tends to be policy oriented; the other ethically oriented. Though these two perspectives overlap in the blurred double vision of real choice in real situations....

The national interest as it bears on policy represents a rough guide to, and a restraint on, decision and action. It defines limits of choice beyond which responsible statesmanship must not trespass, because to do so would risk the security, perhaps the survival of the nation....

The second perspective /is / the national interest as a problem in political ethics....It is the problem of reconciling necessity and principle: the necessity is that of protecting the interests of the group for which one serves as trustee, and the principle is that of loyalty to more inclusive values such as justice and inequality for all men. It is the problem of adjusting the moral claims laid upon one by his allegiance to the national community with claims that derive from his loyalty to communities transcending the nation.²⁵

We call the first of the two perspectives of national interest the power school and the second, the moral school. For the power school, the capacity to achieve the ends of policy is seen principally as determined by available power; the ends of policy are evaluated in terms of their contribution toward an increase in the national power to secure the national interest; and again, for the power school, responsible policy-makers not only do, but should see the relations between nations as of necessity power-based.

of American Foreign Policy (New York: W. W. Norton, 1964); Kenneth Thompson, "Beyond National Interest: A Critical Evaluation of Reinhold Niebuhr's Theory of International Politics," The Review of Politics, XVII, No. 2 (April, 1955), 167-188; Stanley Hoffman (ed.), Contemporary Theory in International Relations (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1960), pp. 29-38; and Kenneth Boulding, "The Content of International Studies in Colleges: A Review" Journal of Conflict Resolution, VIII, No. 1 (March 1964), 65-71.

²⁵Robert C. Good, "National Interest and Moral Theory: The Debate Among Contemporary Political Realities," in Roger Hilsman and Robert C. Good (eds.), Foreign Policy in the Sixties: The Issues and the Instruments

Morgenthau sees the relations between nations as predominantly and permanently a matter of power. Baldwin deals with the pervasive nature of power and its intrusion into relations which are supposed to operate outside political considerations. Haas says that the ability of international organizations to change the international system is contingent upon the structure of power relations between nations.

For these authors, the problem of changing the international system, including the capacity to redistribute the international system's output in favour of the underprivileged, revolves round the available power for this purpose. Reading these authors' works, one comes to the conclusion that so long as the world is made up of sovereign nations, some of which are powerful, and thus leaders, and some of which are weak, and the non-leaders, any changes in the status quo can be brought about only through the consent and initiative of the leader-nations.

According to the power school, the strong if they want to remain strong, which they do or should, will not spearhead any changes in the system which will lead to a comparative loss in their power and positions at the top of the hierarchy. This means that peaceful changes in the system are at the whim and caprice of the strong. In short, peaceful changes are impossible outside the approval of the powerful.

One detects, on the part of writings based on power and its relation to national interest, an underlying cynical pre-disposition

(Baltimore, Maryland: The Johns Hopkins Press, 1965), pp. 271-272. This essay is a revised version of Good's "The National Interest and Political Realism: Niebuhr's 'Debate' with Morgenthau and Kennan," Journal of Politics, XXII, No. 4 (November, 1960), 597-620.

toward the possibility of short-term peaceful changes that are not initiated by the powerful nations of the world. In effect, initiative for changing the international system is surrendered to the powerful and it awaits their timing and benevolence.

There is very little doubt that power in pursuit and protection of the national interest is a reality in the relation between nations. It is a reality which nobody the least familiar with the art or science of the international social system would deny. But the question remains whether in the context of peaceful social change the power perspective of national interest is the only important element of concern.

In answering this question, the ethical or moral perspective of national interest becomes relevant to this study. This perspective is fully cognizant of the primacy of protecting the national interest but it seeks to temper this obligation with the moral deductions of enlightened self-interest. This school of thought holds two clearly related views of national interest. The first is that national interest needs not necessarily preclude national self-abnegation in clearly defined situations if such temporary pathological deviations from the direct pursuit of short-term national interest could be seen in the long-run to benefit the national interest. The second view is that, in some cases, it is only morally right to sacrifice the national interest at times if this sacrifice could benefit people other than those of a particular nation.

Some authors have attempted to discuss the problems of international development in terms of enlightened self-interest. These writings attempt to influence policies of nations to recognize the long-term strategic need and the sheer ethical necessity for those who

have to give to those who have not. For example, the "Pearson Report,"²⁶ a report commissioned by the IBRD to study the consequences of twenty years of development, assistance and to propose new policies which will work better in future, urges the developed nations of the world to do more for international development for the reasons that it could contribute to world peace and that it is only right for those who have to give to those who have not. The "Jackson Report"²⁷ on the capacity of the United Nations system for international development is based on a similar premise, that it is morally right, even if in the short-term it is not strategically necessary, to assist the poor nations of the world.

Barbara Ward,²⁸ in her numerous works on world poverty, has one main theme, which is that those who have should realize that it is in their interest to help those who have not because it is mutually beneficial to both, and in any case it is ethically right, for those who have to assist those who have not.

The moral school of thought takes the problem of raising the level of equality between nations and attacks it along what one may call the traditional line of least resistance. Very few people in the West will deny the moral necessity to help the poor and the underprivileged, because it is a respected and long standing belief in

²⁶ Lester B. Pearson, Partners in Development (New York: Praeger, 1969).

²⁷ Robert Jackson, The Capacity of United Nations (New York: United Nations, 1968).

²⁸ Among Barbara Ward's many books on the subject are: The Rich Nations and the Poor Nations (Toronto: Canadian Broadcasting Corporation, 1966), The Lopsided World (New York: W. W. Norton, 1968), and Toward a World of Plenty (Toronto: University of Toronto Press, 1963).

Western social thought that those who have must give to those who have not. However, the problem in this area is that in the same breath as contemporary Western thinking accepts this principle, it also provides compelling reasons why the help to the poor must not be given at the time, place and in the amount and kind needed.

In this particular context, the moral school believes that the only things standing in the way of meaningful assistance to the underprivileged is that the privileged have not yet grasped the full significance of the ethical and the enlightened self-interest aspects of the issue. How effective the moral appeal for such peaceful social change in the international system would be in the end is not certain. What is certain though, is that it will take a long time to be effective. This school is realistic enough to appreciate the problem of power but at the same time acute enough to conceive it in terms of enlightened self-interest. It seeks to bring about peaceful changes in the status quo but it also seeks to do so with the full participation and leadership of the present beneficiaries of the status quo. This, in effect, makes the moral school, like the power school, leave the initiative for peaceful change to the high ranking members of the system. To leave the initiative there is to slow down the process of change, and perhaps unnecessarily so.

This is so because to the extent that the top nations do not feel that they are threatened by the low ranking nations the appeal to enlightened self-interest will result in tardy changes, or at best, in sporadic bursts of uncoordinated activities. In the present world situation, the gap between the privileged and the underprivileged

nations is so wide that the latter cannot credibly threaten the former. Such was one of the conclusions of an essay by Hedley Bull.²⁹ This conclusion is corroborated by even the most cursory study of the power differential between the privileged and the underprivileged. A thorough study of the trade relations between the poor and the rich by S. Sideri³⁰ states that the poor nations could not hope to gain any meaningful concessions from the rich because the threat the poor pose to the rich is not credible. Sideri's advice to the poor is to leave the international trade institutions in which the two sets of nations interact as the loss entailed in the developing nations leaving such institutions will be less than that entailed in staying in them.

The literature reviewed so far suggests that the power school leads us to a dark and depressing cul de sac so far as international development is concerned. The moral school alternative leads us to propose moral appeals to nations, the positive effect of which is highly remote and improbable. The related alternative, namely the appeal to enlightened self-interest, as we have noted above, is of very low credibility in view of the vast power differential.

The traditional mode of analysing the ways and means of

²⁹Hedley Bull, "Twenty Years' Crisis Thirty Years On," International Journal, XXIV, No. 4 (Autumn, 1969), 625-638. The power differential is so great that Bull suggests the only reason the rich should help the poor is so that the rich can enjoy their comfort in peace.

³⁰S. Sideri, "Prospectives for the Third World," Internationale Spectator, XXV, No. 5 (March, 1971), 469-497.

international development then does not allow us to arrive at a satisfactory answer to the question of how to develop the world. It must be noted, however, that while this mode of thinking does not provide us with a satisfactory answer to this question, it has illuminated the question considerably by providing a tidied version of the problem—the problem of power. Despite their inability to provide satisfactory answers, the contributions of these works to the search for an answer to the question of how to develop the world are immense, for it must be noted that to answer this question its nature and the key factors must be properly understood. Herein lies the contribution of the works reviewed above; they bring out power, national interest, ethics and enlightened self-interest and the relationships between them as some of the key elements involved.

2.4 Primacy of Structures

While these two schools discussed above have dominated the literature on international development, a distinct sociological model, derived from the rank-dimension framework has recently emerged.³¹ Models based on this framework derive their essence from the structural aspects of the international system. They tend to see the underdeveloped state of the world today as mainly due to the structural "deformities" or structural underdevelopment

³¹Reference to this sociological perspective is made by John Walton in "Political Development and Economic Development: A Regional Assessment of Contemporary Theories," Studies in Contemporary International Development, VII, No. 1 (Spring, 1972), 39-63.

of international relations. We can refer to those who hold this mode of thought as forming the structural school.

The structural school, unlike the power and the moral schools, does not believe that effective initiative for international development resides solely with the powerful. It believes that while the "power problem" is real, it need not eliminate international development as a feasible proposition. It regards moral appeals to the powerful and the realization by them of their inherent self-interest in the developmental phenomenon as only contributory but not the key factors. This school holds the view that a structural analysis of the international system would reveal that patterns of behaviour, values and ideologies which define the world as underdeveloped are structure-bound. It suggests that with the structural aspects of the international system properly understood it becomes clear that the poor and the weak nations of the world through changing, among other things, their interaction patterns, can take the initiative to change the international system from its structurally underdeveloped state to a relatively developed state.

In short, while the structural school realizes the reality of power, in pursuit of national interest, it seeks neither to capitulate before it nor evade it. The foremost theorists using the structural model to study international development are Johan Galtung and his associates in the Peace Research Institute (Oslo).³²

³²Galtung's writings which are of relevance to this study include: "International Relations and International Conflicts: A Sociological Approach," Transactions of the Sixth World Congress of Sociology, 1, (1966), 121-161; "Entropy and General Theory of Peace," Proceeding of the International Peace Research Association, 1, (1968), 3-37; "A Structural Theory of Integration," Journal of Peace

Both the power and the moral schools do not question the causes of the existing inequalities. Their analyses of the problem do not question the structures which breed and support the existing inequalities between nations. Having seen through the power school that the problem of power is real and through the moral school that the power problem cannot be conveniently circumvented, the theoretical problem then becomes one of reducing the power differential between the high-ranking and the low-ranking nations.

A possible interpretation of this theoretical position could be to study how the structures which support the power relationships between nations can be influenced in such a way as to blunt the edges of power. Realizing that the top dogs will not voluntarily initiate the dismantling of the power-supporting structures, a further interpretation could be to achieve this by increasing the bargaining positions of the underprivileged nations.

This latter point could mean the shifting of the initiative for change from the powerful nations to the weak ones. This would mean the underprivileged nations would pressure the privileged to act and as a result force the latter to weigh the cost of compliance against that of non-compliance. The net effect of this would be to

Research, V, No. 4 (1968), 375-395; "East-West Interaction Patterns," Journal of Peace Research, III, (No. 2, 1966), 146-177; "Violence, Peace and Peace Research," Journal of Peace Research, VI, No. 3 (1969), 167-191; "Structural Theory of Imperialism," Journal of Peace Research, VIII, (No. 1, 1971), 81-117; and "Rank and Social Integration: A Multi-dimensional Approach," in Joseph Berger, Morris Zelditch and Bo. Anderson (eds.), Sociological Theories in Progress I, pp. 145-198.

get the powerful nations to reckon their self-interest in terms of the objectives of international development.

To conceive the problem in terms of the poor pressuring the rich is to conceptualize it in terms of "bargaining situations."³³ Such a conception allows us to maintain the essentially political nature of the problem and at the same time to remove it from the perspective of initiative by the powerful to the perspective of initiative by the weak. This change in perspective does not promise any comfortable escape from the imponderables about power. The advantages which the powerful possess in the system's processes will still largely remain.

For example, there are many ways in which the powerful nations could react strategically to demands initiating from the poor nations. They could respond by way of Total Rejection, which means outright rejection of any such demands as being illegitimate or irrelevant and therefore, not worth consideration. They could attribute the initiation of these demands to insufficient socialization of the underprivileged nations in their subordinate roles and so step up the latter's Induction into their subordinate roles. They could

³³In Gregg and Barkun (eds.), The United Nations System, p. 349 David Baldwin makes this pertinent point: "It has been argued that IBRD operations can be conceived of in terms of the 'bargaining situation' which have been discussed by game theorists. Such conceptualization proves useful in feretting a neglected aspect of IBRD activities.... Failure to think of IBRD operations in bargaining terms largely accounts for the absence of discussion of the political aspects of such operations."

also indulge in Pacification, that is they could accept the principles of the various demands and do nothing concretely about them, hoping that the mere acceptance of these principles would satisfy the poor, at least in the short-run.

Another way they could respond is by way of Tokenistic Amelioration, which means to implement some of these demands, but only those which are the minimum acceptable to the privileged nations without unduly "damaging their position," in other words meaningless concessions. A possible, but highly improbable, response could be Capitulation, meaning total acceptance of all the demands posed.³⁴

These alternative responses still turn on power, national interest and ethics. Except that now when the underprivileged nations initiate demands for changes, the enlightened self-interest of the privileged nations is being consciously fostered. In a word, with the underprivileged initiating demands we have a situation where the "threshold" of the privileged's national interest could be lowered and that of the underprivileged raised. It is the clash between these two sets of national interest which could produce a "mutual self-interest"

³⁴ These possible responses are offered at a high theoretical level. Their closeness to reality is an empirical question. An area where the empirical treatment of these responses could be fruitful is the area of international organizations. If international organizations are viewed as international structures controlled mainly by powerful nations, a study of the gross responses behaviour of these structures to the demands emanating from the environment and initiated by the weak nations could throw some light on this hypothesis. The General Agreement on Tariffs and Trade (GATT) and the United Nations Conference on Trade and Development (UNCTAD) seem to provide rich data for such studies.

or enlightened self-interest in both parties. This is what makes the concept enlightened self-interest assume a new strategic importance for international development.

Viewing the situation this way has other analytical advantages as well. It allows us to remove the problem from the circular power myopia and to discuss it in organizationally structural terms. Organizational and structural variables are much more manipulable and analytically instructive than the gross variable of power, when dealing with the relations between nations, especially if the concern is change in these relations. Most analyses of international relations are concerned with the dimensions of power and economy. It is true that analyses in these terms are in most cases indispensable, but it is also true that the "basis is nevertheless limited relative to the whole spectrum of dimensions that can be brought to bear in international relations."³⁵

It is due in part to this realization that sociology of international relations is gaining a recognized place for itself as an approach within the international relations discipline.³⁶ It is

³⁵Galtung, Transactions of the Sixth World Congress of Sociology, 1, (1966), 121. Charles McClelland has commented in a similar vein when he wrote, "While it [is] generally agreed that the [power] theory is a useful synthesis and covers part of international phenomena, it cannot be accepted as encompassing all the important aspects of features of international life and behaviour and it does not probe as deeply as it should into the realities that it does uncover.", in James N. Rosenau, Vincent Davis and Maurice East (eds.), The Analysis of International Politics (New York: Free Press, 1972), p. 25.

³⁶A useful survey of the influences of sociology on the development of international relations is to be found in Robert Angell, "The Sociology of International Relations: Empirical and Experimental Studies," Transactions of the Sixth World Congress of Sociology, 1,

also in part due to the appreciation of the fact that sociological theory has much to contribute to international relations in the study of the problems of international societal conflict, consensus and change. Morton Kaplan's work³⁷ was one of the first contemporary testimonies of the influence of sociological theory on international relations.

Sociological theory has influenced the study of international relations by focussing on both the process and the structure of international relations. The influence on process has provided tools and insights for the study of the functional aspects of international relations while emphasis on structure³⁸ has almost revolutionized the study of the organizational aspects of international relations. Of the two influences, however, the study of international development has gained appreciably in the last few years from the structural perspective.

(1966), 67-97. This essay is a review of the literature for the period 1950-1964 of empirical and experimental studies in international relations which used "sociological type of analysis." Angell does not give an explicit definition of sociology of international relations but he tentatively conceptualizes it as what sociologists do when they are concerned with the relations among societies.

³⁷ Morton Kaplan, System and Process in International Politics (New York: John Wiley, 1963).

³⁸ The works of Michael Haas, David Baldwin and S. Sideri discussed above are examples of the structural influence of sociology on the study of international relations. See also R. Bernstein and P. Weldon, "A Structural Approach to the Analysis of International Relations," Journal of Conflict Resolution, XII, No. 2 (June 1968), 159-181. In addition, we have the influential works of Gustavo Lagos, Johan Galtung, Roland Robertson and J. P. Nettl. Lagos' and Galtung's works will be discussed in detail later in this chapter.

In fact it is becoming clear, not only in international relations and development but in the whole of the social sciences, that an appreciation of the structure-interaction attributes of a system are very important for the understanding of the state of a system, its maintenance processes as well as the radical changes which could occur within it. Indeed, the feeling seems to be growing that while in the end the changes sought in system are changes in the individual—changes in his perception, images, beliefs and in his behaviour—perhaps the direct study of action should take second place to the study of the structures and interactions which mould and give meaning to actions.

For example, David Singer³⁹ has reconsidered the concept "system" explicitly in the context of the general systems taxonomy. In his statement of the distinction between the "system-of-action" and the "system-of-entities" schools of thought, Singer strongly recommends the latter, as the right mode of analysis of social systems. Singer prefers the "system-of-entities," i.e. the structural approach because it suggests the building of models around individuals, groups, associations or aggregations of people.

Morton Kaplan's heuristic model upon which he bases his analytical theory as a research tool to study systems maintenance and systems change is a good example of the structural influence on the field of international relations. In this work, Kaplan attempts in the first part to "describe alternative possible international systems

³⁹David Singer, A General Systems Taxonomy for Political Science (New York: General Learning Press, 1971).

and to specify the environmental circumstances under which it is likely to be transformed into one of the other systems....These systems may be arranged along a scale of integration. The conditions under which these systems retain stability and the different transformations which can be expected in their behaviour if conditions change are stated."⁴⁰

The "conditions," and their transformations, on which Kaplan bases his ideas of change are cast predominantly in structural terms. Behaviour, which is strongly linked with norms, values and beliefs, is presented as structure-bound.

The aspect of structural influence of sociology which has affected the field of international development in particular in the past decade has been the sociological theory of stratification. The authors who have used the stratification model to illuminate the field in the last few years include Gustavo Lagos, Johan Galtung, Roland Robertson, J. P. Nettl, I. L. Horowitz and S. Sideri.⁴¹ Nettl and

⁴⁰ Kaplan, System and Process in International Politics, p. 1.

⁴¹ The major works of these authors have been cited above in this chapter. In addition we have: Roland Robertson, "Strategic Relation between National Societies: A Sociological Analysis," Journal of Conflict Resolution, XII, No. 1 (March 1968), 16-33; Roland Robertson and Andrew Tudor, "The Third World and International Stratification: Theoretical Considerations and Research Problems," Sociology, 11, No. 1 (January, 1968), 47-64; J. P. Nettl, "Centre and Periphery in Social Sciences: The Problem of Political Culture," American Behavioral Scientist, IX, No. 10 (June, 1966), 39-46; Gustavo Lagos, "The Role of Regional Economic Organizations in Latin America," in Robert Cox (ed.), International Organization: World Politics (London: Macmillan, 1969), pp. 59-73 and his "International Stratification and Atimia," in Richard A. Falk and Saul H. Mendlovitz (eds.) The Strategy of World Order, IV: Disarmament and Economic Development (New York: World Law Fund, 1966), pp. 572-605. For a good review of some of the works in structuralist sociology of international development see

Robertson describe the stratification model as distinguished by

its departure point of regarding all systems of human interaction as susceptible to analysis as, if not actually characterized solely in terms of, series of ranking system—that is the ranking of social units, from individuals to nations. Thus small-group systems, societal systems and international systems are all analyzable in the same terms and theories are tested and established on the basis of generalization across all "levels." Any conception of the structure of the international or any other system must accordingly revolve around the latter's system of stratification.

The two authors add,

this does not mean that phenomenon not intrinsically bound up with systems of rank-ordering receive no attention, but rather that they receive attention in terms of the system of ranks and the patterns of interaction postulated as being characteristic of different types of stratification system.⁴²

The most notable authors in this area of study are Lagos and Galtung. We shall devote the remaining pages of this chapter to the critical presentation of Lagos' stratification model and to the adumbration of Galtung's model in order to lay the groundwork for the theoretical under-pinnings of this study to be discussed fully in chapter III.

Gustavo Lagos casts his pioneering work in sociology of international relations in structural terms, even though as we shall see soon in this chapter he neglects the structural aspects and develops

David Riddell, "Toward a Structuralist Sociology of Development," Sociology VI, No. 1 (January, 1972), 89-96. The review deals with works of M. Barratt Brown, Andrew Gunder Frank, Pierre Jalée, Harry Magdoff, B. Nirumand and R. Rhodes.

⁴²Nettl and Robertson, International Systems and the Modernization of Societies, p. 143.

his arguments in terms of the Parsonian "systems of action" orientation.⁴³

He begins this work by stating that the problem of human inequality, of social stratification, continues to be an essential question but its terms of reference have been widened and transformed. Lagos believes that while in the past the problem of inequality among social classes was considered an intranational phenomenon, since the second half of the twentieth century, both political leaders and an increasing number of authors have pointed out that the problem of inequality among nations is a matter of major concern. Lagos establishes early in this work that a relationship of subordination and dependence of the underdeveloped areas has been created with respect to those that are developed; a structure of superordination and subordination that is typical of a system of social stratification.

He proposes that it is within the international framework that underdeveloped areas must find the instrumentation to solve the problem of their comparative lower standard of living. "In essential terms, this instrumentation is financial, scientific and technological assistance that the industrialized countries can provide the underdeveloped countries to promote their national development."⁴⁴

The theoretical point of departure for Lagos' study is sociological theory's finding that every system of social stratification is the product of the interaction of social differentiation and social

⁴³Lagos, International Stratification and the Underdeveloped Countries, p. 4.

⁴⁴Lagos, International Stratification and the Underdeveloped Countries, pp. 5-6.

evaluation. He assumes that,

"the nations of the world can be considered a great social system composed of different groups interacting and that these national groups occupy various positions within the social system. These positions can be ranked in terms of economic stature, power and prestige and they constitute the status of the nation. Each nation occupies various positions in these three patterns; thus we may speak of the status of a nation from the viewpoint of its economic stature, of its power or of its prestige, and the relative positions of these three ratings may very well not coincide....The real status of the nation is determined by the complex that results from the distinct positions of the previously mentioned ratings, that is to say, its status set....Consequently, the system of international stratification would be the result of the differences between the various nations appraised in terms of the prevailing values.

The values are precisely those of economic stature, power and prestige, and the great distances that now separate the underdeveloped areas from the more advanced nations have been created through the growing differentiation of economic stature and power so as to present repercussions in the pattern of prestige."⁴⁵

In this stratified international system, Lagos believes, prestige would be determined by two factors: (1) by the synthesis of the status of a nation on the levels of power and economy; and (2) by the accord between the international conduct of the nation and the value orientation of the international system. For these reasons, the two hypotheses supporting Lagos' work are that the prestige of a nation will be greater as its economic and power status increase; and that the value of orientations of an international system play an important role with respect to prestige, because while power and economic strength are the main values in the international system,

⁴⁵Lagos, International Stratification and the Underdeveloped Countries, pp. 6-10.

in addition, there exist other value-orientations determined by democratic values, national independence, self-determination and equal rights for all nations.

What the author calls a nation's real status is contrasted with a nation's formal status. The concept formal status of a nation derives from the legal equality endowed all nations by international law by virtue of the fact that all nations are sovereign entities and possess supreme authority within their boundaries and from the fact that before the law none can be subordinated to any other in the exercise of that authority. As Lagos puts it:

all nations have the same formal status; their positions, their rights, their duties in the system of international relations are the same. The achievement of these rights and duties is not influenced by size, population, wealth, historical age, military power or political power.

In opposition to the formal status of the nation, the real status is found. While the first is derived from the equalitarian ideology, we have seen that the second is derived from the position that the nation occupies in the system of international stratification in its three basic variables economic stature, power and prestige. While in agreement with the first concept—all nations are equal—the structure of the stratified system also determines relationships of superordination and subordination among nations.⁴⁶

It is the difference between a nation's real status and its formal status that Lagos describes by the concept atimia. In his own words,

⁴⁶Lagos, International Stratification and the Underdeveloped Countries, p. 23.

there existed /in the past/ less distance between the formal status of a nation and its real status but now, the fact that only a few nations have increased their real status to a considerable fashion has meant a degradation of real status for the rest.

Let us use a Greek word, atimia, which signifies the loss or deterioration of status, to designate this situation, and let us call the evolution or social change that ends in a state of atimia an atimic process. Atimia has manifested itself in various forms. Always its essential characteristic is the lowering of status, but this lowering can acquire total or partial characteristics.⁴⁷

The author classifies all the underdeveloped nations which existed as independent nations when international stratification developed as falling into the lower rungs of the stratification system and so have suffered atimia. Those underdeveloped nations that have gained independence since this system of stratification took form are considered as having been born into "an independent life in an already highly stratified international system." He uses a metaphoric comparison, in describing the system of national stratification, to say that the countries that suffered the atimic process became the lower class in consequence of their atimia, while the countries who recently gained their independence were born into the lower class.⁴⁸

⁴⁷Lagos, International Stratification and the Underdeveloped Countries, p. 24.

⁴⁸Lagos' concept atimia is a useful one rich with meanings. It can be taken to represent these ideas: (1) that all nations are equal in the myth of law but in reality some nations are more equal than others; (2) the contemporary fact that there exists a system of relative deprivation between nations and groups of nations. Nettl and Robertson interpret the concept in this sense in their International Systems and the Modernization of Societies, p. 72; (3) or the idea that once in history all nations were equal in fact but due to the interventions of certain historical events and factors nations are no more equal. This third meaning has some

With reference to the above, Lagos' principal hypothesis for his study is that within the atomic situation, the developing nations take part in diverse international actions and that the total orientation of these actions is the elevation of the real status of these nations. The rise in real status appears to be for the underdeveloped nations the correct interpretation of the international dimensions of their national interest.

It is in order to interpret and to pursue these dimensions of national interest with efficiency that Lagos undertakes to build a model of rational international behaviour of underdeveloped nations in the international system. The purpose of the model is to improve the efficiency of the system of means-ends relationship in the formulation of the foreign policy of these nations. This greater efficiency can only be reached by rationality of action.⁴⁹ This model is based on the rationality of action with regard to ends and so in effect the end is considered as a given fact, "without further inquiry into its rationality or reasonableness. Stated in other words, the term 'rational' is not applied to the end the action pursues but only to

airs of the "state of nature" arguments of contract theory philosophers about it. There is nothing wrong with this meaning, if it is taken as a convenient assumption upon which to base other arguments. While many may doubt the historical validity of this third meaning, some radical political economists attempt to give historical validation to it. Prominent among such political economists are Samir Amin, Walter Rodney, Andre Gunder Frank and Paul Barran. These authors' ideas will be discussed in chapter VIII.

⁴⁹Lagos, International Stratification and the Underdeveloped Countries, p. 165.

the means employed to achieve it."⁵⁰

The upshot of Lagos' model is to provide a "grand strategy" for the kind of international social change which can be referred to as atimia reduction. It is grand in the sense that it is meant to cover the vital aspects of social activity. "The role of this 'grand strategy' is to coordinate and to direct all the resources of the nation toward the achievement of a change in the style of life which makes possible the functioning of an economy with self-sustained growth."⁵¹ The basic structure of the model is constructed around those elements of the "grand strategy" which require a planning of the international actions of an underdeveloped country for the "achievement of its primordial purposes: (1) the creation of an economy of self-sustained growth; and (2) the modernization of the style of life."⁵²

⁵⁰ Lagos, International Stratification and the Underdeveloped Countries, p. 170. The end in this case is the pursuit of national interest defined in terms of the reduction of atimia, which is expressed in terms of economic stature, power and prestige. This makes the model not only rational but also realistic in that it recognizes the fact that any responsible leader of any country should first look to national security and national interest before other considerations. At this stage of the analysis, in order to emphasize the realistic nature of his study, Lagos paraphrases Reinhold Niebhuur as saying "if the underdeveloped nations fail in their attempt to raise their real status, and consequently their levels of living, their failure may in part be attributed to the strategic faults of the 'idealists', who have many illusions, when they encounter themselves fact-to-face with the realist, who have very little conscience." Lagos, p. 172. It is this realistic distinction between the end and the means which we have extended to mean the 'pre-political considerations' and the 'political considerations' respectively above. See also Chapter IV below.

⁵¹ Lagos, International Stratification and the Underdeveloped Countries, p. 220.

⁵² Lagos, International Stratification and the Underdeveloped Countries, p. 221.

An important matter must be raised regarding "values" with reference to the structural effects of the stratified system on the values of the developing nations. It must be stressed that these nations have to learn to act rationally toward the end of raising their real status. This point is important because after some years of atomic existence, there are some norms of behaviour that the atomic nations have to learn in order to perform their subordinate roles.⁵³ This is what structuralists mean when they say behaviour is structure bound. The very nature of norms, thought patterns, fears, hopes and expectation of atomic nations, are such that all being equal they tend to support and maintain the stratified nature of the system in the short-run. Lagos does not give this idea the same analytical prominence he gives to rational action toward raising real status. He does refer, however, to this matter when he writes,

although...conflict between rationality with respect to ends and rationality with respect to values...is eliminated from [the] model, this does not mean that the model excludes the analysis of the role of value orientation and the normative framework implied in them. On the contrary...they play an important role as orientation of the international stratified system and as norms of behaviour for the policy makers.⁵⁴

He adds later, "but at the same time, the greater or lesser disposition

⁵³This phenomenon is what Simon Schwartzman describes as the "sociological condition." See his "International Development and International Feudalism: The Latin American Case," Proceedings of International Peace Research Association, 1, (1966), 52-77.

⁵⁴Lagos, International Stratification and the Underdeveloped Countries, p. 173. To illustrate this point, Lagos gives an example where an atomic nation follows a high-ranking leader-nation simply because of the tradition of "always having done so," p. 169.

that an underdeveloped nation has to carry out a system of international action destined to raise its real status effectively depends on the greater or lesser knowledge that its policy-makers have of the existing stratified system."⁵⁵ Implied in this quotation is the idea that old values must be unlearned and new ones learned in order to make the rational pursuit of national interest, defined as the pursuit of raising real status, loom as the only real choice for the developing nations.

Thus, we see that Lagos begins with the problem of how to raise the real status of developing nations and ends with a "grand strategy" which Robert Gregg has referred to as "an architectonic plan for transforming the underdeveloped countries."⁵⁶ The two main planks in this architectonic plan are: (1) the creation of a self-sustained growth and (2) the modernization of the style of life. The two factors are probably related and positively so. Lagos' subordinates the military and prestige components of his "grand strategy" to the economic component. The military and the prestige components must not conflict with the economic because "policies of military power...cannot achieve an elevation of real status and policies of prestige must be carefully tailored to fit the country's economic status."⁵⁷ Amitai Etzioni,

⁵⁵Lagos, International Stratification and the Underdeveloped Countries, p. 179. Emphasis added.

⁵⁶Robert Gregg, "'Atima' and What to Do About it," Journal of Conflict Resolution, VIII, No. 2 (June, 1965), 195.

⁵⁷Gregg, Journal of Conflict Resolution, VIII, No. 2, 196.

reviewing Lagos' work, has remarked that Lagos does not develop sufficiently the potentially promising line of examining the consequences of status inconsistency of a country rich but weak, poor but honest.⁵⁸ That is, Lagos neglects conflicts arising out of a partial atimia. This means Lagos does not emphasize the potential conflict aspects of the process of atomic reduction.

This critical observation has led Etzioni to remark, "while [Lagos] starts on a Weberian note, offering three independent sources of status he ends on a more Marxist note, implying that in the 'long-run' the economic status determines the two others. This is unfortunate because it deprives his model of its major dynamic force, the consideration of strains resulting from status inconsistency."⁵⁹

With reference to the criticism regarding the subordination of the other statuses to the economic, it is fair to say the pre-eminence of the economic factor seems deeply rooted in the realism of to-day's "order of things." As Lagos himself puts it, when he aptly paraphrases Eugene Black, "the rationality of the economically oriented system is in accord with the value-orientation derived from the ideology and the 'diplomacy of economic development' that the United Nations, its specialized agencies, international institutions in general, the two rival blocs, and the neutral world have contributed to create, transforming it into the 'theme of our times'".⁶⁰

⁵⁸ Amitai Etzioni, Review of International Stratification and the Underdeveloped Countries, by Gustavo Lagos, American Journal of Sociology, LXX, No. 1 (July, 1964), 114-115.

⁵⁹ Amitai Etzioni, American Journal of Sociology, LXX, No. 1, 115.

⁶⁰ Lagos, International Stratification and the Underdeveloped Countries, 199.

With reference to the second criticism, Itzioni's point is well taken. The conflict aspect of this model has been subsequently developed by Johan Galtung in numerous essays, most notably in his essay "A Structural Theory of Aggression."⁶¹ For our purposes, however, Lagos stresses enough of the conflict properties. The realist⁶² qualifications of his model make it conflict laden. The opposing demands of national interests both between and within the developing and the developed nations are conflictual par excellence. As was said earlier in this essay, the confrontations between the various national claims could be viewed as the "dialectics of national interests," an antithetical clash between national interests which could produce the synthesis of enlightened national self-interest in the long-run.

2.5 Essentials of Galtung's Model

Galtung's theory conceives the international system as a stratified system⁶³ of the feudal kind. By feudal system is meant a stratified system which displays the two structural properties of

⁶¹Johan Galtung, "A Structural Theory of Aggression," Journal of Peace Research, 1, No. 2 (1964), 95-119.

⁶²Used in the sense of taking into account power and power credentials of and differentials between nations.

⁶³A stratified system is viewed as a system in which both units and groups of units are "conceived as constituting higher and lower differentiated strata in terms of some specific or generalized characteristic or sets of characteristics." Seymour M. Lipset, "Social Stratification: Social Class," in David L. Sills (ed.), International Encyclopedia of the Social Sciences, XV, (1968), 297. In his earlier works, Galtung referred to the low and high groups in a stratified system as Underdogs and Top dogs, respectively. Lately they appear as Periphery and Centre.

high rank-concordance and high interaction-dependence.⁶⁴ A rank concordant system is one where the particular sets of characteristics which differentiate the units of the system into higher and lower strata are heavily concentrated in the higher stratum and very scarce in the lower stratum. An interaction-dependent system is one where interaction intensity between unit-dyads, or group-dyads, of the system are dependent upon rank. That is, in such a system, units which interact most interact more among themselves than with other units, and units which interact only a little interact even less among themselves.⁶⁵

The structural opposite of the feudal system is the egalitarian system, which, as the name suggests, is defined by low rank concordance and low interaction dependence. The mixed and the class systems straddle the feudal-egalitarian continuum. The mixed system is defined by low rank-concordance and high interaction-dependence while class system is defined by high rank-concordance and low interaction-dependence.

From the above one could discern that Galtung's basis for differentiating units of the international system into higher and lower strata are the degrees of relative equality or inequality, the amount

⁶⁴In his essay "Entropy and General Theory of Peace," Proceedings of the International Peace Research Association, 1, (1968), 3-37, Galtung defines feudal systems in terms of low actor entropy and low interaction entropy. These two concepts are discussed in Chapter III.

⁶⁵For further discussion of the interaction patterns and their possible sociological meanings, see Johan Galtung's essay in Joseph Berger, Morris Zelditch and Bo. Anderson (eds.), Sociological Theories in Progress I, pp. 142-143.

of "social justice"⁶⁶ that exists between the units of the system with reference to the unit's aggregate possession of its output values and/or the system's relative distribution of interaction intensities.

The dynamism involved in the process of feudal-egalitarian movement is cast by Galtung in terms of decreasing rank concordance and decreasing interaction dependence.⁶⁷ The policy counterpart of this dynamism is expressed by Galtung by two conditions. He suggests that if we do not want systems to remain feudal then these two conditions must be met:⁶⁸

Condition I: The periphery must attempt to increase their ranks along relevant values; and to do so at the expense of some of the centre nations in order to create a mixed system.

Condition VI: The periphery must associate more, i.e. intensify interactions among themselves to strengthen them relative to the centre. This will lead to a class system with two classes, the centre and the periphery, pitted against each other. The periphery can now use their organized strength for one particular and important purpose; to increase the price of the value they contribute to making the position of the centre rank high.

Many empirical questions deriving from these two conditions could be raised. They could include the following:

1. Has there been facilitated mobility along relevant values in the international system?
2. If so, did the increasing mobility affect all nations and groups of nations equally?

⁶⁶In Journal of Peace Research, VI, No. 3 (1969), 170-171, Galtung discusses structural violence which includes the very conditions which support feudal systems.

⁶⁷Galtung, Transactions of the Sixth World Congress of Sociology 1, (1966), 148.

⁶⁸Galtung, Transactions of the Sixth World Congress of Sociology 1, (1966), 151.

3. Has there been increasing interaction within the periphery?
4. If so, did the increase involve all periphery nations equally?
5. Did the facilitated mobility, if any, occur with increasing interaction among periphery units?
6. And, if so, could it be said that the one was the cause of the other?

The first two questions deal with the degree of observed increase or decrease in rank-concordance. They simply seem to discover whether there have been upward mobilities for the periphery on the relevant values either in the system as a whole or in different subsystems within it. The third and fourth questions seek similar information about the interaction dependence.⁶⁹ Question 5 seeks to know whether there are any possible associational relationships between rank concordance and interaction dependence; and question 6 attempts to explain possible links between them.⁶⁹

2.6 The Model's Relevance

Johan Galtung's model adumbrated above shows some similarities and differences of approach with the works of Singer, Kaplan and Lagos. Both Singer and Galtung agree that it is rewarding to adopt the system-of-entities approach to the study of social problems.

Like Kaplan, Galtung's model is presented at a high level of abstraction; but, as will become clearer in chapter III, Galtung

⁶⁹ The possible links between conditions I and II are worrying matters. Galtung's theory does not treat them clearly. Ultimately, the problems entailed here are empirical problems and must be addressed separately.

reduces his abstraction to a lower level from which concrete policy recommendations can be drawn with respect to conscious efforts toward fundamental change in the international system. Again like Kaplan, Galtung is concerned with the conditions under which systems persist and transform. But the two arguments differ. While Kaplan's thrust of argument exhibits concern for equilibrium⁷⁰ of systems defined in terms of integration, Galtung's exhibits concern for system change around the variable "equality" in the context of peace. He is concerned with what he has called "the equalitarian pretenses of the international system."

Both Lagos and Galtung are concerned with the reduction of the developing nations' atimia in the international system, and both begin to apply sociological theory to the international system from the perspective of stratification theory. Despite the different frameworks the two authors use, it is interesting to note that their policy recommendations for the reduction of atimia are similar in some respects. Lagos, on the one hand, recommends that developing nations should act rationally for "the creation of an economy of self-sustained growth" and the "modernization of the style of life" and suggest that developing countries which are less dependent upon a single major power or power bloc are those whose policies are most

⁷⁰ Kaplan says many of the hypotheses employed in his model of individual international systems "are intended to express the types of action which must characterize the system[s] if [they are] to remain in equilibrium, rather than to predict that any individual action will be of such a character," System and Process in International Politics, p. 2.

likely to end in a reduction of their atimia. Galtung, on the other hand, recommends increasing the interaction between the developing nations in order to accrue more of the international system's output and reduce the distance between them and the developed nations.

Another major difference between the two authors is the comparative clarity and analytical detail of their works. Both authors regard the origin and the perpetuation of atimia as concomitants of the stratified nature of the international system. But while Lagos is content to identify the international system as stratified, Galtung identifies the system not just as stratified but a stratified system of the feudal type. Again, while Lagos identifies three status dimensions and thus restricts the inclusion of other possible statuses, Galtung's model allows the theoretical consideration of other rank dimensions and so Galtung's model makes for a more comprehensive application to the empirical world.⁷¹ The main reason for the clarity and comprehensiveness of Galtung's model could be traced to the model's derivation of "what is to be done" from the structural logic of the international system. Galtung's model unlike Lagos' does not confront action initially in its rational sense but arrives at rational action

⁷¹Galtung himself has said of Lagos' model, "unfortunately, [Lagos] does not consider systematically all the other dimensions that no doubt enter into the stratification of international society," in Joseph Berger, Morris Zelditch and Bo. Anderson, Sociological Theories in Progress I, p. 190.

recommendations from structural properties of the international system and through their supporting behavioral norms.

Galtung's model takes off from the Lagos' theme that the dealings between the developed and the developing nations can be explained in terms of the stratified structure of the relation between them. But, unlike Lagos who bases his analysis principally on the Parsonian action framework, as though there is no other important feature to stratification, Galtung bases his analysis on the important added feature of the exploitative effects of the stratified structure of the system and so derives more specific policy prescriptions from the logic of the structural referents of the relations between nations. Galtung believes that the obstacles to social change are principally structural.

To Galtung, systems change from feudal to egalitarian because of structural fatigue in the feudal system. Generally put, systems change from one form to another because of structural fatigue in the system. It is for this reason that Galtung's theory of system change is considered structural. His structural model does not initially presuppose anything about motivation or ideology. Rather, it assumes that motivation and ideology will emerge given the structural condition of the existing system.

In this sense, Lagos' model for atimia reduction is not "sufficiently structural." By this we mean, it does not take other aspects of the social context sufficiently into consideration⁷²

⁷²Galtung, Journal of Peace Research, 1, No. 2 (1964), 96.

when discussing social change in a stratified system. This is so, we suggest, because even though Lagos begins his analysis with a structural construct of the international system, he does not develop the structural logic involved comprehensively and systematically.

Upon closer examination of Lagos' prescriptions, we see that they are too "gross" and too "familiar" and this is due largely to the approach adopted. As Lagos' own book shows, the model does not lend itself easily to the derivation of testable propositions. For these reasons, one is inclined to agree with Etzioni's criticism that "Lagos' discussion of a model for economic development and its sociological concomitants...do not go much beyond that widely held in the developing literature before the...model was constructed."⁷³

What Etzioni is saying, in effect, is that it is not in doubt that "economic development and its sociological concomitants" are what is needed to reduce atimia; in fact these needs are so familiar in the literature that, to use Eugene Black's term again, they have become the theme of the developmental literature of our times. What is needed is an analysis of why in the present international system these requirements are difficult to attain. The answer, it seems to me, lies in the study of the international system's structural conditions, the texture of the international structural situation, and its exploitative by-product. We need to study the extent to which the international structures are fatigued; and how to make them more so, so as to move the system quickly from feudal to egalitarian. In

⁷³Etzioni, American Journal of Sociology, LIX, No. 1, 115

short, we need a model which believes that "social structures" do matter and takes them sufficiently into account. Galtung's structural model of the international system's movement from feudal to egalitarian, as we have seen above, attempts to do this.

It is Galtung's model's emphasis on the exploitative aspects of the structure of the international system, the use of the concept of "equality between nations" as the fulcrum to study international system change, the emphasis on the role of conflict in social change as well as the model's capacity to produce testable hypotheses which make it an appropriate model within which to cast our concern, about how to develop the world.

CHAPTER III

THE MODEL AND ITS APPLICATION

3.1 The Two Conditions - Peaceful Change and Periphery Initiative

A major purpose of this study as stated in chapter I is to examine the extent to which changes in the structure of the international system toward greater equality can be achieved peacefully. In chapter II, I argued that the structural changes needed to develop the world would come about partly as a result of the under-privileged nations taking the initiative to demand such changes. The immediate concern of this chapter, then, is to discuss what we mean by peaceful change in the structure of the international system.

Galtung uses, in his own words, "a clear case of obscurum per obscurius" to express the essence of the elusive concept of peace as the absence of violence.¹ He tentatively defines violence as a state where "human beings are being influenced so that their actual somatic and mental realizations are below their potential realizations."² He endows the concept of violence with two theoretically significant dimensions: (1) personal or direct violence, defined as case where a specific person commits violence on another and (2) structural or institutional violence where no such specific person commits the violence.³ He explains:

¹Galtung, Journal of Peace Research, VI, No. 1, 167. See section 3.5 for a discussion of this work in connection with the radical critique of Johan Galtung's works.

²Galtung, Journal of Peace Research, VI, No. 1, 168.

³Galtung, Journal of Peace Research, VI, No. 1, 168.

In both cases individuals may be killed or mutilated, hit or hurt in both senses of these words, and manipulated by means of stick or carrot strategies. Whereas in the first case, these consequences can be traced back to concrete persons as actors, in the second case this is no longer meaningful. There may not be any person who directly harms another person in the structure. The violence is built into the structure and shows up as unequal power and consequently life chances.⁴

International underdevelopment or the existence of inequality among nations, is the international counterpart of what Galtung refers to generally as structural violence. The peace condition imposed above simply means that in the course of reducing international structural violence, the process should not increase international personal or direct violence. In short, we conceive the international developmental process as the creation of a situation where the changes we seek can "take place in less sanguine ways."⁵

With regards to the peace condition, Galtung in his article "Entropy and the General Theory of Peace"⁶ attempts to find "[a] key, [a] common concept that seems to play a basic role in the

⁴Galtung, Journal of Peace Research, IV, No. 1, 170-171. (Emphasis added) I take issue with Galtung's view that we cannot trace the perpetrators of structural violence to concrete persons. Once we can identify the structures committing the violence, we only have to identify the roles that make these structures and from there to identify the occupant of these roles in order to identify the concrete persons. This does not mean we can easily identify the concrete persons committing structural violence. The point being raised here is that identification of such persons is theoretically possible. To say it is "no longer meaningful" is to remove it from the realm of empirical investigation.

⁵Michael Wallace, "The Radical Critique of Peace Research: An Exposition and Interpretation," Peace Research Review, IV, No. 4 (1972), 37.

⁶Johan Galtung, "Entropy and the General Theory of Peace," Proceedings of the International Peace Research Association, 1, 3-37. Galtung belongs to the Peace Research Group. This group is made up

thinking about peace and how [this] can best be expressed." The concept he seeks should perform the function "that the higher the value of that variable, the higher likelihood of peace in the system."⁸ The obvious danger with such a concept is that it is prone to oversimplification and therefore, liable to be misused. Despite this danger, Galtung maintains:

...there is one overriding idea that has sufficient conceptual richness and flexibility to cover much or even most of what today looks as the most viable type of thinking in the field. Needless to say, the use of sweeping concepts of that kind will carry with it certain simplifications. But this is the nature of all science; one has to abstract from the confusing reality of facts and/or ideas until a pattern emerges, then one has to catch this pattern in a verbal and/or mathematical formula so that one can operate with this pattern alone, detached from reality, until new ideas about reality emerge; ideas that can then be tested with empirical data or at least compared with other propositions in the field. In other words, the utility of an hypothesis or a theory does not only consist in the extent to which they correspond to facts, but also in the extent which they can serve as platform from which new hypotheses, theories or perspectives can be developed.⁹

The concept which Galtung finds useful for this purpose is the idea of entropy. This idea is given two polar meanings, namely,

of different kinds of scientists who believe that the problem of peace in society like any other social problem is researchable. Galtung's writings on the problem of international peace are many, but for our present purpose, we shall discuss his works relating to peaceful increase in the amount of equality among nations in the international system.

⁷Galtung, Proceedings of the International Peace Research Association, 1, 3.

⁸Galtung, Proceedings of the International Peace Research Association, 1, 3.

⁹Galtung, Proceedings of the International Peace Research Association, 1, 3-4.

high entropy tentatively defined as "'degree of disorder in the system', 'uncertainty of knowledge', 'messiness', 'distribution of maximum unpredictability'"¹⁰; and low entropy approximately defined as "'degree of order in the system', 'structure', 'distribution with maximum predictability', 'certainty of knowledge'"¹¹

Galtung uses the idea entropy as a variable to characterize the structural distributions of system properties. In his own words "a distribution presupposes units to distribute as well as some variable to distribute them on,...."¹²

The units to distribute are "actor entropy: based on the distribution of actors on positions, [and] interaction entropy: based on the distribution of interaction links on pairs of actors."¹³ Galtung explains the choice of the two types of entropy in these terms,

"from the point of view of Social Science, these two distributions are as fundamental as anything can be. A social structure consists of positions, but it gains meaning only when the distribution of actors is known. Thus, if the system has two positions, "high class" and "low class", then it makes a lot of difference whether the distribution has low entropy (5 per cent in the high position, 95 per cent in the low position) or high entropy (45 per cent in the high position, 55 per cent in the low position). But a social structure gains life only when there is also interaction between the actors."¹⁴

¹⁰Galtung, Proceedings of the International Peace Research Association, 1, 4.

¹¹Galtung, Proceedings of the International Peace Research Association, 1, 4.

¹²Galtung, Proceedings of the International Peace Research Association, 1, 8.

¹³Galtung, Proceedings of the International Peace Research Association, 1, 8.

¹⁴Galtung, Proceedings of the International Peace Research Association, I, 8.

The use to which Galtung puts these two types of entropy is to suggest that they make it possible to order various "peace thinking" about the international system into a typology of thirty-five types,¹⁵ dichotomized between the polar opposites of dissociative thinking and associative thinking. "Dissociative peace thinking favours transitions from positive interaction to neutral and even to negative interaction (short of violence); associative peace thinking favours transition from negative interaction to neutral and to positive interaction (with no limits)."¹⁶ Both dissociative and associative peace thinking do suggest a possible movement from low to high entropy except that dissociative thinking favours high intra-polar communication, while associative thinking favours high inter-polar communication.¹⁷

However, the prescriptive direction which Galtung hypothesizes as most conducive to peace is the associative transition from low to high entropy. This is so for Galtung because he is more interested in a "peaceful road to peace." He states, "to the extent one accepts associative peace policies as better in the long-run than dissociative policies, to that extent will a system at high levels of entropy be more peaceful than the system at low levels of entropy."¹⁸

¹⁵The thirty-five types of peace thinking are listed in the appendix of the essay under discussion, pp. 36-37.

¹⁶Galtung, Proceedings of the International Peace Research Association, 1, 35.

¹⁷Dissociative peace thinking can be considered in certain contexts to be synonymous with "Isolationist Thinking." Associative peace thinking in other contexts can be seen as synonymous with "Detentist Thinking."

¹⁸Galtung, Proceedings of the International Peace Research Association, 1, 21.

He adds that "by this is not meant that the system is stable, that there is no dynamism. On the contrary,...the high entropy system is the system that permits more change at the local level. But these changes are less likely to be of the devastating kind that are associated with large-scale group violence, i.e. with war."¹⁹

One general summation of present day peace thinking which Galtung offers in his article is expressed in this formula: "Increase the world entropy, i.e. increase the disorder, the messiness, the randomness, the unpredictability—avoid the clear-cut, the simplistic blue-print, the highly predictable, and the excessive order."²⁰

What Galtung means by this is that we are more likely to have a peaceful world at the macro or the international level if, in the dealings between nations, their relational links are not clear-cut and predictable. In other words, a world in which interaction between nations is simple, in the sense of not being many, intense and criss-crossing, and a world in which nations' possession of scarce values is not even, is a world prone to international conflicts.

Galtung's suggestion, that peace is most likely to be found in the world if the levels of actor entropy and interaction entropy are raised, provides this study with the stipulated peaceful context which we require for international development. This means then that according to Galtung, a peacefully developing world should be one in

¹⁹Galtung, Proceedings of the International Peace Research Association, 1, 21.

²⁰Galtung, Proceedings of the International Peace Research Association, 1, 22.

which the developmental process occurs within a high entropy environment or more probably, one which produces a high entropy situation as a concomitant.

Any proposition which leaves the initiative for social change in the hands of the powerful or the dominant system was ruled out in chapter II because of the uncertainty of the short term effects of enlightened self-interest, the apparent weakness of moral appeals, and the rational interpretation of national interest. The major problem is power—its pervasiveness and permanence. The answer to international development lies in blunting the edges of power. Since it is not feasible for the powerful to consciously blunt their power, the initiative in this venture should lie with the weaker and exploited units —the subordinate system.

With reference to this matter, the entropy model suggests that a high entropy situation provides a more conducive situation for weaker units' initiative than low entropy situation. Galtung puts it in these terms:

...with high entropy, the system is in the low energy state and only less drastic changes can take place. The dynamism is now located at the micro level [in our context at the level of the nation state] and much higher than in the low entropy state: there is macro stability and micro dynamism in the low entropy state.²¹

An important question to confront at this stage is whether high entropy is in any way structurally connected with the dynamic process of increasing equality between actors of the international

²¹Galtung, Proceedings of the International Peace Research Association, 1, 15.

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system. Galtung's position on this point, as is implied in his entropy model, is affirmative. To understand why, we need to explore briefly the sociological origins of the model.

3.2 Rank-dimension Framework²²

The main assumptions upon which this framework is based are:

1. the complexity of social activities can be perceived in terms of separate dimensions;
2. these separate social dimensions are roughly equivalent in salience, i.e. they are regarded by actors in the social system as of the same social value.
3. an actor's rank on a social dimension is a variable which describes its standing relative to other actors' on that dimension; and ranks range ordinally from "high rank" to "low rank." Actors with high ranks are referred to variously as top dogs, the privileged or the centre actors; those with low ranks as underdogs, the underprivileged or periphery actors.
4. there is the consensus in the system, for which it is defined, that at any one time high rank is to be pursued and low rank to be avoided.
5. each actor's rank-values or positions can be summed ordinally to provide a comprehensive index of the actors "social standing" or total-rank; and that it is possible to distinguish between the actors with high ranks and those with low ranks.

²²The presentation of this framework here is based on Galtung detailed discussions in Berger, Zelditch and Anderson (eds.), Sociological Theories in Progress, 1, pp. 145-198; and Transactions of the Sixth World Congress of Sociology, 1, 121-161. It must be pointed out that there is a rank-dimension mathematical theorem which is different from the social conception of rank-dimension. With the aid of a mathematical theorem, however, we can gain some insights into the social phenomena which could not otherwise be obtained. It is important to note also the mathematical theorem of rank-dimension does not always help the study of social phenomena as it could reveal relations that are statistical rather than sociological, and so not get at important sociological insights because the mathematics conceal important aspects of social phenomena. The present discussion of the rank-dimension framework is not meant to be an exhaustive exposition. We shall discuss only the aspects of the framework that are relevant for

From these assumptions a set of useful concepts are developed which can help elucidate the effects of ranks of actors on the nature of their relations and the possible sources of conflict between them. Rank Equilibrium refers to the extent to which the ranks of the actor along the different dimensions correspond to each other. Rank Equality refers to the extent to which the ranks of two actors are the same. Rank Equivalence describes the extent to which the ranks of actors are the same on different rank dimensions. Rank Congruence, refers to the situation where rank differences between actors are equal. And Rank Concordance deals with the extent to which all actors are ranked the same way on all social dimensions.

In addition, Galtung claims²³ that social philosophy, when discussing inter-relations among various actors, is concerned with: (1) the achievement of justice, referred to as Equality and provisionally defined as the degree to which the individuals are similar in terms of total rank; (2) the achievement of "peace of mind" conceived as rank equivalence; and (3) concerned with the search of means to prevent ruptures, a means which the concept of criss-cross defined as the degree to which there are individuals who can serve as bridges between completely disparate conflict groups in the system is considered relevant.

Following the foregoing discussion, Galtung puts forward, empirical propositions which are meant to say "something factual about human behaviour, whether that behaviour is organized at the

the purpose of our study. For detail discussion, see the references above.

²³ Berger, Zelditch and Anderson (eds.), Sociological Theories in Progress, 1, p. 148.

individual level or at the national level."²⁴

Some of the major propositions are:

1. Actors seek to maximize their ranks on all dimensions.
2. Units try to avoid rank disequilibrium and obtain rank equilibrium.
3. The higher the total rank of actors, the more interaction there will be between the actors and more associative the interaction.
4. The lower the rank difference between actors, the more interaction there will be between the units, and the more dissociative the interaction will be.
5. The higher the rank incongruence between actors, the less interaction there will be between them and the more dissociative the interaction will be.
6. The higher the criss-cross, the higher the probability of finding mediators and in-betweens in a conflict between actors.
7. The higher the concordance, the higher the probability of the emergence of generalized rank-roles.²⁵

These seven propositions can serve as the bases for diverse theoretical and empirical studies of society. But for our purposes the two most relevant propositions are the first two. The first proposition is referred to as the axiom of upward mobility and is qualified by Galtung's exposition to mean: "all individuals (actors) seek maximum total rank and the only stationary status (rank) set is the status with only high statuses."²⁶ The second proposition is called the axiom of rank equilibration and, qualified, means "all

²⁴Galtung, Transactions of the World Sociological Congress, 1, p. 143.

²⁵Galtung, Transactions of the World Sociological Congress, 1, pp. 142-143.

²⁶Berger, Zelditch and Anderson (eds.), Sociological Theories in Progress, I, p. 158.

individuals (actors) try to equilibrate their status sets upwards, and only status sets with equal ranks are stationary."²⁷

These two propositions suggest a general tendency for actors to want to increase their total ranks; but at the same time the sociological theory of social mobility teaches us that those actors with equilibrated high or low ranks "constitute stationary states in this process, 'eddies' in the flux of social mobility"²⁸ due to "structural strains in the too equilibrated society."²⁹ The perfectly equilibrated high ranking actors (total top dogs, TT) have no upward positions to aspire to in the short-run, partly because they struggle to remain stationary at the top and partly because the positive relationship between rank dimensions keep them there. But the perfectly equilibrated low ranking actors (total underdogs, UU) want to move up, but are prevented from doing so, in the short-run, because of the structural strains mentioned above.

In the case of the UU, sociological theory suggest the structural strains to be, first, that there is "less conscious or unconscious motivation to leave status set,"³⁰ second, that the total underdogs are less exposed to cross-pressures³¹ and third, that while the

²⁷Berger, Zelditch and Anderson (eds.), Sociological Theories in Progress, 1, p. 158.

²⁸Berger, Zelditch and Anderson (eds.), Sociological Theories in Progress, I, p. 158.

²⁹Berger, Zelditch and Anderson (eds.), Sociological Theories in Progress, I, p. 159.

³⁰Berger, Zelditch and Anderson (eds.), Sociological Theories in Progress, 1, p. 159.

³¹The old saying "he who is down needs fear no fall" is another way to view this phenomenon.

partially equilibrated actors have headstarts or bridgehead to assist their upward rank equilibration, the total underdogs have no such advantage and so tend to remain comparatively stationary in the short-run. In the words of Galtung, if UU inertia exists, "it is not so much [due to] lack of wanting to move as [due to] lack of opportunity and permission, and the [seeming] peace of mind may be one of resignation rather than satisfaction."³²

The above suggests that the most stable system is one which displays perfect rank equilibrium of total top dogs as against total underdogs. It also suggests that increasing equality is incompatible with increasing rank equilibrium. The relationship between criss-cross and equality is one where equality increases (up to a point) with criss-cross; and that between criss-cross and rank equivalence is one where criss-cross decreases with rank equivalence. The relationship between equality and rank equilibrium is such that we get less of the one as we increase the other.³³ This means that to increase the level of equality in a society that is highly rank equilibrated and at the same time maintain stability, we will have to undertake some sort of "conscious and conscientious effort... to [disseminate] a new ideology to the effect that mixed status sets ...are held up as laudable combinations...."³⁴ This means we have to

³²Berger, Zelditch and Anderson (eds.), Sociological Theories in Progress, 1, p. 159. (Emphasis added). Albert Camus' theme of "to live without hope is not to despair" in his The Rebel (New York: Random House, 1956) sums up the state of resignation mentioned here.

³³For a detailed discussion of the relationships between rank equivalence, criss-cross and equality see Berger, Zelditch and Anderson (eds.), Sociological Theories in Progress, 1, pp. 156-158.

³⁴Berger, Zelditch and Anderson (eds.), Sociological Theories in Progress, 1, p. 159.

let upward mobility for the bottom status nations on some rank dimensions at the expense of some of the top status nations look like the right thing to do, if we are to have a fair and a stable system.³⁵

3.3. The Model

The model is based on two related assumptions: (1) that the international system is a stratified system and (2) that this stratified system is of the feudal kind. By stratified system is meant that the fact that both units and groups of units of the international system (nation-states and groups of nation-states) are "conceived of as constituting higher and lower differentiated strata in terms of some specific or generalized characteristic or sets of characteristics." And by feudal system is meant a stratified system which displays two structural properties:

- (1) the system is rank-concordant, meaning that the particular sets of characteristics which differentiate the units of the system into higher and lower strata are heavily concentrated in the higher stratum and very scarce in the low stratum,
- (2) the interaction patterns between the units of the system is interaction-dependent. Interaction-dependent means interaction intensities and interaction initiatives depend upon rank.

Interaction between the units of the system proceed in this order, with diminishing intensities, from the most intense interaction

³⁵If the underdogs are to take the initiative to disseminate this new ideology; perhaps they can start by preparing themselves to rebel. According to Albert Camus, rebellion occurs when the slave wakes up from his despair and demands changes in his life's condition. See The Rebel, p. 13-14.

occurring between the units in the higher stratum, followed by interaction initiated by the higher stratum toward the lower stratum, the next interaction being from the lower to the higher stratum; and the least intense interaction being between units of the lower stratum. Figure I illustrates the interaction directions and intensities of a feudal system. The figure indicates that interactions initiated by the higher stratum the Centre (CC) and between themselves (1) are the most intensive; and interactions initiated by the lower stratum the Periphery (PP) and between themselves (4) are the least intense; with Centre-initiated interaction to the Periphery ($C \rightarrow P$), (2) and Periphery-initiated interaction to the Centre ($P \rightarrow C$), (3), lying between the two extremes.

Figure 1

Feudal Interaction Patterns

Galtung uses the concept interaction entropy as synonymous with structure of interaction and actor entropy as synonymous with rank distributions. The case of low entropy, where the distribution is heavily skewed, corresponds to either interaction-dependence or rank-concordance. High entropy represents, in the interaction sense, interaction-independence. This is the case where there is equal distribution of interaction links between actors and interaction no longer depends on ranks. In the actor sense, high entropy corresponds to rank-discordance. In the extreme case, rank-discordance represents a situation where all actors possess the same amounts of societal values. In this situation, "one may [even say] that the ranks themselves are abolished."³⁶

Usually sociological analyses utilizing the concept of social stratification imply some "valuation of the higher and lower layers, which are judged to be better or worse according to a scale of values."³⁷ As we have just seen, the positions of units on this scale are referred to as their ranks. Thus rank is considered a sort of social value resource and at the same time as a measure of a unit's or a group's possession of these values.

Galtung's values are based on the degree of relative equality and inequality, or the amount of "social justice" that exist between nations in the international system with reference to the nations'

³⁶Galtung, Proceedings of the International Peace Research Association, 1, 16.

³⁷Sills (ed.), International Encyclopedia of Social Sciences, p. 297.

aggregate possession of the output values of the international system. His concern, or his criterion of generalized characteristic, is the extent to which the output of the international system is shared nearly-equally between nations of the world.

According to the definition of the stratified system given above, Galtung's conception of the higher stratum is that it is made up of units who possess or control a disproportionately large share of the international societal values and conversely the lower stratum is defined by the units who possess little or none of these values.

In the Marxist tradition, a unit's relation to the production process is taken as the only ranking indicator. Johan Galtung follows that part of contemporary sociology which conceives the independent variables of stratification as multidimensional.³⁸ International relation analyses usually differentiate the independent variable and deal with such indicators as political influence, military power, economic strength and wealth, education (knowledge and skill) and health, etc.

Galtung's model can handle any number of subsystems. For example, it deals with three subsystems designated higher, middle and lower strata. The number of subsystems dealt with does not in any way impair the precision of the model. The only problem is that as the number of subsystems increase, the model becomes more complex.

³⁸ Galtung has stated "the usual Marxist scheme is, in our opinion, too narrow here because it is (1) too one-dimensional (the top dog being the owner and the underdog being the non-owner of the means of production), (2) too tied to a particular type of rank-dimension...." Transactions of the Sixth World Congress of Sociology, 1, 157.

However, when dealing with the theoretical aspects of contemporary international system, Galtung refers to the two subsystems of higher and lower strata which he labels respectively as the centre (C) and the periphery (P).³⁹ He defines these two terms in three different ways.

1. in terms of absolute properties (e.g. development variables); centre is high on rank dimensions, periphery low.
2. in terms of interaction relations (e.g. trade composition index) centre enriches itself more than the periphery.
3. in terms of interaction structure (e.g. partner and commodity composition index) centre is more centrally located in the interaction network than the periphery—the periphery being higher in the concentration indices. This means that the peripheral nations have fewer interaction links with other nations compared to the interaction links of the nations of the centre. Such links as the peripheral nations have with other nations revolve around few issues. The interaction links of the peripheral nations are not as diversified as those of the centre nations.⁴⁰

Empirically, Galtung suggests that it may not matter that much which of these three dimensions is used to define the concepts centre and periphery, because they do not pose the problem of choice; rather they are complementary to each other. One type of theory can regard definition 1 above as basic while another can use definition 2 or 3 as basic. As will soon be shown, this study regards all three

³⁹Galtung used to refer to the higher and lower strata as Top dogs and Underdogs. But lately, he has switched to using the terms Centre and Periphery. In some of his work, he introduces a Middle dog category, as in Journal of Peace Research, III, No. 2, 146-177.

⁴⁰Galtung, Journal of Peace Research, VIII, No. 1, 103.

definitions as important and will attempt to formulate propositions based on all three and thus test their veracity.

Essentially, Galtung's model posits two polar ideal types of social systems. The first is the feudal system, defined above by the two structural properties of rank-concordance and interaction-dependence. Due to these structural characteristics, the feudal system creates and sustains heavy exploitation⁴¹ of the Periphery by the Centre, and so making the amount of equality in this system very low. The other system is the egalitarian system, which, as the name suggests, has a high level of equality. The egalitarian system is defined by low rank-concordance (i.e. individual units positions on the various rank indicators are more mixed) and by low interaction-dependence (i.e. interaction is no more concentrated within the centre than the periphery; interaction is more evenly distributed between the various units).

This shows theoretically that a movement from feudal to egalitarian system in the Galtung model corresponds to our definition of the process of international development as the pursuit of increasing equality in the dealings between nations.

The part of Galtung's theory which is of immediate relevance to this study is the model's treatment of the dynamics of social

⁴¹ Exploitation is used here to refer to the structural violence experienced by the lower stratum of the feudal system by means of the fact that the difference between their actual and potential "somatic and mental realizations" is very great under the feudal system. For a succinct mathematical treatment of the concept "exploitation," see Tord Høivik, Journal of Peace Research, VII, No. 4 (1970), 299-303.

movement from a state characterized by high level of inequality (feudal system) to a state characterized by a comparatively higher level of equality (egalitarian system).

With regards to the movement from feudal to egalitarian states of the international system, Galtung's model states that there are two possible half-way houses to the egalitarian system. He suggests that the system can proceed from the feudal via either the Mixed system or the Class system to the egalitarian system. The Mixed system is defined by low rank-concordance and high interaction-dependence. The Class system is defined by high rank-concordance and low interaction-dependence. The model argues that systems, left to themselves, will remain feudal or will return to the feudal state since this is the most stable system. The feudal system is stable, because the high level rank-concordance and interaction-dependence have the tendencies of reinforcing each other and so keeping the system feudal.⁴²

Galtung's basic thesis is: if one does not want systems to become feudal, then something has to be done, something active, otherwise they will develop in that direction.⁴³ This "something active" for Galtung is the organization of the periphery to strengthen them relative to the centre, leading to a Class system with two classes pitted against each other, one favoured by society and one not, but more equal in strength because of the organization of the

⁴²Galtung, Transactions of the Sixth World Congress of Sociology, 1, 148-152.

⁴³Galtung, Transactions of the Sixth World Congress of Sociology, 1, 156.

periphery. The underdogs can now use this strength for one particular and important purpose; to increase the price of the value they contribute to the topdog. This is not the only "something active" that could be done to defeudalize the world. The system can also be defeudalized through the mechanism of facilitated mobility through such processes as expanded economies, educational systems, health services, etc.

It is obviously going to be very difficult for the Periphery actors to organize. This difficulty is due mainly to the Periphery's individual role substitutability, meaning the individual roles of the Periphery actors, can be performed easily by other Periphery actors. For this reason, the Periphery's main, if not only, strategic advantage over the Centre lies in the collective indispensability of their status, meaning that the combined role of the Periphery cannot be dispensed with altogether.⁴⁴ This indicates then that once the Periphery has become aware of their underdog roles or situation and have decided to reduce it, their main means of success lies in what Galtung calls, above, "organization."

Galtung's discussion of integration elaborates on what he meant by the concept "organization" in the above context. The Periphery actors in a feudal system, because of the dearth of interaction, or links, between them, form only an abstract group of actors.⁴⁵

⁴⁴For further development of the substitutability and the indispensability of the roles of the Periphery, see Johan Galtung, "A Structural Theory of Integration" Journal of Peace Research, VI, No. 4 (1968), 375-395. Especially p. 379 and pp. 385-386.

⁴⁵Galtung, Journal of Peace Research, VI, No. 4, 378.

Their defining characteristic is the similarity of their status; and once they decide to change their underdog situation, they acquire, as a group, another characteristic, that of the value of underdog-role reduction.⁴⁶ Therefore, according to Galtung's three types of integration,⁴⁷ the group effort of the periphery to mobilize and exploit their status indispensability is not, in the international perspective, necessarily territorial, nor is it initially an organizational integration. It is not based on territorial unification nor is it based on the principle of the division of labour into an inter-dependent system. It is associational integration, because it is based on the principle of affinity growing out of the facts that they share some kind of similarity in status and value. It is true that this initial association could lead to organization based on division of labour and inter-dependence but this does not invalidate the fact that the initial efforts have to be based on similarities in status and values—and so associational.

As the dynamic crux of this movement, from feudal to egalitarian, Galtung posits that if we do not want systems to remain feudal then

⁴⁶Galtung, Journal of Peace Research, V, No. 4, 379.

⁴⁷Galtung distinguishes three kinds of integration. They are: (1) organizational integration, conceived as based on patterns of crystallized and inter-related interactions of mutually related actors and characterized by division of labour; (2) associational integration, the mechanisms of which are that the actors are like each other in the sense that they have the same values and/or the same status. The main structural distinction between organizational and associational integrations is that the former tends to be vertical, the latter more horizontal. (3) The third territorial integration can have elements of the other two, but is brought about mainly by geographical and spatial proximity. See Galtung, Journal of Peace Research, V, No. 4 378-380.

one of these two conditions must be fulfilled:

Condition I: The periphery must attempt to increase their ranks at the expense of some of the centre nations in order to create a mixed system.

Condition II: The periphery must associate more, i.e. intensify interactions among themselves, to strengthen themselves relative to the centre. This will lead to a class system with the two classes, the centre and the periphery, pitted against each other. The periphery can now use their organized strength for one particular and important purpose; to increase the price of the value they contribute to making the positions of the centre rank high.⁴⁸

The first condition deals with the structure of the end sought for the international system by international development. It deals with the equal share of the international system's values or output. The second condition relates to the structure of interaction, a structure that would possibly realize and consolidate the end.

The interpretation of the two conditions, just given above, is not necessarily meant to imply any causal relations. It is meant only

⁴⁸The second condition analogy is clearly trade unionism, the trade union mentality of using increased association as an instrument to back the union's demands for a better form of life, usually expressed in terms of higher wages and better working conditions. This analogy is instructive in that it suggests that the increasing association between the periphery nations does not occur for reasons of "opting out" of the system in order to avoid unfavourable comparisons with the centre, but for reasons of increasing the periphery's bargaining strength so as to gain them more of the system's output than before. When such class confrontation is accompanied by the interaction initiatives by the peripheral nations, then increasing interaction becomes demand-inspired, with the aim of gaining a larger share of the system's output for the periphery.

Thus when Galtung suggests that the periphery must increase their interaction ($P \longleftrightarrow P$) and reduce their interaction dependence on the centre ($P \longrightarrow C$), he does not mean that $P \longrightarrow C$ should be dispensed with altogether. What he means is that $P \longleftrightarrow P$ should increase while $P \longrightarrow C$ decreases until the two interactions approximate each other in intensity. That is, to raise interaction entropy from low to high. This analogy will be discussed more fully in chapter VI.

to emphasize the relevance of the two conditions to the process of international development. Even though, it must be stated that a possible causal link between the conditions cannot be easily dismissed.⁴⁹

The temptation to consider the two conditions as causally linked is very great especially when we recall the Galtung thesis that if we do not want the system to remain feudal then we should get the Periphery to associate, like trade unions, to press for higher share of the values of the system. If, in order to make a system rank-discordant we have to mobilize the poor and other subjects of social injustice, then it is legitimate to infer a causal relation and to hypothesize that increasing association by the periphery will yield increasing gains in the output values of the system for them and so make the system more equitable, that is more developed.

It is noteworthy that Galtung cautiously avoids any claim of causal links between the two conditions. The caution can be attributed to the seemingly tenuous nature of such a claim and the obvious methodological difficulty in testing it. Galtung does state that the transition toward egalitarian system does take place "partly through the mechanism of underdog organization [and] partly through the mechanism of mobility facilitated by such processes as expanding educational system and expanding participation in the political systems."⁵⁰ This means he

⁴⁹Should we find that both conditions move in the same direction, i.e. if we find that periphery gains of the system's output increases with their associational activities, then perhaps we could say that there is a prima facie cause to worry about possible causal link between them, keeping in mind that such a relationship may turn out to be spurious.

⁵⁰Galtung, Transactions of the Sixth World Congress of Sociology, 1, 156.

attributes the transition to changes in rank and interaction without imputing any causal relationship between them.

The theoretically possible paths of transition from feudal and egalitarian systems, as can be seen from the Figure 2 below, could take place along many different paths. It can take place via the Mixed system or the Class system or along the diagonal or along any of the many possible near-diagonals.

Figure II

Possible Paths of Feudal-Egalitarian
System Transition

When it comes to the exact paths along which this transition could take place, Galtung is not very definite. He, however, suggests that empirical investigation will probably reveal many processes of gradual transition from feudal to egalitarian system that do not go via Class or Mixed system. He adds that "there is no known principle according to which the process from feudal to egalitarian system

cannot take place along any road in the two-dimensional $\square$ figure above⁷."51

The problem with the empirical paths, as he points out, is that it depends upon empirical conditions existing in the system. The problem then is an empirical one and should be approached as such. By this we mean, as Galtung does, that until we know more about the real conditions governing the paths, all we can say is that the empirical path is most likely to be diagonal or near-diagonal, because if there were to occur a change on either the rank or the interaction axis most likely there would be a corresponding change on the other axis. Thus, the two rectangular paths would result in a diagonal or near-diagonal path of transition. One cannot be any more theoretically exact than this regarding the empirical path of the transition.

Linked with the problem presently under discussion is another problematic aspect of the transitional process. This aspect is the conditions which favour a movement by way of the Class system and those which favour a movement via the Mixed system. The answers, here again, lie in the empirical realm, but the fact that the two transitional processes are very much different makes them important and enables Galtung to describe this particular problem as an important topic of investigation in this field of study.⁵²

⁵¹Galtung, Transactions of the Sixth World Congress of Sociology, 1, 155.

⁵²Transactions of the Sixth World Congress of Sociology, Galtung conceives the path via the Class system as "revolutionary in nature" presumably because the end desire of equality is preceded by "Class warfare," while he conceives the path via Mixed system as

3.4 Further Discussion of the Model

Two very important theoretical questions in connection with the model remain to be discussed in this section. We said earlier in this chapter that the feudal system is the most stable system because its rank and interaction properties reinforce each other to keep it stable. But, if this is so why then would a feudal system change through the intermediary systems to the egalitarian system?

The answer which Galtung provides to this question is that, the probability of finding a system stable enough for long periods of time is "negligible, if for no other reason than because of the dialectic elements in these processes: the dysfunctions that will dominate more and more as time passes."⁵³ By this, Galtung means all feudal systems contain their own seeds of destruction which will in the long-run lead to their transformation, "because of their built-in contradiction—the exploitation that results so easily from the combination of rank concordance and interaction-dependence."⁵⁴

"evolutionary" presumably because the end of equality is attained by gradual reformism. Our earlier discussion in Section 2.4 above about the possible adaptive responses of the centre to periphery-initiated demands, in the context of the cost of non-compliance to the former, can be seen as tentative theoretical speculations about the possible theoretical path.

⁵³Galtung, Journal of Peace Research, V, No. 4, 392.

⁵⁴Galtung, Journal of Peace Research, V, No. 4, 392. The structural dysfunctions which Galtung refers to can be illustrated by the reaction to colonial systems as archaic in the immediate post-world war II era and the consequent granting of political independence to the colonies. That the demand for egalitarianism is being pursued by these former colonies through the UNCTAD, GATT, UN Agencies and other international organizations is a sign of possible structural fatigue.

The similarity between this view and the Marxist "structural determinism" should be clear. The fact should be raised at this juncture that the Galtung model is based on some generalizations derived from Marxist analysis.⁵⁵ But there are two important differences underlying the apparent similarity between the two models.

According to Galtung, "the usual Marxist analysis is less open to the idea that history may offer circular or spiralling patterns of change rather than some type of rectilinear 'development'."⁵⁶ He believes that there will be a claim for egalitarianism, but once that has been achieved, the system will tend to slide back to more feudal varieties, whether they are organized around old stratification variables or around new ones. In other words, Galtung, like Marx, believes that systems will change from one type to another because of structural dysfunctions or structural fatigue. But unlike Marx, Galtung believes that systems are not destined for any permanent point of arrival, rather they are destined to oscillate between the two extreme forms of system. This oscillating destiny of social systems is what Galtung calls the "spiralling process."⁵⁷

The second theoretical question also has its Marxist overtones. It is this: if, as Galtung suggests, systems are destined to oscillate

⁵⁵Galtung, Transactions of the Sixth World Congress of Sociology, 1, 157, footnote no. 21.

⁵⁶Galtung, Transactions of the Sixth World Congress of Sociology, 1, 157.

⁵⁷This same idea has been expressed by Herbert Marcuse in his One-Dimensional Man (Boston: Beacon Press, 1964) p. 36, as "the achievement negates the premise."

between the feudal and the egalitarian, why does he then advise that if we do not want systems to remain feudal, the periphery would have to associate more intensely and/or become more mixed? By this question, we mean, if a feudal system is destined to change into an egalitarian system why then should the periphery give an "historical aid" to what is destined to come through the process of oscillation?

The poor and the weak must organize to bring about the destined egalitarian millenium because the historical period of oscillation from the feudal to the egalitarian, it seems, is too long. The pace of change, left to structural fatigue of the existing system alone, is too slow; and meanwhile the cost to the underprivileged may be too high to justify a patient⁵⁸ wait for the "natural" historical redress of grievances. The above interpretation seems to be the philosophical premise upon which many of the "peace research" works on development rest. The present writer believes Johan Galtung's model is based on such philosophical grounds.⁵⁹

3.5 Criticism of Galtung's Model

Johan Galtung's theoretical work in this field has not escaped criticism from within the ranks of his fellow peace researchers.

⁵⁸ We raised earlier in chapter II the ethos of impatience which characterized D. Baldwin's work on the political role of the IBRD. A similar impatience with the international systems change seems to inform Johan Galtung's works on international development.

⁵⁹ For a discussion of the different schools of thought within the peace research movement, see Michael Wallace, Peace Research Review, IV, No. 4, 30 - 45.

For example, Herman Schmidt⁶⁰ encouraged by Galtung himself initiated what has come to be known as the "radical critique" against what Schmidt considers the persisting irrelevance of the initial concerns of the founders of peace research to the real problems of today. Schmidt singles out Johan Galtung's publications⁶¹ as the target for his attack on peace research partly as a result of his appreciation for Galtung's contribution to this field of study and partly because of the fact that Galtung "is almost the only one in the field who has formulated explicitly the assumption on which peace research is based."⁶²

The radical critique has its theoretical, methodological as well as its normative aspects. However, in this study, it is the normative aspects and their theoretical implications that are noteworthy. In summary, the critique amounts to a call for traditional peace research to reject the scientific position of impartiality on social issues and to accept a commitment to the values of justice, equality and freedom and to be partial in conflicts in which these values are asymmetrically represented. The critique includes a plea for peace

⁶⁰ Herman Schmidt, "Peace Research and Politics," Journal of Peace Research, V, No. 3 (1968) 217-232. Other critical publications include, Schmidt and L. Dencik "Peace Research as a Technology for Pacification" Proceedings of Third International Peace Research Association Conference, I, (1969), 20-69. Ole Olson and Ib Martin Jarvad, "Political Functions of Social Research" Proceedings of Third International Peace Research Association Conference, I, (1969), 92-109. These criticisms are known as the "radical critique" because they are cast mainly in the spirit of the "New Left."

⁶¹ In particular, Johan Galtung, "Peace Research: Science or Politics in Disguise," Peace Research Institute of Oslo (PRIO) 23-6, Oslo 1967 (mimeo).

⁶² Schmidt, Journal of Peace Research, V, No. 3, 230.

research to abandon "pacification research," which conceives peace negatively as the absence of war and to embark upon revolutionary research which conceives the concept peace positively to mean justice, equality and freedom.

Schmidt makes the point that peace research came to be founded as a result of some scholars' fear of the real possibility of nuclear over-kill and their concern to see this possibility removed. Their belief was that humanity could be saved from nuclear holocaust only if the divided world could be integrated. It is Schmidt's view that interest in integrating the world led the peace research scholars to see peace in the negative sense⁶³ of avoiding war. This conception of peace did lead to a situation where the search for an integrated world was being interpreted predominantly to mean the existence of an identity of interest between nations of the world to the total neglect of other aspects of the concept peace. Schmidt states:

This claim is based on the assumption of identity of interest among the elements of the system studied, as far as peace is concerned. This assumption was probably felt reasonable in those days when the East-West conflict and the fear of nuclear world war dominated the political perspectives. Today, when conflicts in the non-European world are in the focus of our attention, it is easier to reject. Conflict and contradictions between nations and group seem to have replaced the common interest of survival as the dominant feature of the world arena.⁶⁴

He holds the view that the negative conception of peace, upon which most of the writings of peace researchers is based, possesses a

⁶³Galtung earlier defined negative peace as the prevention of war, see his "A Critical Definition of Peace Research," Peace Research Supplement, III, No. 2 (1964) 4-21 (PRA, Ref. No. 19250).

⁶⁴Schmidt, Journal of Peace Research, V, No. 3, 220-221.

built-in conservative bias favouring the universalization and perpetuation of the interests of the status quo. He believes such a view runs the risk of making peace efforts assume the "law and order" form.

Schmidt suggests that conflict seen from the functional⁶⁵ perspective leads to the conception of peace in its negative perspective. He prefers to see conflict in the framework of the structural model. To Schmidt therefore, conflict is not the existence of subjectively defined incompatible values or goals, but existence of conflict of interests defined in objectivistic terms as a matter of the social structure. A unit's position on the social strata determines its interest and conflict of interests arises because "the social structure is such that one class loses what the other class wins and such that exploitation is profitable."⁶⁶ Conflict solving then, to Schmidt, is a matter of structural change; and viewed as such he believes that change of the system cannot be profitably studied by traditional peace research. What Schmidt suggests is that peace research orient itself to the study of the vertically structured relations between nations if it is to hope to discover better solutions to the problems of conflict between nations.

In short, for Schmidt, integration as a conflict solving process has to do with structures, since the conflict is built into the social structure. Conflicts are solved through structural change

⁶⁵ The term functional is used here in the sociological sense of the word.

⁶⁶ Schmidt, Journal of Peace Research, V, No. 3, 228.

only, and an integrated system is one where the system is structured in such a way "that incompatibilities of interest are minimized."⁶⁷

Two subsequent works by Galtung are indicative of Schmidt's influence: "Violence, Peace and Peace Research" and "A Structural Theory of Imperialism." The first of these two essays explores the structural forms of violence in terms of social injustice defined as inequality of chances between human beings in the actualization of their full human potential. The second takes as its point of departure "two of the most glaring facts about this world: the tremendous inequality, within and between nations, in all aspects of human living conditions; and the resistance of this inequality to change."⁶⁸ The particular concern of this latter essay is with the mechanism underlying this discrepancy especially between the centre in the centre and the periphery in the periphery. In Galtung's own words, his major concerns are, "...how to conceive of, how to explain, and how to counteract inequality as one of the major forms of structural violence."⁶⁹ The discussion of the mechanisms of inequality is done at a general level and hinges on the concept imperialism "conceived of as a dominance relation between collectivities, particularly between nations."⁷⁰

Galtung's switch from "subjectivistic" conception of violence to "objectivistic" conception, as is clear in his essay on imperialism,

⁶⁷Schmidt, Journal of Peace Research, V, No. 3, 227.

⁶⁸Galtung, Journal of Peace Research, VIII, No. 1, 81.

⁶⁹Galtung, Journal of Peace Research, VIII, No. 1, 81.

⁷⁰Galtung, Journal of Peace Research, VIII, No. 1, 81.

allows him to cast conflict in terms of interest rather than goals. This enables him to "respond" to the radical request of partiality toward the under-privileged with a much more radical definition of interests. He puts it this way,

"...the concept of interest used here is based on an ideology, or a value premise of equality. An interaction relation and interaction structure set up such that inequality is the result ~~is seen as...~~ ~~not~~ in the interest of the weaker party. This is a value premise like so many value premises in social science explorations, such as 'direct violence is bad', 'economic growth is good', 'conflict should be resolved', etc. As in all other types of social science, the goal should not be an 'objective' social science freed from all such value premises, but a more honest social science where the value premises are made explicit."⁷¹

Another kind of criticism is levelled at the sociological basis upon which the rank-dimension framework rests. As we have seen, it is from this framework that Galtung derives his model and international structure. This criticism is methodological in nature. Blalock, for example, believes that "...the problem of status inconsistency is formally the same as that of social mobility, the only difference being that in the one case two contemporary statuses are being compared, whereas in the other the focus is on statuses at two or more points in time."⁷² He maintains that in the interplay between the independent and dependent variables, one of the independent variables is taken as an exact function of some of the other dependent

⁷¹Galtung, Journal of Peace Research, VIII, No. 1, 83.

⁷²H. M. Blalock, "Status Inconsistency, Social Mobility, Status Integration and Structural Effects," American Sociological Review, XXXII, No. 4 (1967), 790. See also his "Identification Problem and Theory Building: The Case of Status Inconsistency," American Sociological Review, XXXI, No. 1 (1966), 52-63.

variables. In general terms, the underlying thesis of Blalock's criticism is that,

"...dependent variables may be influenced not only by the separate effects of several independent variables but that, in addition, peculiar combinations of these variables may produce strains in the individual which may affect the dependent variable independently of the main effects of the several variables. Perhaps the most general of such formulation, is that of so-called 'structural' or 'contextual' effects. The formulation is most general because the variables are left completely unspecified. In essence, then, it is not a substantive theory at all but rather a 'meta-theory' suggesting how variables may be expected to combine."⁷³

The crux of the argument is that the theory is difficult to falsify and therefore it is a meta-theory in the true scientific sense.

The parts of Johan Galtung's model⁷⁴ that we are interested in derives from the 'structural' or 'contextual' aspects of social mobility and so are directly subject to Blalock's criticism. While Blalock may be correct in calling this theoretical formulation a meta-theory, it must be borne in mind that the state of the social science disciplines do not yet allow us to indulge in the luxury of theoretical perfection. The urgency of the developmental process is such that while awaiting theoretical perfection—while searching for unidentified residual terms,—the discipline should proceed with meta-theories if these theories throw some light on the urgent policy problems of the day and provide reasonable basis for policy recommendations.

⁷³Blalock, American Sociological Review, XXXII, No. 4, 790-791.

⁷⁴Galtung is aware of these problems. He mentions them on Berger, Zelditch and Anderson, Sociological Theory in Progress, 1, p. 190.

3.6 Applications of the Model

Johan Galtung's model can be used to study different aspects of the-complex structural relations between nations. For example, it can be used to study the nature and possible structural causes of conflict between nations, conditions promoting integration and consequences resulting from integration, as well as the trends and patterns characterizing these complex relations.

The most successful application of this model, however, has been its use to study the structure of the trends and patterns characterizing the contemporary complex relations between nations. Such studies have tended to show that international subsystems as well as the total international system display heavy interaction dependence on the respective centre nations and also that it is possible to rank nations along social criteria; and that such ranking systems show that a few top ranking nations tend to possess disproportionately larger shares of the social and human values than the many at the bottom of the ranking systems. These studies then substantiate the assumption that the contemporary international system is structurally a feudal system.

We shall discuss a few of these findings very briefly. Simon Schwartzman⁷⁵ in his study on Latin America, found that interaction was concentrated among the top ranking nations of the Latin America subsystem; but once the system was enlarged to include the United

⁷⁵Simon Schwartzman, "International Development and International Feudalism: The Case of Latin America," Proceedings of the International Peace Research Association, 1, (1968), 52-77; Simon Schwartzman and Manuel Mora Y. Araujo, "The Images of International Stratification in Latin America," Journal of Peace Research, III, No. 3 (1966), 225-242.

States, the interactions of the dependent variety between the U.S. and the bottom nations of the enlarged system were more intense than the other interactions, showing the heavy reliance of the lower periphery on the higher centre. Schwartzman also found that his objective ranking of nations coincided remarkably well with the subjective ranking of the individual Latin American nations.

Galtung applied the model to both the interactions within and between the Nato and Warsaw Pact nations and saw that interactions were heavily dependent upon rank. In this work, using the rank indicators of population, area, GNP, armed forces, nuclear power, veto power, world language, sphere of interest, etc., Galtung was able to demonstrate the rank-concordance of these variables within both the Nato and the Warsaw Pact. Thus, this essay confirmed the feudal relationships within both camps.⁷⁶

Galtung again using mainly the economic indicators of GNP per capita, percentage of non-primary sectors, Gini index (income), Gini index (land distribution), trade composition index, partner and commodity concentration indices showed the existence of the feudal characteristic both within and between nations.⁷⁷

Another interesting study is one by John Sigler.⁷⁸ In this study of the pattern of news flow in the North African International subsystem, Sigler derived his three hypotheses from the work of

⁷⁶Galtung, Journal of Peace Research, III, No. 2, 146-177.

⁷⁷Galtung, Journal of Peace Research, VIII, No. 1, 81-117.

⁷⁸John H. Sigler, "News Flow in the North Africa International Subsystem," International Studies Quarterly, XIII, No. 4 (September, 1969), 387-397.

Galtung and his associates. The first hypothesis was: "Foreign news tends to flow from high-ranking countries to low-ranking countries, from the dominant international system to the subordinate systems and from high-ranking countries to low-ranking countries within the same subordinate system." Sigler came to the conclusion that,

"the world that is perceived by the Maghreb elite press is global in extension but markedly hierarchical in nature....Vertical ties with the former colonial power, France, takes precedence over all others in the news of the foreign relations of all three states. For the three North African nations under discussion, the West as a region remains the most important among the major regions.

The analysis suggest that cultural homogeneity is not likely to be sufficient for region-building in this early period of global history, which is characterized by a heightened awareness of a rigidly stratified international system marked by gross inequalities in the distribution and utilization of the world's resources. Prospects for greater regional integration in the culturally homogeneous Maghreb, the Arab world, or Africa appear relatively dim as long as vertical ties with the developed world continue to appear as more important to the elites in meeting their current problems and satisfying needs. News about Asia and particularly Latin America is of only very peripheral interest. One difficulty in building a more highly structured Third World alliance in the form of a union to pressure the rich may well be the relatively low amounts of information and attention to events in other Third World countries."⁷⁹

All the applications of this model have been done at the nation-state or at the subsystem levels and have been mainly synchronic in nature. One application which takes the time element into account and, as a first step, by-passes the nation-state level and concentrates primarily on the relationship between (total) system structure and

⁷⁹Sigler International Studies Quarterly, XIII, No. 4, 396-397.

international conflict, is Maurice East's, "Status Discrepancy and Violence in the International System: An Empirical Analysis."⁸⁰

The principal question underlying this study is whether "variations in the patterns of war and peace in the international system [can be] accounted for in terms of systemic variables as well as in terms of nation-state levels variable?"⁸¹ The study's general hypothesis is: the greater the amount of status discrepancy in the system, the more international violence in the system.⁸² East's analysis appears to confirm this hypothesis.

The total systemic level at which East first considers the problem of the association between behaviour and the system's structural characteristics parallels our study's intention of inferring the amount of equality in the international system from the structural characteristics of international system. As will become much clearer soon, the similarity just mentioned above is illustrated by East's conclusion that,

"finally, the general position of the 'have-not' states in the world is a troublesome one,....In an international system with low status discrepancy, the 'have-not' states would be denied high status on any and all relevant dimensions of stratification, i.e., there would be a high degree of cumulative inequality in the system."⁸³

⁸⁰ In James N. Rosenau, Vincent Davis and Maurice East (eds.), The Analysis of International Politics (New York: The Free Press, 1972) pp. 299-319.

⁸¹ Rosenau, Davis and East (eds.), The Analysis of International Politics, p. 301.

⁸² Rosenau, Davis and East (eds.), The Analysis of International Politics, p. 301.

⁸³ Rosenau, Davis and East (eds.), The Analysis of International Politics, p. 316.

Another similarity between our study and East's, as will become clear in chapter IV, lies in both studies' longitudinal nature. East uses a series of time points in order to allow for the systemic variations necessary to test the impact of systemic structural differences. This study uses two time points, 1960, a base year and, 1970, a terminal year in order to allow us to infer the levels and the direction of change in international equality.

From the above brief presentations of the applications of Galtung's model, we can see that the model provides us with a definite theoretical conception of the structural make-up of the international system. This makes it possible to derive some credible policy-oriented hypotheses from the model.

The theoretical assumptions underlying this study then would be the often confirmed assumptions underlying Galtung's model. We assume that the contemporary international system is feudal in nature and therefore, displays high rank-concordance and high interaction-dependence.

3.7 Hypotheses

In this chapter, we have attempted to state the theoretical, the logical and the normative underpinnings of Johan Galtung's structural model of international social change and have tried to show this model's relevance to the main theoretical questions underlying this study. The relevance of the model lies mainly in satisfying the conditions of "peaceful change" and "periphery initiative" placed on our earlier definition of international development as the

increase in the amount of equality between nations, a definition which happens to be the central normative concern of Galtung's model.

The tone adopted above in presenting and interpreting Galtung's theory has been one of deliberate caution since the theory's complexity could easily lead to misinterpretations. Despite this caution, however, it is clear the theory suggests that the crux of the movement from feudal to egalitarian system is dependent upon the two conditions' discussed above: decreasing rank-concordance and interaction-dependence.

The six empirical questions derived from Galtung's model and discussed in chapter II suggest the richness of the theory. It is obvious that no single study can possibly answer them all in any worthwhile detail. This study has, therefore, treated the theory in general terms but now selects the first four questions in section 2.5 for systematic empirical inquiry.

The discussion in section 3.6 above suggest to us that the international system, as a whole, and its subsystems are structurally feudal. Therefore, I assume that the international system was structurally feudal in 1960. This means in terms of Galtung's model that the system was characterized by high rank-concordance and high interaction-dependence. This means further that the equality gap between the Centre and the Periphery was wide in 1960 and also that the Periphery interacted more with the Centre nations than with themselves.

Further, the discussion so far suggests that there is no reason to expect that by 1970 the international system and its subsystems had become any less feudal. The specific hypotheses to

be tested, therefore, are:

1. The attributes inequality gaps between the Centre and the Periphery on various value-indicators were wide in 1960 and remained essentially the same by 1970.
2. African nations, a subsystem within the international Periphery, did not change their 1960 peripheral situation on these indicators much by 1970.
3. The Periphery interacted as much with the Centre and as little among themselves in 1970 as they did in 1960.
4. The African nations, a subsystem within the international Periphery, continued to interact more with the Centre and less within the Periphery in 1970 as they did in 1960.

CHAPTER IV

THE ATTRIBUTES AXIS: THE HUMAN DIGNITY GAP

4.1 Operational Definitions and Sources of Attributes Data

In this chapter, I shall define the national attributes data which will be used to test the two hypotheses on rank-concordance. The chapter will include a detailed discussion on the techniques to be used in analysing the attributes data as well as how the findings are to be interpreted.

Below is a list of operational definitions of the thirteen attributes indicators and the source from which the data were obtained.

Wealth Rank Structure

1. Steel Consumption per capita, in Kilograms (W1). The data refer to the apparent consumption of crude steel (i.e. production plus imports minus exports, not considering changes in stock) per capita. (United Nations Statistical Yearbook, 1965, pp. 507-8 and United Nations Statistical Yearbook, 1971, pp. 518-19).

2. Percentage of Gross Domestic Product Originating in Industry, (W2). The data indicate the percentage of gross domestic product accounted for by industrial activities in current prices. (United Nations Statistical Yearbook, 1971, pp. 577-86).

3. Percentage of Gross Domestic Product Originating in Agriculture, (W3). The data stand for the percentage of GDP accounted for by agricultural activities in current prices. (Source as in W2).

4. Gross National Product per capita in Current \$US. (W4). The data are derived by dividing total GNP of the country in current \$US by mid-year population estimates. (U.N. Statistical Yearbook, 1971, pp. 594-98 and U.N. Handbook of International Trade and Development Statistics, 1972, Table 6.1).

5. Energy Consumption per capita, in Kilograms of Coal Equivalent, (W5). Energy consumption of coal, liquid petroleum products, natural gas and hydro and nuclear electricity. Coke, manufactured gas and electricity internationally traded are considered to have been consumed by the importing country. (Taylor and Hudson, World Handbook II, variable 156, and U.N. Statistical Yearbook, 1971, pp. 336-39).

Education Rank Structure

1. Combined Adjusted Primary and Secondary Enrolment Ratio, (E1). This indicator represents school ratio for the first and second levels of education expressed as the percentage enrolled of the population in the relevant age groups. First level education includes both public and private primary schools but excludes schools organized for adults or for handicapped children. Second level of education includes both private and public post-primary schools which provide general, vocational and teacher-training education. The total enrolment at both levels of education includes pupils of all possible ages, whereas the population is limited to the range of official school-ages. Therefore, for countries with almost universal education among the school-age population at the first level, the adjusted school enrolment ratio will exceed 100 percentage points, if the actual age distribution of pupils spreads outside the official school-ages. (UNESCO Statistical Yearbook, 1970, pp. 78-109.)

2. Number of Students in Third Level Education per 100,000 population, (E2). The data refer to students enrolled and eligible to sit for examination and receive degrees or diplomas from institutions of higher education such as universities, higher technical and higher teacher-training colleges, etc. (Source as in E1, pp. 300-317).

3. Circulation of Daily and Non-Daily Newspapers per 1,000 Populations, (E3). A daily newspaper is defined as a publication containing general news and appearing at least four times a week and a non-daily general interest newspaper issued three times or less a week. (U.N. Statistical Yearbook, 1971, pp. 796-99 and The World Handbook I, pp. 107-9.)

4. Radio Receivers per 1,000 Population, (E4). The data shows either the number of licences issued or estimated number of receivers in use at 31 December of the year stated. The term "radio receivers" relates to all types of receivers for radio broadcasts to the general public, including receivers connected to a redistribution system (wire receivers). (U.N. Statistical Yearbook, 1971, pp. 806-10.)

Health Rank Structure

1. Calories per Day per Inhabitant, (H1). The data refer to the net supplies of foodstuffs for human consumption at the retail level. The calorie figures derive from foodstuffs other than alcoholic beverages. (The World Handbook II, 1970, Variable 223, and U.N. Statistical Yearbook, 1971, pp. 504-9.)

2. Population per Hospital Bed (H2). The total population of each country divided by total hospital beds in both public and private hospitals (excluding old people's homes, established for custodial and preventive care only). (World Handbook I, pp. 207-10 and U.N. Statistical Yearbook, 1971, pp. 711-16).

3. Population per Physician (H3). The total number of qualified physicians (excluding nurses, midwives, medics, dentists and pharmacists) working in a country divided by the total population figure of that country. (World Handbook I, pp. 202-6 and U.N. Statistical Yearbook, 1971, pp. 711-15).

4. Infant Mortality Rates (H4). Data refers to the number of deaths of infants under one year per 1,000 live births. (U.N. Demographic Yearbook, 1965, Table 14 and 15 and U.N. Statistical Yearbook, 1971, pp. 76-81).

4.4 Rank Data Problems

As the sources indicate, the data we need falls in the genre usually referred to as aggregate data. Again, as the sources indicate the data are taken from three main sources. They are the various United Nations Sources and from the World Handbooks I and II. Unquestionably, these three sources provide the kind of study we are engaged in with the most comprehensive collections of existing data. This does not mean, however, that these sources contain all the data we need for the study, or that the available data are reliable or comparable as between the units of comparison.

The major problems for the researcher, in this kind of study then, come in four main ways.

The first is the choice of the units to be compared. From the logic of the theory underlying this study we made the decision earlier that our units of comparison will be the nation-state, though our fundamental interest in the individual welfare should alert us to the fact that national aggregate data do in many instances mask

substantial within-nation variations.¹ Treating the nation-state as the unit of comparison means, in the present international system, we are confronted with about one hundred and fifty units, of diverse sizes and potentials for growth to rank in different ways along thirteen different indicators. These nation-states include many which are very small, such as Gabon, Cyprus, Luxemburg and Malta. Such small countries contribute very little to the trends we are interested in discovering. They rather tend to distort the rank structures. In order to reduce the amount of work involved to manageable proportions and in order to reduce the distortions that small nation-states introduce into the analysis, this study will consider only sovereign nation-states, whether in the U.N. or not, that have a population of one million or more. These two qualifications will leave us with a hundred and sixteen units to work with.² (See appendix I for the nations listed in their geographical setting).

The second problem is that of comparability of the data.

¹See Charles Taylor's review of the criticism on the World Handbook I's use of national aggregate data in his Aggregate Data Analysis, pp. 115-38. See also Merritt and Rokkan's Comparing Nations, pp. 131-32.

²Erwin Scheuch commenting on the World Handbook I's choice of polities says: "No amount of checking will reduce erroneous conclusions in a cross-national comparison that result from treating as polities in a substantive sense those units which are polities only in a purely formalistic sense, and which by no stretch of imagination refer to units that are usually meant when discussing polities. The fact that in the United Nations something is defined as a polity and has a vote in that organization does not make it necessary to treat the units as comparable in contexts other than membership or votes in the U.N." Merritt and Rokkan (eds.), Comparing Nations, p. 145.

In this particular study the comparability problem breaks down into three different problems. The first is whether the data have the same teleological form. The second problem is whether the time referents of the data to be compared are the same. And the third is whether the genre of the data being compared truly lends itself to comparison as between the nations.

For this study the problem of teleological form has been largely removed because the sources use the same or very similar operational definitions. The data from the various sources were in fact collected for the same purpose of comparing nations; and the two World Handbooks obtained many of the data for the indicators we are interested in from United Nations sources.

With regard to the problem of time, not all the data available represent the base year 1960 and the terminal year 1970. Most of the 1960 data were available for European and North American nations, Japan, Australia and New Zealand; but many of the data for nations of Asia, Africa, South American and the Caribbean were not available. Thus of the 189 cells listed as missing for 1960, 84 were African, 80 Asian, 18 South American and Caribbean and only 7 were for the other nations. The terminal year 1970 also showed considerable missing data, despite the efforts of the United Nations statistical office to collect comprehensive 1970 data in the United Nations Statistical Yearbook, 1971. For 1970, 167 of the cells were originally listed as missing, of these 72 were African, 75 Asian, 14 South American and the Caribbean and only 6 for other nations.

Faced with such a high proportion of missing data, the most obvious thing to do would be to attempt to fill the missing cells by

further research or by estimating the missing values from known values of other countries or from the values of other highly correlated variables for the countries concerned. These exercises involve problems of different kinds and will take us far afield from the expressed aims of this study.³

There is another problem. Not all the data we have are for 1960 and 1970. Many of them are for years earlier and later than 1960. We therefore have to "prepare" the data to enable us to talk meaningfully about ranking systems for the years 1960 and 1970.

In order to discuss how we intend to prepare the data for analysis later in this study let us recall the analytical objective of this study. The first objective is to rank the nations along their absolute values on each of the thirteen indicators for the year 1960. The second is to rank them again in the same manner for 1970, so that we will be able to say whether there are any changes in the two ranking systems.

To achieve these two objectives we could use the closest year for which data are available for each nation.⁴ But, for what we may call "cosmetic purposes", I prefer to estimate the 1960 and 1970 values for the nations whose values are missing for these years.⁵

³For an example of works estimating missing data, see Jun-ichi Kyogoku and Hiroko Inoue, "Multi-dimensional Scaling for Nations," in Taylor (ed.), Aggregate Data Analysis, pp. 165-92.

⁴Russett, et. al., use this method in their ranking system.

⁵The "cosmetic" data presented in Appendix 2 show the estimated values for 1960 and 1970 for nations that do not have values for these years. In order to have the same number of nations on each indicator for comparative purposes, I have not included in the "cosmetic" data values which were present for only the terminal or the base year. This

For example, if a nation has values for the year 1964 and 1968, we shall calculate the rate of change and from that estimate the 1960 and 1970 values of that nation. This technique raises problems but less serious than if we used different base years to rank the nations. The "cosmetic" ranking systems we get (see Appendices 3a-3m) only presuppose that the rate of change for the nations whose base and terminal years' values were missing have changed their absolute values at the same average rate as the values available indicate. This of course need not be true, but in view of the state of the data available this assumption can stand.

The third problematic aspect of comparability of data is the accuracy of the data. Charles Taylor, in discussing some of the reactions to the World Handbook I, observes:

"The relationship of analytical findings to the real world depends heavily upon the accuracy of the measurements and the consistency of the definitions over the units being studied. These are not salient characteristics of national data at the moment. At least until recently governments have collected their data encumbered with a minimum of international cooperation. Not all statistical offices have considered the same measures to be worthy of attention nor have they used common definitions. They have had neither the same amount of resources nor the same degree of sophistication and the ability to collect and to report data is collaborated with economic and educational development. Some regimes have their reasons for falsifying information."⁶

The simple fact of the matter is that the kind of data we are dealing with, especially those of the so-called developing nations,

will give us the same number of nations for each indicator for the terminal year as for the base year, and hence will enable us to compare the changing rank positions of the nations more meaningfully.

⁶Taylor (ed.), Aggregate Data Analysis, p. 127.

are not very reliable. But then "some kinds of data are more reliable than others because some agencies collecting data are more scientific in their approach and they therefore assemble complete, objective, statistical compendia."⁷

The U.N. sources and the World Handbooks are three such scientific data collecting sources. This does not mean, however, that all the data from these sources are reliable. The sources are replete with warnings about the inaccuracies of the data they contain and they provide estimates for the margins of error to be expected with particular data and with particular groups of countries.

The low level of reliability should not deter us from using these sources for the testing of our hypothesis. They are among the best source we have available and used with caution, noting the various degree of reliability which the sources give, the data should provide us with a fair indication of the veracity of the hypothesis being tested.

The reliability and accuracy of the data apart, another major problem is if aggregate data as such provide us with any meaningful attribute of the collectivity under study. For example, Erwin Scheuch states, "...everyone learns in introductory statistics the danger of using an arithmetic mean for a highly skewed distribution; computing the average income for a town with 98 farmers with an income of \$6,000, each and two millionaires resulting with an average of \$25,880, which represents neither the farmers nor the millionaires

⁷Michael Haas, quotation taken from Taylor (ed.), Aggregate Data Analysis, p. 128.

in any meaningful way."⁸

This study is aware of this ecological fallacy. It is aware that averages such as GNP per capita and 'consumption per capita can misrepresent the actual pattern of distribution tremendously. But we prefer to view such national aggregate data as expressing potentials for the countries concerned. The data express what, for example, the GNP per capita in a country would be if inequalities within the country did not exist.⁹ This view enables us to proceed to compare nations on particular indicators much less hesitantly than if we viewed such data as accurate reflections of reality. More will be said on this matter in later sections of this chapter.

4.2 Discussion and Comparison of Rank-Orders

The natural question which follows from the discussion of the reliability of the data is to ask how the resulting rank-orders compare with some perfect rank-order based on some perfect data. Two things must be said with regard to perfect data. First, no such data exist, and secondly, all rank-orders of this kind have their embarrassing anomalies. All single developmental rank-orders tend to rank some nations above or below their expected or intuitive rank-positions. Such questionable rankings could be due to wrong information, transcribing errors and/or data preparation for analysis.

⁸Merritt and Rokkan (ed.), Comparing Nations, p. 146.

⁹This idea is expressed differently by Scheuch, in Merritt and Rokkan (eds.), Comparing Nations, p. 167 where he says "...by and large using aggregate data for polities should lead to treating the data as properties of systems, as describing a context."

With no perfect rank-order to use as a guide, one option open to us is to go through the rank-orders of the thirteen indicators, single out the obvious anomalies and discuss them. In the discussion below, I shall try to explain how the anomalies could have occurred and where no reasonable explanation could be given or where the anomalies are too glaring to be explained away the nations concerned will be dropped from the ranking-system altogether. After this, the revised rank-orders will be compared with those of other comparable studies. Such studies will be Galtung's rank-order in his "Structural Theory of Imperialism" and Caplow's and Finsterbusch's studies discussed in Chapter I. The revised rank-orders are presented in Appendices 3a-3m.

Appendix 3a presents the ranking systems of the indicator Combined Adjusted Primary and Secondary Enrolment Ratio for the base and the terminal years. The base year positions of Soviet Union (26.5), Italy (37.5), Finland (39.5) and Switzerland (43) are suspect. One would have expected these nations, especially Finland and Switzerland, to be higher up on the ranking-system than these positions. On the initial terminal year ranking-system Spain's position (6) and Hungary's (56) appeared grossly anomalous. They suggested that Spain moved from rank-position 56 in the base year to 6 in the terminal year, increasing its absolute value from 44.9 to 96.3, while Hungary declined from position 18 to position 46, actually decreasing its absolute share from 78 to 75.5.

The reasons for these unexpected rank-positions, possibly, are traceable to the unreliability of the information in the sources

from which the data were taken; as well as to our estimates of these data for the years 1970 and 1960. Despite these anomalies we believe the two ranking-systems in Appendix 3a to be, on the whole, fairly reliable for further use in the analyses, except those for Hungary and Spain. These latter two anomalies were too glaring to be tenable. They were therefore dropped from the revised rank-orders for this indicator.

The ranking-system of indicator, Number of Students in Third Level Education per 100,000 Population are shown in Appendix 3b. Philippines was consistently third on both the terminal and base years. One would have expected Philippines to be lower down in the ranks; but perhaps this is explained in terms of the fact that Philippines has had a close historical association with the United States, and this association could have led to the "imitation" of the United States liberal orientations toward higher education. The initial positions of West Germany (24, 33), East Germany (30, 48), Switzerland (31, 36), Italy (33, 24), United Kingdom (40, 25) and Hungary (44, 43) were also suspect.

It is highly unlikely that these apparent anomalies are due to under-reporting for this indicator, since these nations are among those most likely to keep reliable records on this particular indicator. The low ranks for these nations, except perhaps Hungary, can be explained, at least in part, by the cultural belief in these European countries that higher education is for the "bright few". In these countries, especially the continental European nations, the length of time it takes to graduate from higher education, and many other things about

the structures of higher education courses, do not encourage many young people to seek admission into higher education. Again, we dropped Hungary as an untenable anomaly.

The Circulation of Daily Newspaper (Appendix 3c) and Radio Receivers per 1,000 Population indicators (Appendix 3d) revealed no obvious deviations between the recorded and the expected positions. The high ranks on both indicators are occupied mainly by North American and European countries, the middle ranks by South American nations and the bottom ranks by African and Asian countries.

The Steel Consumption per capita indicator is meant to measure the extent to which nations are enjoying the benefits of wealth which accrue from industrialization. The ranking-systems of this indicator (Appendix 3e) show structures that distinguish the industrialized nations from the non-industrialized. Sweden heads the ranking-systems for both the base and the terminal years and Haiti and Afghanistan occupy the bottom positions of the base and the terminal years respectively. There was only one obvious anomaly in the rank-order of this indicator. Libya ranked 22 on the base and 31 on the terminal order, initially. These positions were much higher than expected, but they are explained perhaps by the fact that Libya suddenly has become, during the past fifteen years or so, the beneficiary of enormous amounts of oil. The initial high rank of Libya on this indicator probably reflects the use of steel for production rather than the use of steel for immediate consumption. This explanation is not convincing for if it were so we would expect other oil producing nations such as Saudi Arabia (55.5, 55.5) to show similar higher ranks. For this reason Libya was not considered in the revised rank-order.

Libya was again among the countries whose rank-positions on the indicator, Percentage of Gross Domestic Product Originating in Industry, (Appendix 3f), deserved a second look. Libya occupied initial rank-positions 62 and 1. This means that, within a period of 10 years, Libya improved its position from 62 to first. Other anomalous rank-positions, on this same indicator, were those of Saudi Arabia (4, 6), Zambia (6, 3), Iraq (9, 13), Chile (22.5, 14.5), Zaire (27, 52), Liberia (41, 16), Iran (37.5, 24), Trinidad (12.5, 11), United Kingdom (18, 26) and U.S.A. (24, 33.5). If this indicator is meant to tap the extent to which nations are branching from agricultural production into industrial production then, perhaps, there is no quarrel with these positions, as the rank-order positions simply rank nations according to the percentage of their GDP that is taken up by such activities. But if we are using this indicator as an indirect measure of the extent to which nations are taking advantage of the wealth that industrialization brings, which is indeed our concern, then the rank positions just listed above are very worrisome. By no stretch of the imagination can we say that Libya, Zambia, Saudi Arabia, Iraq, Chile, Zaire, Trinidad, Iran and Liberia were better placed in this sense than the United Kingdom. As an indicator for this expressed purpose, the percentage of GDP originating from Industry is simply not a good indicator. It does not give due weight to the size of industrial output. A better indicator would be, perhaps, the size or the value of industrial output per capita. Such an indicator would take into account the size per inhabitant of industrial production and therefore would be a better reflector of possible individual benefits from industrialization. The rank-

order of industrial output per capita will relegate Libya, Zambia, Saudi Arabia, Iraq and Liberia and the others to lower ranks and elevate U.S.A. and the United Kingdom to much higher ranks. The calculation of industrial production for these countries included extractive activities. This explains the countries' high positions. Libya, Saudi Arabia, Iran, Iraq and Trinidad produce crude oil; Zambia and Chile produce copper ore; Zaire is noted for its production of assorted minerals and Liberia iron ore. The above nations were removed from the revised rank-order.

Appendix 3g presents the rank orders of the percentage of GDP Originating in Agriculture. This indicator is meant to show the extent to which nations are leaving agriculture and shifting, presumably, to industrial production. Its selection, as an indicator, was based on the reasoning that the richer the country the more it can afford to leave the "unprofitable" agricultural production with its fluctuating international prices and concentrate on industrial output, and/or branch into the service sector of the economy. The danger with this indicator then is that it could represent two things, namely, a shift from agriculture to industry or the absence of or the under-development of arable land. There is also the problem of low scores for Agricultural as a percentage of GDP because of inflated scores for the percentage of industrial activities and so the following countries were removed from the revised rank-orders presented in Appendix 3g. They were, Chile, Trinidad, Jamaica, Saudi Arabia, Jordán, Zaire, Zambia and Iraq.

The Gross National Product per capita ranking system has been used so much in the literature and by the U.N. system as a

grouping measure to distinguish the so-called developed from the so-called developing nations that the ranking system has almost become familiar to analysts engaged in this type of work. It is, therefore, not surprising that a look at the ranking-systems (Appendix 3h) gives the impressions that individual nations occupy their "natural" positions and that the groups of nations formed by the distance between values seem to form natural groups. A careful search for anomalies seems to reveal only such minor queries as why, for example, East Germany (4, 19) is higher in 1960 than West Germany (12, 7) or why the Soviet Union (22, 14) is higher than Japan (26, 18) in the terminal year. The sources of such queries could be due to the fact that some of that data for these nations were estimated from other years'; to either the retrejection and projection techniques used to process our data; or the different sources from which the initial data were taken. For example, while a large part of data was taken from the United Nation publications, those for the East European Communist countries were taken from the World Military Expenditure.

The ranking systems of Energy Consumption per capita (Appendix 3i) showed very little to question. The nations seem to occupy positions that are intuitively natural, except, perhaps, for Trinidad (22, 13) which seems to have positions higher than expected. This indicator is reliable as it can be fairly accurately measured. Any noted anomaly is most likely due to the sources of the data, as they were taken unchanged from the United Nations Statistical Year-book, 1971.

Calories per Day ranking-systems (Appendix 3j) display

practically no anomaly viewed from the intuitive perspective. Japan's initial low positions (64, 49) were bothersome, but even in this case the level is well above that needed to support a healthy life for an "average person."¹⁰ From the intuitive perspective, Japan does not belong to these levels and so it was dropped from the final version. The areas of the world where over-eating is the problem, namely North America and Europe occupy the top ranks and those areas where hunger is very often heard of at crises proportions, Asia, Africa, parts of South America and the Caribbean occupy bottom positions, uninterrupted by the well-fed parts of the world.

The indicators Population per Hospital Bed (Appendix 3k) and Population per Physician (Appendix 3l) also show very few anomalies. On the former ranking-system the positions of the U.S.A. (14, 23) are a little surprising. One would have expected this country to be much higher than these positions. On the latter ranking system Uruguay (20, 32) seems to have a much higher base year rank-position than expected.

Perhaps the least reliable ranking systems in this study are the Infant Mortality Rates rank-orders (Appendix 3m). This is due mainly to the fact that it is difficult to obtain accurate figures in places where facilities for registrations of births and deaths are not very developed. The danger, then, is that the figures could very easily over-estimate or understate deaths of infants in

¹⁰Of course the "average person" is difficult to define. Such a definition depends principally on climatic conditions. However the U.N. sources record 1,500 calories per day as sufficient to sustain an "average person."

particular. This study, in gathering the data for this indicator, did in many instances make the reported mortality rate of the capitals of countries represent the rate for the country where the country as such had no available data. This was done in full cognizance of the fact that it could lead to distorted ranking systems for both the base and the terminal years. I chose this way of filling in the data cells because I presumed that the capitals' rates would bear a close resemblance to the national rates. This, of course, does not have to be true, but in view of the scarcity and low reliability of existing data this assumption must be made. Apart from the high ranks for Iraq (13, 2) and Kenya (38, 48) and the lower than expected positions of the Soviet Union (25, 24) there seems to be little else to jolt intuition into unsettling worry except the bottom positions on both 1960 and 1970 ranking systems for Turkey (67, 67). One would have expected Turkey to be better placed.

To double-check the reliability of this last indicator, (H4) I correlated its base and terminal rank-orders respectively with the base and terminal years ranking-orders of Population per Hospital Bed (H2) and Population per Physician (H3). The results are:

RANK-ORDER CORRELATION, HEALTH INDICATORS

	'60 H2	'70 H2	'60 H3	'70 H3
'60 H4	0.78		0.85	
'70 H4		0.70		0.83

These values are high enough positive correlations to give the rank-orders under scrutiny some credibility.

In the above descriptions of the rank-orders of the individual indicators, I have endeavoured to suggest the initial anomalies and the weaknesses in the ranking-systems. Departure of nations' recorded positions from their intuitively expected positions has been our main measure of inadequacy. The problem with such a disposition is how much to trust intuition and how much to trust the rank-order as they are, all things being equal. If the temptation to confirm intuition is not held in reasonable check it could lead to the revision of the rank-orders to conform with what is expected. I have kept in mind that this could be dangerous in that reality does not have to agree with intuition. It must be remembered, however, that it is dubious and even dangerous for analysis to let nations occupy rank-positions which are unconvincing, especially when we have reasons which could explain the questionable rank-positions. With data of very uneven quality, judgments must be made to exclude data of dubious reliability.

Considering the poor state of data for such a study, one cannot be expected to go beyond the questioning of the anomalies in the rank-positions and removing the glaring ones. Having noted the anomalies and their possible causes and having deleted them, I believe the rank-orders, as they are presented in the appendices, are fair representations of reality.

The main difficulty with comparing this study's rank-orders with those of the other studies' is that the years of their rank-orders differ from those of this study. Caplow and Finsterbusch use the years 1950 and 1965. Galtung illustrates his Centre-Periphery idea with data from the fifties and sixties. Despite this difficulty, the encouraging thing is that the rank-positions of the countries which appear in all

three studies are very similar. The absolute values possessed by the individual countries may differ because of the differences in the years used, but the rank-positions of nations are very similar. For example, the Steel Consumption per capita 1965 rank-order of Caplow's study shows no serious disparities with our rank-orders of this indicator for 1960 and 1970.¹¹ This similarly suggests that nations' ranks did not change much between 1965 and 1960. Similarly, there are no disturbing differences between Finsterbusch's Steel Consumption per capita rank-order and this study's. The same holds for the rank-orders of other common indicators between Finsterbusch's study and those of this study.

4.3 The Centre-Periphery Distinctions

It is part of the preparations toward the analysis of the rank data to operationalize the categoric concepts of Centre and Periphery. We have so far, for contextual convenience, used different dichotomous concepts to express the idea for which the Centre-Periphery contrast is supposed to represent.¹² The idea is what we may call the distinction between the "wretched of the Earth" and the "non-wretched of the Earth."¹³

Empirically this idea represents a "false dichotomy" in that, as is well-known in the social sciences, such sharp distinctions do not exist in real-life. The gradation of nations, according to their degree

¹¹ Caplow's data is based on the data files of the Profiles of Development Project, Bureau of Social Research, Columbia University, New York.

¹² We have used the following different dichotomies to express the idea: developed-developing, privileged-underprivileged and topdog-underdog.

¹³ These terms are now very much associated with Franz Fanon and his book, The Wretched of the Earth (New York: Grove Press, 1959).

of wretchedness forms more of a continuum than dichotomy. The problem arises when it comes to testing theories or applying models that are based on such sharp distinctions as Centre and Periphery.¹⁴ The analyst is confronted with difficulties of meaningful operationalization of such unrealistic distinctions.

The concepts Centre and Periphery are generally understood to refer to groups of actors; the groups being defined in terms of some definite criteria such as geographic locations, ranks (statuses), structures, patterns of interaction and subjective or objective attributes of the units concerned.

Different scholars use different criteria to tap the group essence of the concepts Centre and Periphery.¹⁵ Some scholars insist

¹⁴Galtung denies that his theory is based on any dichotomous class structure. This is true at the theory formulation level. When it comes to testing the theory for our purposes dichotomies are inescapable. Dividing the groupings of nations into three rather than two, such as Centre, Middle, Periphery does not remove the problem of empirical "cut." This problem is always there when we have to distinguish empirically between the different strata. The only advantage in the case of three or more groupings is that in certain cases they produce less crude and simplistic distinctions. See Galtung's "Theory of Imperialism," p. 104.

¹⁵For example, Raul Prebisch in, "Toward a New Trade Policy for Development" (New York: United Nations, 1964) uses economic criteria to distinguish his Centre from his Periphery, and so does Raymond Vernon, "International Investment and International Trade in the Product Cycle," Quarterly Journal of International Economics, LXXX, No. 2 (May, 1966) 190-207. Staniland Martin, in his "Rhetoric of Centre-Periphery Relations," Journal of Modern African Studies, VIII, No. 4 (December, 1970), 617-633, utilized political and anthropological perspectives. David Lerner discusses the Centre-Periphery issue in the context of the control the Centre has over the Periphery, "Some Comments on Centre-Periphery Relations" in Merritt and Rokkan (eds.), Comparing Nations, pp. 259-66; J. P. Nettl discusses the political and cultural aspects of the Centre-Periphery relationship in "Centre-Periphery: The Problem of Political Culture," American Behavioral Scientist, IX, No. 10 (June, 1968), 39-46. Robert Merton does realize the multi-dimensional nature of the defining criteria of groups, but he is heavily biased towards the importance of interaction as the main defining criterion. See his Social Theory and Social Structure (Glencoe, Ill.: The Free Press, 1957), pp. 335-353.

these concepts should be defined by only one criteria. Others realizing the social complexity for which the concepts stand would like to see them defined multi-dimensionally.

Silvert Langholm, in a critical review¹⁶ of some of the uses of these two concepts, comes to the conclusion that there is no consensus on what the terms mean. He points out that while Robert Lane¹⁷ uses the concept Centre to mean "centrality of location" in terms of communication, Lester Milbrath¹⁸ uses the concept to mean "where the top decision-makers are situated." Langholm asks that if, as Milbrath seems to think, centrality is a kind of social position, what then is its relation to rank? Milbrath's answer is cast in the following words: "What is valued and looked up to in one society may not be valued in another. Yet, no matter what things are valued in status and no matter how status is measured, it seems clear that persons of high status are close to the centre of society and persons of low status usually are on the periphery. Centre-Periphery,...., is a broader concept than status, so the two are not identical, but the correlation between them is very high."¹⁹

¹⁶Silvert Langholm, "On the Concepts of Centre and Periphery," Journal of Peace Research, VIII, No. 2 (1971), 273-8. Langholm's immediate concern and the basis of his plea for analytical discrimination between the dimensions and standards inherent in the concepts Centre and Periphery is his interest in using the two terms to aid historical analysis in the problems of political participation.

¹⁷Robert Lane, Political Life: Why People Get Involved in Politics (New York: Free Press of Glencoe, 1961), pp. 195-6.

¹⁸Lester Milbrath, Political Participation: How and Why Do People Get Involved in Politics (Chicago: Rand McNally, 1965), pp. 110-114.

¹⁹Langholm, Journal of Peace Research, VIII, No. 4, 273.

As Milbrath points out above the realities which these concepts represent are complex and interrelated; for example rank and communication distance to decision-makers are most probably closely related. But this does not deter Langholm from suggesting that the denominations of Centrality-Peripherality be reserved for "accessibility and access" defined as "positions on the communications network of a society in the broadest sense."

Langholm points out correctly that Galtung's²⁰ earlier conception of the Centre-Periphery dichotomy is based not upon the principle of closeness to the decision-makers, but on the principle of rank.

Galtung's latest work on the subject retains rank as one of the three defining criteria of the Centre-Periphery dichotomy, the other two being "interaction relation" and "interaction structure."²¹ This multi-dimensional use of the Centre-Periphery concepts strengthens Langholm even more in his plea for analytical clarity. He writes, "why insist on only one term for three different social dimensions, when it may so easily lead to conceptual confusion and false assumptions?"²²

²⁰ Johan Galtung, "Foreign Policy Opinion as a Function of Social Position," Journal of Peace Research, IV, No. 2 (1967), 206-31 and his "Social Position, Party Identification and Foreign Policy Orientation: A Norwegian Case Study," in J. N. Rosenau (ed.), Domestic Sources of Foreign Policy, (New York: The Free Press, 1967), pp. 161-93.

²¹ Johan Galtung, Journal of Peace Research, VIII, No. 1, 103.

²² Langholm, Journal of Peace Research, VII, No. 4, 277.

The answer to Langholm's question could be that clarity is important but complexity of reality should not be sacrificed for clarity. In this context Clifford Geertz's admonition to social scientists to avoid oversimplification but rather to "seek complexity; and order it"²³ should be remembered.

Galtung's tripartite definition takes the social complexity of the idea which the concepts represent into full account and orders them in ways that make them versatile in their application to the analysis of political behaviour in the broad sense of the term. It enables us to conceive the Centre-Periphery syndrome in terms of, (1) rank structure, the distribution of societal values or the share of systems output at a particular point in time; (2) the interaction relations which through accumulation "provides a constant flow of resources toward the Centre," and (3) the interaction pattern which supports the rank structure and the interaction relations.

Galtung's three-aspect conception of these dichotomous concepts serves the purposes of this study well. It provides this study with firm basis from which to operationalize those two terms in order to test our hypotheses. The first of Galtung's three-aspect definition enables us to concretize what we mean by Centre in terms of rank and so makes it possible for us to see the extent to which the assumed rank-concordance which helps define the international system as feudal is true or not. The second aspect enables us to

²³Clifford Geertz, "The Impact of the Concept of Culture on the Concept of Man," Bulletin of the Atomic Scientist, XXII, (April 1966), p. 3. Langholm's preferred use of the concepts can find room under the third aspect of Galtung's three-pronged meaning.

analyse the direction of change, should the need arise. It enables us to say whether international relations are subject to positive or negative feedback in their value distribution processes, that is, whether the system is giving more to those that have than to those that have not. And the third aspect would help in examining the extent to which the interaction structure which supports the feudal nature of the international system, and which together with the rank structure define it as such, is rank-dependent.

Thus, for this study when we use the term Centre in connection with the "rank hypothesis" we refer to the group of nations that are "high" on the rank dimensions and those that, if the international system has remained feudal, would enrich themselves more than the others in the processes of sharing the systems output. And by Periphery we refer to the groups of nations that are "low" on the rank structures and those that would benefit less in their share of the system's output if the international system were feudalizing. In connection with the "interaction hypotheses" the Centre would mean the group of nations which are low on concentration indices, but high on interaction-intensity in the sense of having more intense interaction between dyads in that group of nations; and by Periphery, in this regard, we mean the group of nations which are high in concentration indices, but low on interaction-intensity within that group.²⁴

²⁴The interaction dimension of this study will be discussed in detail in chapter VI.

4.4 Operationalization of the Centre-Periphery Concepts

Having chosen our rank indicators and having discussed the definitions of our two key terms of Centre and Periphery, the main concern of this section is the conversion of the Centre-Periphery concepts into operational terms. The problem here is the meaningful stratification of the many nations into "high" and "low" along the thirteen rank indicators.

It is important to say at the onset that there is no incontestable way of doing this. We shall discuss very briefly the methods used by some scholars in their attempts to stratify actors into "high" and "low" categories. The choice of which scholars to discuss will be dictated by the similarities of their indicators to ours and the closeness of their objectives to those of this study.²⁵

Let us start with the World Handbook I. In this study the authors divided the political units for which they have data on most of the variables into five groups or stages,²⁶ as identified by levels of per capita GNP with cutting points chosen so as to maximize the internal consistency."²⁷ The phrase "internal consistency" harbours

²⁵For example Philip Cutright's "National Political Development: Measurement and Analysis," American Sociological Review, XXVIII, No. 2 (April, 1963), 253-254 and Seymour Lipset's, The Political Man (New York: Doubleday & Co., 1963), are not relevant here because their objectives are different from ours even though some of the data are similar.

²⁶World Handbook I, p. 293. The five groups are Primitive, Traditional Primitive, Traditional Civilization, Traditional Societies, Industrial Revolution Societies.

²⁷The justification for doing this, is the assumption that "as a country develops, as its GNP rises, the values of the other indices also rise." World Handbook I, p. 299.

a worrisome point. In order to make the groups as consistent as possible the authors calculate and evaluate the within-group means of the absolute values possessed believing that the successive stages in the continuum provide a picture of what the different penultimate stages would look like in future.

The use of the GNP assumption as the main classifying criterion is questionable, but in view of the demonstrated high correlation between GNP and the other indices utilized in the classification the query loses some of its validity. This point aside, the method may be tenable when the objective is to paint a picture of "stages of development," and the categories forming the continuum are as many as five. But where the objective, as in our case, is not a ceteris paribus assumption about national development but the dynamic process of change along the index of equality and where our main categories are as few as two, this method of classification is not tenable. The classification of nations into Centre-Periphery groups using this method will be too crude. The internal consistency could not be maximized easily.

A variation of the technique used by World Handbook I is to use deciles to break the ranking system of nations into Centre and Periphery at a "natural" data point, say at the median. This technique, for our purposes suffers from the same faults as the technique just discussed above. There could occur more than one "natural point" and the internal consistency of the two groups could not be easily justified.

We could also use the case deciles to break the ranking system at a "natural point" say at the first, second or third decile

into the Centre-Periphery groups. This approach will be too simplistic. It will say little, if anything at all, about the characteristics of the nations in either group. Such a grouping is not of immediate theoretical significance to the underlying concerns of this study.

We could also arbitrarily choose a certain percentage of the nations as the Centre and designate the rest as Periphery. For example, we could call the countries forming the top five per cent or ten per cent or even twenty per cent of the nations as the Centre and the rest the Periphery. This technique would amount to evading the problem of classification. What we want to know is the Centre as distinct from the Periphery as Galtung defines the terms. There is no a priori justification for expecting any percentage of the total population of the world to form the Centre or the Periphery.²⁸

The technique of index formation has been found a useful grouping tool by many scholars including Johan Galtung and his peace research associates. In his classification of individual Norwegians into Centre and Periphery, for example, Galtung chose eight indices and invoking "the desirability of relatively equal cuts in the sense of having about the same number of underdogs and topdogs,"²⁹

²⁸Of course we could justify such a claim in terms of Karl Deutsch's position that five per cent of units usually forms the Centre and the rest the Periphery. However viewed, such a statement, at this stage of our knowledge about society, is more a theoretical hunch than an empirical fact. See Deutsch, Politics and Government, How People Decide Their Fate (New York: Houghton Mifflin Company, 1972), pp. 43-44.

²⁹Johan Galtung, Journal of Peace Research, 1, No. 2 (1964),

he divides the population into two social extremes by the various criteria.³⁰ Scores of 1 and 0 are awarded high and low positions respectively on each indicator. By simply adding up the scores of each individual we have a possible maximum additive index score of 8 and a minimum of 0. Those individuals with scores of 0-2 are the Periphery, those with 3-5 are the Middle and 6-8 form the Centre.³¹

This technique, as neat and as appropriate as it may be for Galtung's purposes, is not suitable for ours and for our data. For a start, we reject the implications of what Galtung calls the desirability of having equal cut between the high and the low. The position

³⁰The Criteria used are clear from table 7 of "Foreign Policy Opinion As A Function of Social Position," reproduced below:

The Composition of the Index of Social Position

	<u>Topdog or Central (Score 1)</u>	<u>Underdog or Peripheral (Score 0)</u>
1. Sex	Male	Female
2. Age	30 - 59	Below 30, Above 60
3. Education	More than primary	Primary or less
4. Income	Above Median	Below Median
5. Location ecological	Urban, Suburban	Rural
6. Location geographical	Central	Peripheral
7. Occupation, position	White-Collar, self-employed	Blue-Collar, foreman
8. Occupation Sector	Secondary, tertiary	Primary

³¹Galtung is justified in using this technique to study Norwegian society because that society is very homogeneous. Many other writers in international relations have followed Galtung to use this technique or a variation of it to stratify both individual groups or nations. Among these writers are Malvern Lumsden, "Social Position and Cognitive Style of Strategic Thinking," Journal of Peace Research, IV, No. 3 (1967), 289-303; Haken Wiberg, "Social Position and Peace Philosophy," Journal of Peace Research, V, No. 2 (1968), 227-292; Egil Fossum, Factors "Influencing the Occurrence of Military Coup d'Etat in Latin America," Journal of Peace Research V, No. 3 (1967), 228-35.

taken earlier regarding the sizes of the Centre and the Periphery groups should explain this rejection. We do not know the sizes of these groups. It is part of this exercise to find out the sizes of these two groups. The second objection to this method is that our data do not lend themselves easily to a priori low and high designations. To form a meaningful additive index we still have to find a means of cutting the ranking systems into high and low. Thirdly, the nature of the study does not require that we construct a combined index. We have already made the decision to regard the thirteen indicators as different, even though related.³²

Another grouping approach could be to use the "level of international tolerance" as the cutting off point. By level of international tolerance we mean the internationally accepted minimum below which a nation is usually regarded as belonging to the intuitively defined periphery and above which it is regarded as falling into the centre category. Such levels of tolerance can be estimated for some of the

³²The problems of combined index construction are discussed in most books on the methodology of social science. Many writers are finding ingenious ways of avoiding these problems. For example, Michael Wallace, in order to avoid constructing a combined index of "questionable validity" in his study of the relation between national behaviour and rank inconsistency chose five separate indices of national power capability, achieved continua, and subtracts their rank positions on these indicators from the positions on the ascribed indicator thus containing an adequate profile of each nation's position. "Power, Status and International War," Journal of Peace Research, VIII, (1971), 23. For a discussion on "national profiles" see Karl Deutsch, "Toward an Inventory of Basic Trends and Patterns in Comparative and International Politics," American Political Science Review, LIV, No. 1 (March, 1960), 34-57. For a critique of this work and preference for index construction see Ralph H. Retzlaff, "The Use of Aggregate Data in Comparative Political Analysis," Journal of Politics, XXVII, No. 4 (November, 1965), 797-817.

indicators but not for others. For example, within the U.N. circles, nations with per capita income of less than a certain level are regarded as underdeveloped while those above it are regarded as developed. The same could be done for the indicator calories per day per inhabitant, where there is a certain necessary minimum level of calorie intake for an "average man." We could regard nations with calorie intake averaging above this level as the centre nations and those below it as periphery on the calories per day indicator.

In a case like Education where there is no such internationally recognized level of tolerance we could arbitrarily say that nations with seventy-five per cent (75%) or more of eligible pupils in the first and second levels of education actually in school fall in the Centre and those below this figure in the Periphery; and similarly for the third level education. In other cases where there are no internationally recognized levels of toleration, and where we could not confidently or justifiably establish such levels, the classification problem still remains. Despite the convenience of this technique we shall not use it because it will most likely raise more questions of disagreement than it could answer. The technique we use should be one that raises fewer questions than it answers.³³

The last grouping technique that we shall discuss is one based on the comparison of the mean of each ranking-system with the individual nation's absolute value for that indicator. The grouping

³³We can readily anticipate a possible "radical" rejection of this technique on the grounds that such "levels of international tolerance" are the creations of the Centre nations in order to minimize the seriousness of the Centre-Periphery Gap.

operation is simple; it consists of ranking the nations on each of the thirteen indicators, striking the mean of the total absolute values possessed by nations and then grouping all the nations whose absolute values, on a particular indicator are above the mean value of that indicator as the centre and those below as the periphery. Of course, on some indicators, such as hospital beds per inhabitants, number of physicians per 1,000 inhabitants and the rate of infant mortality, the nations with absolute values larger than the mean value will form the periphery and those values smaller than the mean value will form the centre. In these latter cases the ranking will be inversed.³⁴ This technique differs from the others in that it segregates the privileged from the underprivileged nations by the mean of the absolute values, not their ranks.

Despite the simplicity of this technique we find it useful and particularly suitable to the concerns of this study. The mean value for each ranking-system would give us an idea of what the absolute value for each nation should be, if the condition that the particular values in the international system are shared perfectly equally prevailed.³⁵ This method enables us meaningfully to segregate those

³⁴For a similar methodological orientation see Hoivik, Journal of Peace Research, VIII, No. 2, 119-122.

³⁵The reminder that here we are talking about inter-nation distribution but not intra-nation distribution is important. Within-nation distribution need not be perfect to make our discussion meaningful. For example, during the colonial period in Africa the colonial territories' output distribution were skewed in favour of the white minorities, where they existed, in such places as in Kenya and in Algeria; whereas the distribution was much less skewed when there were no, or very few, white settlers. Even in these latter cases, as in other cases all over the world, regional disparities, urban and rural discontinuities racial and ethnic discriminations, and educational unevenness do contribute to unequal within-nation distributions of the national resources. Where the individual is the subject of concern and the unit of analysis,

nations who are managing to possess more than their "fair share" of world resources, the "non-wretched of the earth" and those who possess less, "the wretched of the earth." It is true that this technique will still yield a crude Centre-Periphery dichotomization, but as we know any such dichotomization of a continuum would be crude. What matters is not so much the crudeness of the distinction as the reasons for, or the logic of, the distinction.³⁶

The logic of the technique under discussion is the comparison of reality with a potential,³⁷ the potential of equal distribution of world resources. It enables us to tell which nations have achieved the potential, or more than the potential, and which nations have not achieved it at a particular point in time; and, therefore, considered longitudinally we could infer something about the trend characterizing

national distribution is related to international distribution. But where the nation is the unit of analysis, within-nation equality can be considered analytically distinct from inter-nation distribution of the international system's output.

³⁶N. H. Chi clearly puts the problems entailed in such exercises when he writes "Categorical thinking is valid as long as the concepts are clearly differentiated from each other. Unfortunately, in modern life, where communication and interaction between individuals have reached a high level, the 'boundaries' between most social and cultural categories have become less visible, thus, it is more valid to think in terms of 'continua' rather than categories. For example, even sex—the most 'categorical' concept—has been losing its categorical nature in the modern 'unisex' environment. Instead of categorizing the people into 'males' and 'females' we should start to conceptualize 'sex' in terms of degree of 'maleness' or 'femaleness' or whatever it is," "The Regression Model of Regionalism: A Critique" Canadian Journal of Political Science, V, No. 2 (1972), footnote 1, 291-292.

³⁷The term "potential" is used to refer to what Hayward Alker, Jr. would call democratic "equality." On his Mathematics and Politics, p. 35, he writes: "Using the definition of democratic equality... individual inequality can be defined by subtracting from actual values held the expected, i.e. average level of values held in the population. Those above the value can be considered privileged, while those below average are clearly discriminated against."

the distribution of international values. Equal share of world resources being the ideal toward which international development is aspiring we should be able to infer by way of this technique whether the international system is developing or not.³⁸

Of all the grouping techniques we have discussed above, the last one, for reasons already given, is the most appropriate for this study. This last technique will be applied to all the ranking systems to delineate the centre from the periphery.

Even though the logic of democratic equality, or the logic of the "potential-reality," provides us with two reasonable categories of Centre and Periphery, the distinction no matter how logical or reasonable it is, still has some crude air about it. The cut-off point between the centre and the periphery is not arbitrary but that does not make it necessarily refined. In order to refine our categories, we use the democratic equality reasoning to divide the two groups further into four groups. By employing the mean of the centre group of nations as the measure, we shall designate the nations that possess values higher than the mean of the Centre as the Centre of the Centre; and those of the centre nations possessing less than the mean of the Centre as the Periphery of the Centre. Of course, when the rank-order is inversed, the grouping logic also changes. Similarly,

³⁸ Galtung has said, "from a general scheme, we cannot arrive at more than general policy implications that can serve as guide-lines, as strategies. More concreteness is needed to arrive at the first tactical steps. But theory developed in peace research should lead to such guide-lines, if it merely reflects what is empirical, not what is potential, then it is not good theory," Journal of Peace Research VII, No. 1 (1971), 106-107.

those periphery nations possessing values higher than the mean of the Periphery become the Centre of the Periphery; and those who possess less than this mean, the Periphery of the Periphery. This four-fold categories provide the analyses with a subtlety which would otherwise be lost. We can by this means observe small changes in rank positions from one category to the other. Our Analyses of changes in rank-positions now has other subtle qualitative meanings apart from the broad Centre-Periphery changes in positions.

The theory supporting this study and the nature of the derived hypotheses do not require any complicated procedure to analyse the data. All we need employ here are means and rates of change relating to simple measures of equality,³⁹ and rank-order correlation coefficients.

4.5 Techniques of Analysis

The rank-orders presented in Appendices 3a-3m serve as the bases for the analysis of the data. The main tools used to analyse the data are: (1) Spearman's rank-order correlation coefficient (Rho) (2) Systemic Inequality Measure, and three deductions from Lorenz Curves, namely, (3) Gini Index, (4) Equal Share Coefficient and (5) Ratio of Discrimination. These measures are discussed below.

³⁹It is true Galtung has said that testing his theory is not confined to the use of means and rates of change, but the use to which we have put the theory makes the utilizations of means and rates of change the logical analytic tools. See R. J. Rummel, Applied Factor Analysis (Evanston: Northwestern University Press, 1970) and Johan Galtung, Theory and Methods of Social Research (Oslo: Universitetsforlaget, 1967) for a discussion of the types of analytical procedures required by different levels and goals of theories.

1. Spearman's Rho. Coefficient: In order to calculate whether the total international system was moving from high to low rank-concordance, we correlated the 1960 rank-order of each indicator with its 1970 rank-order. Correlating the 1960 rank-order with itself, of course, would give a perfect correlation of 1. If, however, there had been any change in the rank structures to move the system closer toward low rank-concordance this change will be revealed in the value of rank-concordance coefficient (r) between 1960 and 1970 rank-orders to be less than one.

Rank-order situation which provides a correlation coefficient of zero is very significant for this study. The rank-order correlation coefficient could change between the base and the terminal years from $+1$ to -1 . The first magnitude of change, as explained above, is where the rank-order is the same in the terminal year as the base year. The coefficient of -1 occurs where the terminal year rank-order is the reverse of the base year rank-order. The underlying desire of this study is not to wish that the rank-order reverses as between the base and the terminal years but that the terminal correlation coefficient approximates zero under conditions where the terminal ranks of nations are all equal. For this reason, the coefficient of zero is ideal, or the desired goal, and therefore the significance of any change in the terminal year's rank-order correlation coefficient should be evaluated in terms of its closeness to zero.

Any decreases in rank-concordance, however, do not indicate to us whether the system developed or not, because such changes do not tell us whether the changes in rank-positions which led to the decreases

in the values of r were within-Centre or within-Periphery changes.

In order to appreciate the developmental significance of these changes, we shall investigate whether it was the Centre of the Periphery nations which gained or lost in their average rank-change.

Nations can change their ranks in two ways. They can change their ranks within the same category or from one category to another. That is, nations can change their rank-positions within the Centre of Centre, Periphery of Centre, Centre of Periphery or the Periphery of Periphery; or from one of these categories to another. A change in rank-position which moved a nation from one category to another will be referred to as Real rank-change; and a change in rank within the same category will be referred to as Apparent rank-change.

2. Systemic Inequality Measure (SIM): This technique attempts to measure the extent to which the value-inequality gap between the Centre and the Periphery was widening or closing between the two years 1960 and 1970. We derive this technique from Hayward Alker's treatment of the concept inequality. The key terms in this technique are the terms Centre and Periphery. Nations which possess more than the democratic absolute value, i.e. the mean, on each of the indicator rank-order are grouped together as the Centre nations and the nations which possess less than the democratic absolute value are grouped as the Periphery. The SIM involves subtracting the Periphery's mean value ($\bar{V}_p$) from the Centre's mean value ($\bar{V}_c$) and standardizing this difference by dividing it with the mean value of the ranking-system ($\bar{V}$). The resulting value is the SIM and it depicts the Centre's ratio of advantage over the Periphery at a

particular point in time.

$$\text{Thus, } \text{SIM} = \frac{V_c - V_p}{V}$$

Calculating the SIM for each indicator for the base year of 1960 (SIM_b) and for the terminal year 1970 (SIM_t) will give us two measures representing the Centre's advantage over the Periphery for each indicator for those two time points.

$$\text{Thus, } \text{SIM}_b = \frac{V_{cb} - V_{pb}}{V_b}$$

$$\text{SIM}_t = \frac{V_{ct} - V_{pt}}{V_t}$$

If the international system moves towards the desired goal of democratic distribution, then $\text{SIM}_t < \text{SIM}_b$; if away from this goal then $\text{SIM}_t > \text{SIM}_b$; and if the Centre's advantage over the Periphery remained the same then we expect $\text{SIM}_t = \text{SIM}_b$.

3. Deductions from Lorenz Curves:⁴⁰ A Lorenz Curve is drawn by, first, ranking all the units according to their possession of the value concerned. Second, points which relate the cumulative percentages of the total units to the cumulative percentages of the total value are plotted on a graph beginning with the poorest units

⁴⁰For detailed discussion on Lorenz Curves see Alker, Mathematics and Politics, pp. 36-42; his "Indices Comparing Nations," in Merritt and Rokkan, Comparing Nations, pp. 349-372; Russett, Trends in World Politics, pp. 117-124 as well as A. B. Atkinson's contribution in A. B. Atkinson (ed.), Wealth, Income and Inequality (Bungay, Suffolk: The Chaucer Press, 1973), pp. 46-68. See also H. R. Alker Jr., and B. M. Russett, "On Measuring Inequality," Behavioral Science, IX, No. 3 (July, 1964), 207-218; and Tord Hoivik, Journal of Peace Research, VIII, No. 2, 119-142.

first.⁴¹ We have a Lorenz Curve when we connect these points on the graphs. The 45-degree line, as shown in Appendices 4a-4m, represent a "norm of complete, democratic equality." Complete equality means that all units possess the democratic value. The 45-degree line is called the "line of equality" and the area between this line and the Lorenz Curve is known as the "area of equality." The maximum area of equality" is the area enclosed by the line of equality, the X-axis and the Y-axis, i.e. half the area of the square containing the Lorenz Curve. Two Lorenz Curves were drawn for each indicator's cumulative distribution pattern, one each for 1960 and 1970. The two curves are superimposed one on the other as shown in Appendices 4a-4m. From each year's curve, we deduced the state of equality by these measures.

(a) The Gini Index (GI): The value resulting from dividing the area of inequality by the maximum area is called the Gini Index. This measure in effect compares cumulative proportions of nations to their cumulative share of the value being distributed and compare the state of distribution to the democratic ideal of 1:1 ratio. The Gini Index may vary between zero and 1.0; and the higher the index the greater the inequality.⁴²

(b) The point on the Lorenz Curve, or the portion of it, where the tangent is parallel to the line of equality, i.e. where the slope is 45-degrees, marks the position where the units possess the democratic share.

⁴¹The units in our case were nations and the points plotted on the graph sheets were 10%, 25%, 50%, 75% and 90% of nations.

⁴²The areas were calculated by counting the number of the squares on a graph sheet covered by the respective segments with the area defined by the line of equality and the X and Y-axes.

Nations to the left of this point on the curve possess less than the democratic share and those to the right of it possess more than the democratic share. The percentage of the total units marked off by this point as receiving less than the democratic share is referred to as the Equal Share Coefficient. As Alker puts it, "in egalitarian terms, the equal share coefficient measures the percentage size of the under-privileged population."⁴³ Thus, we can read from each of the Lorenz Curves the proportion of the nations that constitute the under-privileged population. The values of the Equal Share Coefficient may vary between zero and 1.0. The lower the value the less the inequality in the particular distribution.

(c) Ratio of Discrimination (RD): In order to know how disadvantaged the underprivileged were in (b) above we employed this measure, which simply gives us the ratio of the percentage of the value possessed by the disadvantaged relative to the Equal Share Coefficient. The values range between zero and 1.0; and the lower the values the greater the inequality.

Each of the measures discussed above describe a different dimension of the concept of equality. The Level of Concordance measures the extent to which the rank-positions of nations for 1960 and 1970 differed. It does not tell us which nations changed positions as such. It only gives us an idea of the overall extent of rank-position changes. To know which nations changed ranks, and by how much, we shall need to examine the actual rank-positions in some other ways. Similarly the Gini measure only tells us about the overall extent to which the system distributes a particular value equally. We shall have to examine the Lorenz Curve to know which portion or portions of the Curve has or have more equitable distributions.

The SIM describes the distance between the Centre and Periphery possessions of the value. Thus, while the Level of

⁴³Alker, Mathematics and Politics, p. 39.

Concordance and the Gini need further analysis to bring out the degree of equality between the Centre and the Periphery, the SIM deals with this amount of equality directly without the need for further analysis. Similarly, the Equal Share Coefficient and the Ratio of Discrimination also measure the amount of equality between the Centre and the Periphery directly.

It is quite possible in comparing the structures of distribution of a value for two time points to have the different measure exhibit different and even contradictory states and trends of equality. For example, if the Gini Index decreased between the two time points, it does not mean that the Equal Share Coefficient or the Ratio of Discrimination has to decrease. In fact, the Equal Share and Ratio of Discrimination scores could increase, decrease or remain the same. This is due to the fact that the Equal Share and the Ratio of Discrimination scores depend upon the shape of the Lorenz Curves while the Gini values depend upon, not the shape of the Curve but, the area between the curve and the line of equality.

Similarly, while the Gini measure suggests, for example, a decrease in the equality of the distribution of a value between two time points, the SIM and the Level of Concordance could show the same or different states and trends of equality for the two distributions.

The reason for this is simply that each of the measures describes different aspects of the idea of equality. Each of the measures uses different aspects of the data gathered. The Gini measure uses cumulative value distribution, the Equal Share measure uses the point, or the section, of the Lorenz Curve which is parallel to the line of equality,

the Level of Concordance measure employs only ranks of nations, the Ratio of Discrimination measure relates the proportion of those discriminated against to the total amount of the value they possess, while the SIM relates the mean value possessed by the Centre to that of the Periphery.⁴⁴

It is only when the distribution is perfectly feudal or perfectly egalitarian that all the above measures coincide to describe it as such. For example, under perfectly egalitarian conditions, the Level of Concordance is zero, the Gini Index is zero, the SIM is zero; while the Equal Share Coefficient is also zero and the Ratio of Discrimination is one. Similarly, under perfectly feudal conditions, the measures will assume their maximum feudal values. However, under a condition which is neither perfectly feudal nor egalitarian the measures need not bear any relation to each other apart from that they may indicate low or high score, as is shown in the case of Calories per Day indicator in Chapter V.

4.6 The Feudal-Egalitarian Scales

All the above techniques enable us to know three things about the structures of distribution. First, they tell us in their different ways about the states of distribution of the values for each rank-

⁴⁴ Alker groups measures of inequality into three classes: (1) measures of extremes (ratios of advantage and Pareto coefficient), (2) measures of average tendencies in a frequency distribution (the mean deviation, the standard deviation, the skewness of a distribution) and (3) measures involving cumulative value distributions and theoretically determined norms (minimal majority, the Lorenz curve, The Gini index of concentration, equal share point and Schutz coefficients), in Merritt and Rokkan (eds.), Comparing Nations, pp. 352-364. See also Hoivik, Journal of Peace Research VIII, No. 2, 121 where he

system for the base and the terminal years; and so we can say, according to each technique, which indicators were most equitably distributed. Second, by comparing the 1960 values with the 1970 values, we can tell whether the trends characterizing the structures of distribution of the various international output values showed movements towards, or away from democratic equality. And, third, by comparing the 1960 and 1970 values, we are able to know how much the movements towards or away from the egalitarian system were.

Each of the techniques we have discussed above will have values of inequalities that can be aligned along a continuum between the extremities of a perfectly feudal distribution and a perfectly egalitarian distribution. To facilitate discussion, the continuum can further be divided into four categories: high feudal (HF), low feudal (LF), low egalitarian (LE) and high egalitarian (HE). We will use this category system in order to discuss the structure of the system in 1960 and 1970 on each indicator and by each measuring technique.

The Gini scores could have values that spread between a perfect feudal score of one and a perfect egalitarian score of zero. The Equal Share Coefficients could range between the perfect feudal score of hundred and a perfect egalitarian score of zero. The Ratio Discrimination values could range between a feudal extreme of zero and the egalitarian extreme of one. The SIM values have a perfectly egalitarian system limit of zero, but no feudal limit. The Concordance

compares his RMD with the Gini. GI, ESC and RD fall in Alker's third class while the SIM falls in his second class.

Levels, as we discussed earlier, will fall between the limits of zero for egalitarian and one for feudal.

There is, however, the problem of how to distinguish between the HF, LF, LE and the HE designations on the various feudal-egalitarian scales in order to arrive at some definite conclusions describing the different structures of distribution. There are no incontrovertible cut-off points on the different scales for such purposes. We therefore have to select arbitrarily the levels that will distinguish the feudal structure of distribution from the egalitarian; and the levels that distinguish the high feudal from the low feudal and the high egalitarian from the low egalitarian.

On the Gini and the Concordance Level scales all scores higher than 0.5 will be regarded as describing high feudal structures of distribution. Scores between 0.5 and 0.25 will describe low feudal structures; scores falling between 0.25 and 0.10 will describe low egalitarian structures and scores less than 0.10 will describe high egalitarian structures of distribution.

On the Equal Share scale, scores bigger than 50.0 will be considered high feudal; scores falling within 50.0 and 25.0 will describe low feudal; those between 25.0 and 10.0 will refer to low egalitarian; and those less than 10.0 will refer to high egalitarian system.

In the case of the Ratio of Discrimination scale, scores falling within zero and 0.5 indicate high feudal situation; those between 0.5 and 0.75 are low feudal; scores within 0.75 and 0.90 describe low egalitarian situations; and those more than 0.90 refer to high egalitarian systems.

There is no upper limit for the SIM scale. But we regard a SIM score of one as describing a very high degree of inequality and therefore all SIM scores greater than one describe high feudal distributions; those between one and 0.50 are regarded as low feudal; those scores falling between 0.50 and 0.10 describe low egalitarian; and scores less than 0.10 describe high egalitarian systems.

With these techniques and definitions, we can now proceed to an analysis of the attribute data in chapter V.

CHAPTER V

ANALYSIS OF THE ATTRIBUTES DATA

5.1 The States of Inequality: Concordance Levels

We reasoned earlier, in Chapter IV, that the Spearman rank-order correlation coefficients would suggest the extent to which the 1960 rank-positions of nations changed by 1970 on each indicator. By this measure, the evidence is clearly that the 1960 rank-positions of nations did not change much by 1970. The rank-positions of nations in 1970 were very nearly the same as in 1960. The correlation coefficient for each of the indicators was .82 or higher. The thirteen correlation coefficients ranged between .82 and .98, with an average value of .93.

TABLE 1

INDICATORS RANKED ACCORDING TO THEIR 1960-1970 LEVELS OF CONCORDANCE

1.	Calories <u>per</u> Day	.82	
2.	GNP <u>per</u> capita	.84	ABOVE
3.	Radio Receivers <u>per</u> 1,000	.87	AVERAGE
4.5	Adjusted School Enrolment	.92	CHANGE
4.5	Industry as % GDP	.92	
<hr style="border-top: 1px dashed black;"/>			
7.5	Third Level Education	.96	
7.5	Population <u>per</u> Hospital Bed	.96	BELOW
7.5	Population <u>per</u> Physician	.96	AVERAGE
10.5	Steel Consumption	.96	CHANGE
10.5	Circulation of Newspapers	.97	
10.5	Agriculture as % GDP	.97	
12.5	Infant Mortality Rates	.98	
12.5	Energy Consumption	.98	

Table 1 above shows the Calories per Day indicator to have the smallest coefficient and the Infant Mortality and Energy Consumption indicators the largest. It must be remembered, however, that just because nations on the whole did not change their rank-positions much does not mean that certain individual nations did not experience considerable change in their rank-positions. We shall discuss this matter with regard to the experiences of African nations later in this chapter.

Theodore Caplow, in his study cited earlier, regards the stability of the world developmental ladder as the fundamental background condition against which to consider the question of whether the rich are getting richer and the poor are getting poorer. He found that when he compared the 1950 and 1965 rank-orders of major countries on each of a dozen diverse development indicators, none of the rank-order correlations was under 0.95.¹ This study's rank-order correlations for the thirteen indicators ranged between .82 and .98 and averaged .93. Thus the two studies suggest that nations are fairly fixed in their positions and a period of five to ten years does not change nations' positions much. One can argue that such a period is too short for any major changes in nation's rank-positions. Such an argument will be well taken, except it also shows that, in our context, we need a very long time to bring about the situation where "rank itself is abolished."

Assuming that the average rank-positions of nations would change at the rate of .07 in every ten years, as our figures suggest,

¹Caplow, Foreign Policy, No. 3 (Summer 1971), 92.

then it would take as long as one hundred and forty-three years to bring about the situation where all ranks may be equal. Such a period may not be too long for some people, but it is definitely too long for those who would like to see the international system develop very fast. The impatience which characterizes David Baldwin's discussion of the IBRD and S. Sideri's work on trade relations between the Centre and the Periphery for example is impatience with the rigidities in the international system which make the rank-positions of nations fairly fixed in the long-run.²

5.2 The States of Inequality: Systemic Inequality Measures (SIM)

The SIM is the measure which describes the inequality between the Centre and the Periphery with respect to their average positions of values. As we found out earlier in section 4.6, the larger the SIM value the greater the inequality between the Centre and the Periphery. All SIM values larger than 1.0 describe feudal status of distribution between the Centre and the Periphery. Table 2 below shows the SIM for each of the thirteen indicators for both the base and the terminal years, as well as their respective contextual ranks. It shows, for example, that in both 1960 (Rank_b) and 1970 (Rank_t), the Calories per Day indicator had the lowest SIM values and therefore ranks first in both years; while the Adjusted School Enrolment indicator ranked fourth in 1960 and second in 1970.

² Refer to Sections 2.3 and 2.4 for discussions of Baldwin's and Sideri's views.

TABLE 2

VALUES OF SYSTEMIC INEQUALITY MEASURES

Indicator	SIM _b	Rank _b	SIM _t	Rank _t
Adjusted School Enrolment	1.00	4	0.77	2
No. in Third Level	1.60	6	1.69	7
Circulation of Newspapers	2.26	9	2.25	10
Radio Receivers	2.25	8	1.57	6
Steel Consumption	2.38	11	2.42	11
Industry as % of GDP	0.97	2	0.93	3
Agriculture as % of GDP	0.98	3	1.16	4
GNP <u>per</u> capita	2.24	7	2.20	9
Energy Consumption	2.82	12	2.72	12.5
Calories <u>per</u> Day	0.31	1	0.34	1
Population <u>per</u> Hospital Bed	2.34	10	2.12	8
Population <u>per</u> Physician	3.14	13	2.72	12.5
Infant Mortality Rates	1.04	5	1.29	5

Table 2 further shows that on all the thirteen indicators the SIM values for both 1960 and 1970 were far from the democratic value of zero, except perhaps for the Calories per Day indicator. The observation on the gaps between the Centre and the Periphery, as measured by the SIM, then, is that, in all cases, except in the case of the Calories per Day indicator, the gaps were wide in both 1960 and 1970.

If we had to select one single measure to describe the inequality gap between the Centre and the Periphery group of nations it would be the SIM. This measure considers the Centre and the Periphery group of nations and compares them according to their average possessions of the values being distributed. The wide gaps between the Centre and

the Periphery as described by the SIM on the individual indicators suggest in no uncertain terms that the Centre nations tend to possess far more of the values than their proportionate share. Studies based on the growth rate perspective lose sight of this simple but vital way of describing the disparities in the distribution of values between the Centre and the Periphery.

The Education indicators had an average SIM value of 1.77 for 1960. For the same year, the Wealth and Health indicators had average SIM values of 1.88 and 1.70 respectively. And we get an average SIM value of 1.80 for all the thirteen values in 1960. When we recall that SIM values of more than one describe a feudal structure of distribution it becomes clear that the Education, Wealth and Health indicators considered separately describe a feudal distribution. The situation hardly changes in 1970 when we have an average SIM value of 1.71 for the thirteen indicators.

5.3 Comparing Gini Indices with Russett's

Before discussing the states of inequality described by the deductions from the Lorenz Curves, I shall briefly compare the Gini Indices of this study with those of the only comparable study in the field of International Relations. Russett used Lorenz Curves to estimate the states of inequality existing within the system of nations for the year 1960 and for projected conditions in the year 1975.³ Russett used four indicators: GNP, Hospital Beds, Radios and Literacy.

³Russett, Trends in World Politics, pp. 117-124.

The first three of these values are operationally similar to three of our thirteen values. And with some liberty, derived from the expected high positive correlation between Literacy and School Enrolment, we can accept that Literacy reflect School Enrolment. Thus, we can say Russett's four indicators are similar to four of this study's. The Russett Study's Gini Indices are compared with this study's in Table 3 below.

TABLE 3

COMPARISON OF GINI INDICES

Indicator	Russett's Gini Indices		This Study's Gini Indices	
	1950	1975	1960	1970
GNP	.66(3)	.62(3)	.48(2)	.49(2.5)
Hospital Beds	.49(2)	.49(2)	.52(3)	.49(2.5)
Radios	.68(4)	.68(4)	.60(4)	.51(4)
Literacy (School Enrolment)	.30(1)	.24(1)	.32(1)	.25(1)

First, we see that the individual indicators have very similar rank-positions (figures in brackets) for the two studies. Moreover, the two studies' Gini Indices for Hospital Beds and Literacy are very close. Those for GNP and Radios are, however, very different. According to Russett's figures, the states of equality are not expected to change for the distributions of Hospital Beds and Radios between 1950 and 1975. The state of equality for the other two values would change but only by insignificant amounts. What is interesting about these figures is that, when we take Russett's 1950 Gini Indices as given and consider that the years 1960 and 1970 lie between 1950 and 1975, then we see that our Gini Indices for the values GNP and Radios are too low.

That is, we underestimate the levels of inequality along these two systems-indicators. Many reasons could account for this discrepancy. Russett's base year was 1950 and his terminal year was 1975 and, therefore, presumably, any projections to the futuristic 1975 values were done from the 1950 base. In cases where we did not have data for 1960 or 1970 we estimated the values from other years to give us some data for 1960 and 1970.

A more important reason for the different values is, perhaps, that the X-axis of Russett's graph represented "percentage of total population" while ours represented "percentage of total number of nations." Russett's study considered 30 nations, which between them accounted for about 80% of the world's population; and our study considered 116 nations and had data for different number of nations for different values. These differences could account for a large part of the discrepancies between the values of the Gini Indices for GNP and Radio for the two studies. Despite these differences, it is reassuring enough to see that the two sets of the value are very close on two indicators and that the contextual rankings of the different indicators are similar.

5.4 The States of Inequality: Lorenz Curve Deductions

Table 4 contains the comparative states of inequalities in the distributions of the thirteen values as measured by the three deductions from the Lorenz Curves for the two years under study. The Gini Index is the measure which describes the overall inequality of distribution between units. The Gini Indices range between zero and 1.0. The higher the Gini value the greater the inequality.

TABLE 4
LORENZ CURVES: STATE OF DISTRIBUTION

Indicators	Gini Index		Equal Share Coefficient*		Ratio of Discrimination*	
	1960 GI Rank	1970 GI Rank	1960 ESC Rank	1970 ESC Rank	1960 RD Rank	1970 RD Rank
Combined Adjusted School Enrolment	0.32 3	0.26 2	42.0 3	42.0 4	0.44 5	0.57 5
Number in Third Level Education	0.51 7	0.52 9	58.1 8	65.1 10	0.33 10	0.42 7.5
Circulation of Newspapers	0.69 12	0.67 12.5	75.0 13	60.5 8	0.35 9	0.24 12
Radio Receivers	0.60 10	0.51 8	74.1 12	65.0 3	0.37 6.5	0.47 6
Steel Consumption per capita	0.71 13	0.67 12.5	69.0 9	67.0 11	0.22 12	0.22 12.5
Industry as % of GDP	0.32 3	0.27 3	53.0 6	57.5 7	0.55 4	0.63 2.5
Agriculture as % of GDP	0.35 5	0.40 5	55.1 7	47.2 6	0.71 2	0.63 2.5

* The indicators with asterisks were approached from the inverse rank view. Due consideration has been given to the inverse ranks in calculating the Equal Share and the Ratio of Discrimination values.

TABLE 4, Cont'd

Indicator	Gini Index		Equal Share Coefficient*				Ratio of Discrimination					
	1960		1970		1970		1960		1970			
	GI Rank	GI Rank	GI Rank	ESC Rank	ESC Rank	ESC Rank	RD Rank	RD Rank	RD Rank	RD Rank		
<u>GNP per capita</u>	0.48	6	0.49	6.5	69.9	10	70.5	10	0.36	8	0.36	9.5
<u>Energy Consumption per capita</u>	0.59	9	0.56	10	71.0	11	68.5	12	0.21	13	0.22	12.5
<u>Calories per Day</u>	0.08	1	0.12	1	49.0	5	45.0	5	0.86	1	0.80	1
<u>Population per Hospital Bed*</u>	0.52	8	0.49	6.5	27.8	2	30.5	2	0.37	6.5	0.42	7.5
<u>Population per Physician*</u>	0.68	11	0.00	11	26.0	1	30.0	1	0.31	11	0.36	9.5
<u>Infant Mortality Rates*</u>	0.32	3	0.38	4	46.7	4	38.0	3	0.56	3	0.59	4

* The indicators with asterisks were approached from the inverse rank view. Due considerations have been given to the inverse ranks in calculating the Equal Share and the Ratio of Discrimination values.

The equal Share Coefficient simply provides the percentage of the total number of nations which are discriminated against. Clearly, the larger the coefficient the greater the discrimination in the system. The coefficients may fall between zero and 100%. The Ratio of Discrimination relates the Equal Share Coefficient to the proportion of the total value possessed by the Periphery. This measure describes what proportion of the democratic value the Periphery possess on the average. The Ratio of Discrimination value, therefore, fall between zero and 1.0 and, thus, the smaller the values the more unequal the distributions.

Under the Gini Index Section, the first two columns give the state of inequality and the contextual rank respectively for each indicator for the base year. The third and fourth columns provide the equivalent information for each indicator for the terminal year. Similar information is provided for the Equal Share Coefficient and the Ratio of Discrimination in their respective columns in Table 4.

The table shows that the least Gini values for 1960 and 1970 were recorded for the Calories per Day indicator. They were 0.08 for 1960 and 0.12 for 1970. The Gini values for all other indicators for 1960 ranged between 0.32 and 0.71 for 1960 and 0.25 and 0.67 for 1970. In 1960 six indicators had Gini values bigger than 0.48; and in 1970 eight of the indicators had Gini values bigger than 0.40. These Gini values suggest generally high levels of inequality in the distribution of twelve of the thirteen indicators in both 1960 and 1970.

The Equal Share Coefficient columns in Table 4 also show high levels of inequality existing on most of the indicators for 1960 and 1970. The columns show that for 1960 and 1970 the indicator

Population per Physician had the least percentage number nations discriminated against, with scores of 26.0 for 1960 and 30.0 for 1970. In 1960, the other scores ranged between 27.8 and 75.0, with as many as ten indicators having values bigger than 42.0 and as many as seven having values bigger than 50.0. In 1970, eleven indicators had values bigger than 30.5, with as many as eight indicators having values bigger than 45.0.

The Ratio of Discrimination section shows that again the indicator Calories per Day had the highest values of 0.86 and 0.80 for 1960 and 1970 respectively. The indicator which had the least value in 1960 was Energy Consumption per capita with 0.21; and those in 1970 with the lowest values were Energy Consumption and Steel Consumption with 0.22 each. In 1960, nine of the indicators had Ratio of Discrimination scores of less than 0.50; and in 1970 eight of them had scores less than 0.50. These scores-ranges suggest again that the levels of inequality on the individual indicators as measured by this technique were generally very high for both years.

The figures discussed above suggest that, with the exception of the Calories per Day indicator, all the indicators had high Gini values. This suggests in turn that the distributions of the values on the other indicators were far from the democratic ideal. The Gini indices do not tell us which particular nations were discriminated against. They merely suggest that the level of inequalities in the various distributions were high. This means those nations which were discriminated against were severely discriminated against and these nations are the Periphery nations. It is important to note that the 1960 and 1970 contextual ranks of the individual indicator did not

differ much. This means that, considered together, the different indicators had different levels of inequalities which relate to one another in the same way in 1960 as in 1970. This same fact holds true for most of the indicators for the Equal Share Coefficient and Ratio of Discrimination respective rank-positions for 1960 and 1970.

5.5 Lorenz Curves: Observations and Explanations

The curves described above only tell us about the comparative states of the distributions of the different values in 1960 and 1970, in the context of democratic distribution. These curves, by themselves, cannot, and do not, purport to explain why they assume the structures they do.

However, the shapes and forms of the curves could be accounted for by some elementary explanations. These explanations are ex post inferences from the curves themselves. The elementary explanations do not account fully for why the curves are what they are; rather, they serve two purposes. First, they help us to establish the level of confidence in the curves. Second, they enable us to make certain summary and general observations concerning the trends characterizing the distributions of the values under discussion.

The four Lorenz graphs for the Education structure show two indicators which portray clear evidence of trend towards the democratic equality. These two are Combined Adjusted School Enrolment and Radio Receivers per 1,000 Inhabitants. The changes in these two indicators are rather pronounced. These findings come as no surprise because of the very nature of the indicators and their natural rates of increase.

The scores for the nations at the top of the Combined Adjusted School Enrolment indicator rank-order for 1970 were very high. The mean score of the Centre for this indicator in 1960 was 73.4; and in fact, some of the Centre nations in 1970 had scores bigger than 100%. The mean score for the Periphery was as low as 25.5%. This suggests that with almost universal primary education achieved in the Centre in 1960, the law of diminishing returns would mitigate against rapid increases in the Centre nations' scores between 1960 and 1970. What we did not have any reason to expect was the revelation that on this particular indicator, movement toward the line of equality should be more pronounced in the middle ranges of the curves than the lower extremities. This, of course, can be explained in ex post facto terms. The middle ranking nations have the capacity in the form of under-utilized educational infrastructure to increase their rates much faster; unlike the lowest ranking nations where in most cases the capacity lacked and high initial investments have to be made before the law of increasing returns could be operative.

Similar arguments could be advanced to interpret the curves for Radio Receivers. The 1960 scores for the Centre nations were rather high. The nations at the very top were almost saturated with radio receivers. The rate of increase that could be conceivably expected was therefore low. And, in any case, the nations at the top had a close substitute, television, to turn to, thus making the rate of increase in radio receivers even slower. The lowest ranking nations on this indicator improved the least because not only was the purchase of radio receivers expensive in terms of their cost and standard of living ratios, there was the problem of learning to appreciate the

need for radios as an information gathering aid,⁴ as well as the problem of rarity of transmission. These two factors mitigate against rapid increased in radio receivers in use in the low-ranking nations. The middle-ranking nations had not only acquired the need of radios as precise technical instruments by 1960, the cost of radios were not expensive in terms of their costs and standards of living of the 1960's; and hence their pronounced movement of the 1970 Lorenz Curve toward the line of equality.

On the indicator of Number of Students in Third Level Education, the lowest 63% of the nations improved with the most pronounced change occurring around the 37%-50% range. The reasons for this trend are essentially the same as those advanced above in explaining the last two Education indicators. The objective, or the subjective, need for higher education is not enough. There has to be both the means to acquire education as well as the required materials--both human and non-human. It is therefore not surprising that the lowest 30% of the nations showed very little change and the 37%-50% range showed a bigger change than the 50-63% range.

The only reason that can be advanced to explain why the nations in the 63%-83% range decreased their share between 1960 and 1970 is that these nations had enough people in their third level education to run their systems, the way they wanted it, without incurring unnecessary costs. The top 18% of the nations maintained their share.

⁴Franz Fanon refers to such an appreciation his Colonialism (London: Cox and Wyman, 1968) pp. 53-80.

This means they committed just the sufficient available resources to the development of their third level educational systems, since the absolute levels in 1970 were higher than 1960.

The Curves for the indicator, Circulation of Newspaper can be explained by the same reasoning as advanced to explain the Radio Receivers curves. The lowest 56.6% did not change their share; neither did the top 7%. All the movement toward the line of equality occurred in the 56.6%-93% range. The low-ranking nations in order to increase their share should have not only the material to publish more newspapers but the people with the capacity to read them. This capacity is acquired through education and since the nations in the lower ranks of School Enrolment and Third Level Education indicators tend to be the same nations, it is not surprising that their newspaper reading is not increasing compared to the middle range nations where the human and the material resources to increase newspaper production are available. Given the circumstance, perhaps, the best the low-ranking nations could do was to maintain their share—which is exactly what they have done. The top 7% of the nations did not increase their share, most probably because, their respective publics were saturated with newspapers and also because as a news and entertainment medium, the newspaper is rivalled keenly by radio and television.

The Wealth Curves are not difficult to explain. The Steel Consumption per capita curves show an overall movement toward the line of equality with the least movement occurring for the bottom 50% of the nations. The more developed an economy the greater the need and the use of steel. No matter how great the desire for steel consumption, in the least developed, both the need and the demand for steel are

limited. Besides, the increase in the use of steel in the developed economies is to be expected to be greater since the supporting base for steel consumption is already there; or could be constructed with much less cost than in the least developed economies. It is therefore not surprising that steel consumption per capita for the least developed 50% of the nations increased, but increased less than the semi-developed and the most developed.

The Percentage of GDP Originating in Industry curves show a movement toward the line of equality for the bottom 82% of the nations. This means that these nations have increased their shares of the industrial production at the expense of the top 12%. The improvement is more pronounced for the 14%-70% range of nations than for the bottom 14%. This trend of change can be explained by the now familiar fact that it is easier in terms of cost, need and demand for the middle nations to expand their industrial production through, among other things, utilizing excess capacity than it is for the lowest ranking nations to increase their output. The top 12% of the nations did maintain their position. The only gross explanation for this phenomenon is that the most advanced nations do probably produce as much industrial products as they could for the present level of industrial products consumption.

In the case of Percentage of GDP Originating in Agriculture there is a marked drop to the right of the line of equality all along the 1960 curve, the biggest drop being, again, in the middle ranges. This drop does not mean, of course, that there is an absolute drop in production. As the absolute values show in Appendix 3g, in fact, there has been an increase in the total production. Total production

in economic analyses, is usually broken down into Agriculture, Industry and Services; so that where the percentage of industrial output has remained the same, as it has for the top 12% of the nations, when considered with the drop in percentage accounted for by Agriculture, the conclusion is clear that the increase has occurred in the services sector of the economy. But for the bottom 88% of the nations the conclusion is that the decreases in Agricultural percentage of the GDP is accounted for by increases in either industrial production or in services.

GNP per capita, that much employed but much maligned measure of wealth, shows by its Lorenz Curves a decline from equality for the bottom 85.7% of the nations and above the top 14.3% as maintaining their share. This means the distribution of the GNP value did become more unequal among all nations other than the very rich nations who had the same share in 1970 as they had in 1960.

The distribution of the Energy Consumption per capita shows that in 1960 about the bottom 50% of the nations consumed 5% of the total value and that in 1970 the bottom 50% of the nations consumed just about the same amount. This means hardly any improvement for these nations. The other nations, however, moved by comparatively larger margins toward democratic distribution and higher consumption.

The Calories per Day per Inhabitant value was the most democratically distributed value of all the 13 values under consideration for both 1960 and 1970. From this we can say that the amount of calories in the world was very close to be democratically distributed, except it was more so in 1960 than in 1970. This means then that if there was a problem of hunger in some parts of the

world, it was perhaps not due to the international distribution of this value, but due, perhaps, to internal maldistribution.

The bottom 85% of the nations improved their distribution toward the line of equality on the indicator, Population per Physician, while the top 15% of the nations moved away from the line of equality. This particular trend of distribution is rather deceptive because the quality of physician care is not homogeneous. Assuming all physicians, as technicians, are of equal quality, the equipments needed to care for the population differ in quality and in quantity between nations at the top and those at the bottom. So that, even though, the bottom 85% of the nations seem to be improving their positions at the expense of the top 15%, it is worth nothing that this trend may be a spurious one. The "closed shop" attitude of most of the medical professions in the advantaged nations is in part what was probably reflected here in the nature of the 1960 and 1970 curves for those nations. The rate of production of physicians was slowed down in these nations in order to increase their remuneration. This trend is probably also aided by the fact that with the assistance of highly trained medical staff—nurses, medics, midwives, etc.—the physicians can give faster services than before; and also with the aid of sophisticated equipment they can give faster as well as better services. The emphasis in these advantaged nations has been lately on preventive rather than curative medicine. All these factors reduce the need for more doctors.

Nothing said above detracts from the fact that the bottom 85% of the nations are reducing their Population per Physician ratio. It is interesting to note that the improvements in the situation of the

disadvantaged nations are not even. The largest part of the improvement was confined to the nations in the 66%-80% range. The least improvement occurred in the bottom 50% of the nations. The improvement of the lowest 20% is so small it is not perceptible on the graph.

The Infant Mortality Rates Lorenz Curves pose a problem. The problem is simply this: that despite all the improvement in medical sciences and in pediatrics, in particular, the distribution moves toward greater inequality. One would have thought the advantaged nations to have been very close to the optimum level on this indicator and therefore one would have expected some modest movement on the part of the disadvantaged nations toward the line of equality. But apparently this is not the case. It is not easy to explain the nature of the curves beyond stating that if in fact they do not mirror reality, then perhaps the error is due to the data sources.

The Lorenz Curves, by their nature, could raise more questions than they answer. The above explanations are therefore not meant to say everything concerning why the curves are of the shapes they are. They are only meant to help us, as far as they go, to put the trends summarized by the curves in their proper perspectives.

5.6 The Dynamic Middle and its Relation to the Centre-Periphery Continuum

A look at the graphs in Appendices 4a-4m reveals that in each of the thirteen cases, when the 1970 Lorenz Curve is superimposed on the 1960 curve, the areas between the two curves tend to be more pronounced in the "middle" sections of the graphs than at the

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extremities. Let us refer to these "middle" parts of the Lorenz Curves as the Dynamic Middle. Two things must be said immediately in order to clarify this observation.

The first, is that the parts of the graphs we call the Dynamic Middle are located differently from graph to graph. On the Industry as a Percentage of GDP graph (4e), for example, the middle covers a range as wide as 30%-80.5% on the Y-axis, while on the Infant Mortality Rates graph (4m) the middle covers a range as small as 31%-48% on the Y-axis. The term "middle," therefore, is to be interpreted rather loosely in relation to the shape and the visual meaning of the individual graphs.

The second, is that the logic of the Lorenz Curves makes it possible for the graphs to assume the "bulges" at different parts of the graphs, depending upon the range within which the 1970 distribution vis á vis the 1960 distribution moved farthest toward, or away from, the line of equality. The intuitive significance of the Dynamic Middle derives from the fact that they do not have to occur consistently within ranges which vaguely fall in the middle parts of the graphs, but they do so in all the thirteen cases. This is what makes the Dynamic Middle observation initially noteworthy.

We would like to know whether there is anything consistent about locations of the Dynamic Middle in relation to the operational categories along the Centre-Periphery continua. That is, we would like to know whether the Dynamic Middle consistently includes the Centre of Centre nations (CC), the Periphery of Centre nations (PC), the Centre of Periphery nations (CP) or the Periphery of Periphery nations (PP). In particular, we would like to know which nations

fall within the Dynamic Middle on each indicator. These nations would be the nations which have the propensity to rise or slip from one category to another depending upon whether the difference between 1960 and 1970 Gini values were positive or negative.

The Dynamic Middle is defined as the area between the 1960 and the 1970 curves marked off by the two points where the 1970 curve begins demonstrably to move away from the 1960 curve; and where the 1970 curve begins demonstrably to close in on the 1960 curve. These two points on the 1960 curve provide the limits on the Y-axis from which we are able to delineate the parts of the Centre-Periphery continuum within which the Dynamic Middle is situated on the 1960 ranking-system of each indicator.

Table 5 below provides the pertinent information on the location of the Dynamic Middle on each of the 1960 curves. Column 2 gives the location on the 1960 Y-axis where the Dynamic Middle is found. Column 3 provides limits of the 1960 ranks within which the Dynamic Middle falls. Column 4 states whether it falls in the CC, PC, CP or in the PP category.

For further precision, however, when the Dynamic Middle falls in the upper, middle or lower limits of any of these categories, it is qualified by the letters U, representing upper, M for middle or L representing lower. Thus, LPC-UCP means the Dynamic Middle is located between the lower levels of Periphery of Centre and the upper levels of Centre of Periphery.

TABLE 5
LOCATION, RANK-LIMITS AND CATEGORIES
OF THE DYNAMIC MIDDLE*

Indicator	Location on 1960 Y-axis	1960 Rank Limits	Category
Combined Adjusted School Enrolment	10-40	39.5-72.5	MPC-LCP
Number in Third Level Education	5-17 53-68	54-61 6.5-18	LCP-UPP MCC-UPC
Circulation of Newspapers	14-60	11-37	LCC-UPC
Radio Receivers	5-50	15-63	UPC-LCP
Steel Consumption <u>per capita</u>	20-75	5-24	MCC-LPC
Industry as % GDP	1-40	26-71.5	LPC-LPP
Agriculture as % GDP	10-25	22-34	UPC-LPC
GNP <u>per capita</u>	8-12	56-67	LCP-UPP
Energy Consumption <u>per capita</u>	10-25	25-42	LPC-MCP
Calories <u>per</u> Day	15-30	60-75	MPC-UPP
Population <u>per</u> Hospital Bed	10-50	49.5-90	UPC-MCP
Population <u>per</u> Physician	5-15	55-78	UPC-LPC
Infant Mortality Rates	25-50	30-47	MPC-UCP

* For a proper appreciation of this table the reader is asked to imagine categories of the Centre-Periphery continuum superimposed on the Lorenz Curve so that he can easily see the categories which contain the Dynamic Middle, as shown in column 4.

The information in Table 5 is self-explanatory and does not call for any detailed commentary. The most cursory reading of columns 2 and 3 show that the Dynamic Middle is not confined to any consistent section of the graphs and the rank-orders. Different indicators have different sensitive parts. But column 4 tells us that despite these differences, in terms of the sub-categories on the Centre-Periphery continuum, the sensitive parts of the graphs are located mainly between the Middle Centre of Centre and the Upper limits of the Periphery of Periphery categories. Figure 3 graphically illustrates this point in clearer detail. The Figure further shows that in no case did the Dynamic Middle involve only the nations of the Centre of Centre or only the nations of the Periphery of Periphery. This means that the Centre of Centre and the Periphery of Periphery nations do not possess the Dynamic Middle's sensitivity to change in the distribution of the values concerned over the time period under review. What therefore appeared on the graphs vaguely as the extremities are, not surprisingly, the Upper Centre of Centre and the Lower Periphery of Periphery categories.

It is clear from Figure 3 that from the higher end of the continuum, the UPC and the MPC sections are the most sensitive parts. These two sections account for 7 out of the possible initial 14 cases. From the lower end of the continuum, the LPC and the UPP sections are the most sensitive. These latter two cases account for 6, just under half, of the 14 possible terminal cases.

As can be easily appreciated from Diagram 3, the Dynamic Middle of each indicator covers many different sub-categories. For example, the Dynamic Middle on the Calories per Day indicator, covers

FIGURE 3

LOCATION OF THE DYNAMIC MIDDLE OF THE
CENTRE-PERIPHERY CONTINUUM*

Higher End of Dynamic Middle

Lower End of Dynamic Middle

* See section 4.1 for the indicators described above by their codes.

six sub-categories, the MPC, LPC, UCP, MPC, LCP and the UPP categories. Another way to show how the Dynamic Middle relates to the four main categories on the Centre-Periphery continuum will be to find out which categories on this continuum are most commonly covered by different Dynamic Middles.

Table 6 shows in column 2 the total categoric distance covered by the Dynamic Middle; and by categoric distance we mean simply the number of sub-categories covered by the different Dynamic Middles on the different indicators. Columns 3-6 show how the total categoric distance is distributed between the Centre of Centre, Periphery of Centre, Centre of Periphery and the Periphery of Periphery categories.

Reading Table 6 vertically, it becomes clear that the Periphery of Centre (23) and the Centre of Periphery (21) categories are those most commonly covered by the different Dynamic Middles. These two categories between them account for forty-four of the possible total of fifty-five categoric distances, exactly 80% of the total. The Centre of Centre and the Periphery of Periphery categories accounted for only three and eight of the total respectively. From this we can note that the Periphery of Centre and the Centre of Periphery categories are the most sensitive to changes in the distribution of the international systems' output values as expressed through the media of Lorenz Curves.

TABLE 6
DYNAMIC MIDDLE AND THE DISTRIBUTION
OF CATEGORY DISTANCE

Indicator	Total	Categoric Distance			
		CC	PC	CP	PP
Combined Adjusted School Enrolment	5		2	3	
Number in Third Level Education*	2			1	1
Number in Third Level Education*	3	2	1		
Circulation of Newspapers	2	1	1		
Radio Receivers	6		3	3	
Steel Consumption <u>per</u> capita	5		2	3	
Industry as % of GDP	7		1	3	2
Agriculture as % of GDP	3		3		
GNP <u>per</u> capita	2			1	1
Energy Consumption <u>per</u> capita	3			1	2
Calories <u>per</u> Day	6		2	3	1
Population <u>per</u> Physician	3		3		
Population <u>per</u> Hospital Bed	5		3	2	
Infant Mortality Rates	3		2	1	
Total	55	3	23	21	8

* Number in Third Level Education had two distinguishable Dynamic Middles.

Immanuel Wallerstein has suggested, in connection with the world market economy, that not all peripheral nations, at any given time, are in equal position to lay claim to shift in status. In fact, he adds that only a minority of peripheral nations can fit into an expanding world market or conquer part of a contracting one at any given time.⁵ Wallerstein calls this minority group of peripheral nations the semi-periphery. He defines this concept in economic terms as those nations which stand between the Centre and the Periphery nations in terms of the kinds of products they export and in terms of the wage-levels and profit-margins they know.⁶

By locating the semi-periphery in between the Centre and the Periphery, Wallerstein alerts us to the possibility of overlap between his semi-periphery nations and the group nations which fall in our Dynamic Middle. However, Wallerstein's work is essentially theoretical and looking at his ideas in the context of our data on the Dynamic Middle might help in throwing further light on the nations which have the sensitivity to rise or fall in status in the international system.

In view of the expected high correlations between the thirteen indicators used in this study and the economic indicators used by Wallerstein to define his semi-periphery, there is some reason to suppose that if we generalize the semi-periphery to include

⁵Immanuel Wallerstein, "Dependence in an Interdependent World: The Limited Possibilities of Transformation within the Capitalist World Economy," a paper presented at the Canadian African Studies Meeting, Ottawa, Canada, February 16, 1973, p. 7.

⁶Wallerstein, "Dependence in an Interdependent World: The Limited Possibilities of Transformation within the Capitalist World Economy," p. 5.

non-economic indicators, Wallerstein's semi-periphery may cover parts of, but not necessarily coincide with, our Dynamic Middle groups of nations. There is, already, the correspondence of views between the two studies that the Dynamic Middle and the semi-peripheral nations are located between the very top of the hierarchies and the very bottom. But then, while Wallerstein worries about those nations of the periphery which can move up the ladder, the Dynamic Middle isolates both the Centre and the Periphery nations which have the propensity to improve their situations. Thus, the interesting problem here is to isolate the nations of the Dynamic Middle and further isolate those nations of the Periphery which have the property of mobility.

The Dynamic Middle of each of the indicators used in this study embraces a wide range of nations. Those nations which appear in the Dynamic Middle of each indicator are clearly distinguished in Appendices 3a-3m. In order to find out which nations occurred within the Dynamic Middle more often, a matrix was constructed. Each nation received a score of one any time it appeared in any of the fourteen possible Dynamic Middles. Table 7 provides the geographic listing of nations and their Dynamic Middle scores.

Table 7 shows that very few African nations occurred often in the Dynamic Middle. Of the thirty-four African nations listed only six appeared more than four out of the fourteen times. They were Malagassy, Tunisia, Morocco, Uganda, Kenya and UAR. Twenty-four African nations appeared in the Dynamic Middle less than four times and four of the nations (Mauritania, Upper Volta, Zaire and Burundi) did not appear at all. In fact twelve nations occurred only once each.

TABLE 7

GEOGRAPHIC LISTING OF DYNAMIC MIDDLE SCORESA F R I C A

	<u>Country Name</u>	<u>Score</u>
1.	Mali	1
2.	Senegal	3
3.	Dahomey	1
4.	Mauritania	0
5.	Niger	1
6.	Ivory Coast	2
7.	Guinea	1
8.	Upper Volta	0
9.	Liberia	2
10.	Sierra Leone	2
11.	Ghana	2
12.	Togoland	1
13.	Cameroon	2
14.	Nigeria	1
15.	Central Africa Republic	1
16.	Chad	1
17.	Zaire	0
18.	Uganda	5
19.	Kenya	5
20.	Tanzania	3
21.	Burundi	0
22.	Rwanda	1
23.	Somalia	1
24.	Ethiopia	1
25.	Zambia	3
26.	Malawi	1
27.	South Africa	2
28.	Malagasy	6
29.	Morocco	5
30.	Algeria	3
31.	Tunisia	6
32.	Libya	4
33.	Sudan	2
34.	United Arab Republic	4

A S I A

35.	Iraq	6
36.	Iran	4
37.	Syria	7
38.	Lebanon	4
39.	Jordan	8
40.	Israel	6

A S I A

41.	Saudi Arabia	1
42.	Yemen	0
43.	Demo. Republic of Yemen	3
44.	Afghanistan	0
45.	China	0
46.	Mongolia	2
47.	Taiwan	2
48.	North Korea	0
49.	South Korea	1
50.	India	3
51.	Pakistan (including Bangladesh)	3
52.	Burma	2
53.	Ceylon	4
54.	Nepal	1
55.	Thailand	6
56.	Cambodia	2
57.	Laos	0
58.	North Vietnam	0
59.	South Vietnam	1
60.	Malaysia	4
61.	Singapore	3
62.	Philippines	3
63.	Indonesia	3

South America and Caribbean

64.	Cuba	4
65.	Haiti	1
66.	Dominican Republic	4
67.	Jamaica	7
68.	Trinidad and Tobago	3
69.	Mexico	5
70.	Guatemala	5
71.	Honduras	7
72.	El Salvador	5
73.	Nicaragua	5
74.	Costa Rica	4
75.	Panama	6
76.	Colombia	5
77.	Venezuela	4
78.	Ecuador	3
79.	Peru	6
80.	Brazil	4
81.	Bolivia	4
82.	Paraguay	4
83.	Chile	3
84.	Argentina	5
85.	Uruguay	6

EUROPE

86.	United Kingdom	1
87.	Ireland	4
88.	Netherlands	2
89.	Belgium	4
90.	France	4
91.	Switzerland	2
92.	Spain	4
93.	Portugal	3
94.	West Germany	1
95.	East Germany	2
96.	Poland	5
97.	Austria	2
98.	Hungary	5
99.	Czechoslovakia	2
100.	Italy	4
101.	Albania	1
102.	Yugoslavia	3
103.	Greece	5
104.	Bulgaria	4
105.	Rumania	4
106.	Soviet Union	4
107.	Finland	3
108.	Sweden	0
109.	Norway	2
110.	Denmark	2
111.	Turkey	4

Others

112.	United States	0
113.	Canada	3
114.	Japan	4
115.	Australia	4
116.	New Zealand	4

The twenty-nine Asian countries had eight nations appearing more than four times in the Dynamic Middle. Yemen, Afghanistan, China, North Korea, Laos and North Vietnam did not score in the Dynamic Middle even once. The reason for the absence of the last four nations just named above is principally because there were very few indicators on which data were available for them. Latin American and Caribbean nations did very well. Each of them appeared in the Dynamic Middle at least once. Only four nations appeared less than four times. They were Haiti, Trinidad and Tobago, Ecuador, Chile. The nations of Europe and North America plus Japan, Australia and New Zealand appeared many times in the Dynamic Middle. Twelve out of the total of thirty-one nations appeared more than four times. Notable among the nations which did not appear at all or appeared less than twice were U.K., Netherlands, Switzerland, West Germany, Sweden, U.S.A. and Albania.

It must be remembered that nations do not feature in the Dynamic Middle many times either because they tend to fall generally in the Centre of Centre or in the Periphery of Periphery. This accounts for the reason why U.S.A., U.K. and other nations which were often in the Centre of Centre, as well as Albania, very often in the lower rungs of Centre of Periphery, all have low Dynamic Middle scores. This same reason explains why many African and Asian nations had a low score. These nations unquestionably are located mainly in the Periphery of Periphery category. Latin American and Caribbean nations have high scores because they are usually located in the Periphery of Centre and upper rungs of the Centre of Periphery.

In summary, we note that African nations had average Dynamic Middle score of 2.0, Asian nations had 2.8, Latin American and Caribbean nations had average scores of 4.5 and Europe, North American nations plus Japan, Australia, and New Zealand (the international Centre) had average score of 2.9. These figures suggest that Latin America and Caribbean nations have the greatest propensity to acquire the sensitivity of the Dynamic Middle. Next in line is the international Centre, a poor second, followed closely in third place by Asian nations. African nations are the least likely to possess the Dynamic Middle's sensitivity to change. It is therefore not surprising that when the 1972 UNCTAD meeting in Santiago accepted a list of 25 "hard core" poor nations, 16 of those nations were located in Africa, 8 in Asia and only one (Haiti) in South America and the Caribbean. Most of the African and Asian nations with low Dynamic Middle scores are included in the list of "hard core" poor.⁷

Which specific nations among African, Asia and Latin America and Caribbean nations (International Periphery) then can we say possess the Dynamic Middle's property of mobility and therefore make them possible members of Wallerstein's generalized semi-periphery? To answer this question, I shall consider any of the above nations with a Dynamic Middle score of 4 or more as a possible candidate of this group. By this standard, these are the nations likely to fall in Wallerstein's semi-periphery:

⁷The "hard core" poor nations will be listed and discussed in section 5.15 below.

<u>Africa</u>	<u>D.M. Score</u>	<u>Asia</u>	<u>D.M. Score</u>
Malagasy	6	Jordan	8
Tunisia	6	Syria	7
Uganda	5	Iraq	6
Kenya	5	Israel	6
Morocco	5	Thailand	6
U.A.R.	4	Iran	4
Libya	4	Lebanon	4
		Ceylon	4
		Malaysia	4
<u>Latin America and Caribbean</u>		<u>D.M. Score</u>	
Jamaica		7	
Honduras		7	
Panama		6	
Peru		6	
Uruguay		6	
Mexico		5	
Guatemala		5	
El Salvador		5	
Nicaragua		5	
Colombia		5	
Argentina		5	
Cuba		4	
Dominican Rep.		4	
Costa Rica		4	
Venequela		4	
Brazil		4	
Bolivia		4	
Paraguay		4	

The nations listed above as well as the omissions are interesting in many ways. Many area specialists will be unhappy at the omission of particular nations from the list and even object to the inclusion of others. To attempt to discuss this table in detail will take us far afield from our present limited objective of linking the nations

of the Dynamic Middle to those which could be in Wallerstein's semi-periphery. Many questions offer themselves for discussion concerning the list of nations above. For example, if we were to compress our four-stratum hierarchy of nations into three strata, such as Caplow constructs in his study, could we group the nations above the Dynamic Middle as the developed nations, those in the Dynamic Middle as the developing nations and those below the developing nations as the underdeveloped nations? In short, would there be any correspondence between Caplow's categories and ours? How does the "hard core" poor group of nations compare to our Periphery of Periphery group of nations? Can we say, for example, that the Centre of Centre nations⁸ are the upper class or the ruling class,⁸ the Dynamic Middle nations the middle class and the Periphery of Periphery nations the lower class? All these questions are meant to solicit answers that would lead to a meaningful basis for discussing the stratification of nations of the international system. I shall discuss some of these questions later in this chapter.

5.7 Descriptive Meanings of the States of Inequality

In earlier sections of this chapter, we discussed the states of inequality on each of the indicators according to their scores along each of the measures. We observed that in nearly all cases, the states of inequality were very high. We now attempt to describe these levels of inequality by their relations to the high feudal (HF),

⁸Thomas Weisskopf in his "Capitalism, Underdevelopment and the Future of Poor Countries," The Review of Radical Political Economics, IV, No. 1 (Winter, 1972), 25-26.

low feudal (LF), low egalitarian (LE) and high egalitarian (HE) designations discussed in section 4.6. We do this in order to attach some definite meanings to their values discussed earlier. Table 8 below contains the descriptions of the levels of inequality for the indicators as judged by the individual measures.

TABLE 8

LEVELS OF INEQUALITY

Indicator	Gini Index		ESC		RD		SIM	
	1960	1970	1960	1970	1960	1970	1960	1970
Combined Adj. Enrolment	LF	LF	LF	LF	HF	LF	HF	LF
No. in Third Level Education	HF	HF	HF	HF	HF	HF	HF	HF
Circulation of Newspapers	HF	HF	HF	HF	HF	HF	HF	HF
Radio Receivers	HF	HF	HF	HF	HF	HF	HF	HF
Steel Consumption	HF	HF	HF	HF	HF	HF	HF	HF
Industry as % of GDP	LF	LF	HF	HF	LF	LF	LF	LF
Agriculture as % of GDP	LF	LF	HF	LF	LF	LF	LF	HF
GNP per capita	LF	LF	HF	HF	HF	HF	HF	HF
Energy Consumption	HF	HF	HF	HF	HF	HF	HF	HF
Calories per Day	HE	LE	LF	LF	LE	LE	LE	LE
Population per Hospital Bed	HF	LF	LF	HF	HF	HF	HF	HF
Population per Physician	HF	HF	LF	LF	HF	HF	HF	HF
Infant Mortality Rates	LF	LF	LF	LF	LF	LF	HF	HF

HF = High Feudal; LF = Low Feudal; LE = Low Egalitarian
 HM = High Egalitarian

The table shows, for example, that the structures of distributions on the Combined Adjusted School Enrolment indicator, as measured by the Gini Index and the Equal Share Measures, were low feudal for both 1960 and 1970. The distributions on this same indicator according to the

Ratio of Discrimination and the SIM measures were high feudal in 1960 and low feudal in 1970. Table 9 below interprets Table 8 vertically. It shows that under the Gini Index measure twelve of the thirteen indicators had feudal structures of distribution in both 1960 (7HF and 5LF) and 1970 (6HF and 6LF). It shows again that under the Equal Share measure all the thirteen indicators were feudally distributed in both 1960 (8HF and 5LF) and 1970 (7HF and 6LF). The other two measures, Ratio of Discrimination and SIM also show the structures of distribution to be feudal.

TABLE 9

SUMMARY OF FEUDAL-MIXED DESIGNATIONS

Designation	Gini Index		ESC		RD		SIM	
	1960	1970	1960	1970	1960	1970	1960	1970
HF	7	6	8	7	9	8	10	10
LF	5	6	5	6	3	4	2	2
LE	-	1	-	-	1	1	1	1
HE	1	-	-	-	-	-	-	-

It is clear from Table 9, therefore, that in both 1960 and 1970 all the measures recorded the pattern of distribution, on practically all indicators, as being feudal in structure.

If we take the different measures as tapping different but comparable aspects of the idea of inequality, then, interpreting Table 8 horizontally, we see that the combined descriptive force of all the measures group the indicators into three distinct classes:

- (1) Those most feudally distributed;
- (2) Those feudally distributed; and
- (3) Those which have semblance of egalitarian structures of distribution.

The indicators considered most feudally distributed are those which had all the four measures recording their structures of distribution as HF; or those which had 3HF and 1LF. Those which are grouped as feudal are those which have one or two of the measures recording the structures of distribution as HF and the others as LF. The indicators which have three or more of the four measures recording them as LE or HE are regarded as egalitarian.

Table 10 below presents the scores for the various indicators for 1960 and 1970.

TABLE 10

COMBINED DESCRIPTION OF INDICATORS

Indicators	1960				1970			
	Feudal		Mixed		Feudal		Mixed	
	HF	LF	LE	HE	HF	LF	LE	HE
Combined Adj. School Enrolment	2	2				4		
Number in Third Level	4				4			
Circulation of Newspapers	4				4			
Radio Receivers	4				4			
Consumption of Steel	4				4			
Industry as % of GDP	1	3			1	3		
Agriculture as % GDP	2	2			1	3		
GNP <u>per capita</u>	3	1			3	1		
Energy Consumption	4				4			
Calories <u>per</u> Day		1	2	1		1	3	
Population <u>per</u> Hospital Bed	3	1			2	2		
Population <u>per</u> Physician	3	1			3	1		
Infant Mortality Rates	1	3			1	3		

The listing below groups and ranks the indicators according to the above description of their feudal level.

1960 <u>Most Feudal</u>	1970 <u>Most Feudal</u>
3. Number in Third Level Education 3. Circulation of Newspapers 3. Radio Receivers 3. Steel Consumption <u>per</u> capita 3. Energy Consumption <u>per</u> capita 7. GNP <u>per</u> capita 7. Population <u>per</u> Hospital Bed* 7. Population <u>per</u> Physician	3. Number in Third Level Education 3. Circulation of Newspapers 3. Radio Receivers 3. Steel Consumption <u>per</u> capita 3. Energy Consumption <u>per</u> capita 6.5 GNP <u>per</u> capita 6.5 Population <u>per</u> Physician
<u>Feudal</u>	<u>Feudal</u>
9.5 Combined Adj. School Enrolment 9.5 Agriculture as % of GDP 11.5 Industry as % of GDP 11.5 Infant Mortality Rates	8. Population <u>per</u> Hospital Bed* 10. Industry as % of GDP 10. Agriculture as % of GDP 12. Combined Adjusted School Enrolment (LHF, 4LF)
<u>Egalitarian</u>	<u>Egalitarian</u>
13. Calories <u>per</u> Day	13. Calories <u>per</u> Day

Twelve out of the thirteen indicators were feudally distributed in both 1960 and 1970. Eight of them were very highly feudal and four moderately so in 1960. In 1970, seven of the indicators were very highly feudal in their distribution structure and five of them moderately so. The only indicator which exhibited mixed structure of distribution in 1960 and 1970 was Calories per Day. All the indicators but one; (Population per Hospital Bed, see asterisks in listing above), had.

the same feudal level for 1970 as they had for 1960;⁹ and each of them had about the same contextual rank for both years. This suggests that so far as the indicators' relation to one another is concerned the international system hardly changed between 1960 and 1970. The 1960 feudal structures of distribution on twelve of the thirteen indicators were to all practical purposes repeated in 1970. The assumption supporting this study therefore is validated that the structures of distribution of international values in 1970 were basically as feudal as in 1960.

5.8 Magnitudes and Directions of Changes

Even though we have found above that the structures of distributions were feudal both in 1960 and 1970, there is evidence to suggest that different indicators had different feudal scores on the different measures for 1960 and 1970. In this section, I shall discuss the direction and magnitude of change for each indicator on each measure. With reference to the Equal Share, SIM and Ratio of Discrimination measures, we can readily know the directions and the magnitudes of change by simply comparing the 1960 and 1970 values of the states of inequality discussed earlier. In the cases of the Gini and the Concordance Level measures, however, such comparison will not enable us to know which indicators developed and which did not.

⁹The rank-order of the Population per Hospital Bed showed the rather strange distribution pattern of having very few nations in the Periphery of Periphery category. These nations had very high population per Hospital Bed so other nations with fairly large such value were located in higher categories. See Appendix 3k.

The 1960 and 1970 Gini values express the overall states of inequality in the two distributions with no specific reference to whether the differences between the values were to the advantage or the disadvantage of the Periphery. A separate analysis would have to be done to provide the missing information.

Studying the parts of the Centre-Periphery continuum of nations involved in the Dynamic Middle of each indicator in relation to whether the 1970 curve was closer or further away from the line of equality, relative to the 1960 curve, will enable us to infer whether the difference between the 1960 and 1970 Gini values were to the advantage or the disadvantage of the Periphery. The reason behind such inference is explained below.

In a system that is moving away from a more egalitarian structure of distribution, we would expect nations of the Centre to accumulate more of the values being distributed over time. In a system that is moving toward a more egalitarian structure of distribution, we would expect the Periphery to accumulate more of the values over time. Therefore, on those indicators where the value $GI_b - GI_t$ were positive, we would expect the Dynamic Middle to cover the Periphery, if the structure of distribution became more egalitarian. Conversely, where $GI_b - GI_t$ were negative, we would expect the Dynamic Middle to cover the Periphery, if the structure of distribution moved away from a more egalitarian distribution; and to cover the Centre, if the structure of distribution became more egalitarian.

Table 11 below relates the $GI_b - GI_t$ values to the locations of the individual Dynamic Middles in the above ways to arrive at

characterizations of the trends involved in the Gini measure.

TABLE 11
RELATING DYNAMIC MIDDLE LOCATIONS
TO CHANGES IN GINI VALUES

Indicator	$GI_b - GI_t$	Location of Dynamic Middle				
		CC	PC	CP	PP	Trend
Combined Adj. School Enrolment	+		2	3		T
Number in Third Level*	+			1	1	T
Number in Third Level*	-	2	1			T
Circulation of Newspapers	+	1	1			A
Radio Receivers	+		3	3		N
Steel Consumption <u>per capita</u>	+		2	3		T
Industry as % of GDP	+		1	3	3	T
Agriculture as % of GDP	-		3			T
GNP <u>per capita</u>	-			1	1	A
Energy Consumption <u>per capita</u>	+			1	2	T
Calories <u>per Day</u>	-		2	3	1	A
Population <u>per Hospital Bed</u>	+		3	2		A
Population <u>per Physician</u>	+		3			A
Infant Mortality Rates	-		2	1		T

* Number in Third Level Education had two distinct Dynamic Middles

The table shows, for example, that on the indicator Combined Adjusted School Enrolment the change in the Gini values was positive and because the Dynamic Middle included more Periphery categories than Centre categories, the structure of distribution is regarded as having moved toward a more egalitarian system (T). In the case of Agriculture as percentage of GDP, the Gini value-change was negative but because the Dynamic Middle involved only Centre categories, the distribution is

regarded as having moved toward the egalitarian structure (T). The Circulation of Newspapers indicator shows that because the positive change in the Gini values involved only Centre categories the distribution is recorded as having moved away from the egalitarian system (A). The Calories per Day is recorded as having moved away from a more egalitarian structure of distribution because the change in the Gini value was negative and the Dynamic Middle affected more Periphery categories than Centre categories (A). Interpreting the information in Table 11 in the above ways shows in column 7 that seven indicators moved toward a more egalitarian system of distribution, four away from it, and one indicator, Radio Receivers, experienced no change (N).

The changes in the level of Concordance do not tell us whether the changes were to the advantage or the disadvantage of the Periphery. However, as was stated earlier in Section 4.6, we are able to know this by simply comparing the Periphery's average rank-change to the Centre's on each indicator. Where the Periphery's average rank-change was positively higher than the Centre's, the structure of distribution would be regarded as having moved closer to a more egalitarian system; and where the Centre's was higher than the Periphery's, the structure of distribution would be considered as having moved closer to a more feudal state of distribution.

Table 12 below contains relevant information on the average rank-changes for the Centre and the Periphery group of nations. Columns 2 and 3 list the respective average rank-change, and column 4 provides the difference between the Periphery and the Centre's average rank-changes. Column 5 gives the contextual rank of each indicator

and column 6 states whether the trend in column 4 indicates movement toward a more egalitarian structure (T), away from a more egalitarian structure (A), or no change (N).

TABLE 12
AVERAGE RANK-CHANGES FOR CENTRE
AND PERIPHERY CATEGORIES

Indicator	Centre	Periphery	Peri.-Cent.	Rank	Trend
Adjusted School Enrolment	-2.3	2.0	4.3	4.5	T
No. in Third Level Education	-1.6	1.1	2.7	6	T
Circulation of Newspapers	-0.8	0.4	1.2	9	T
Radio Receivers	-4.8	1.9	6.7	2	T
Steel Consumption	-0.3	0.2	0.5	12	T
Industry as % GDP	-2.8	2.2	5.0	3	T
Agriculture as % of GDP	-1.1	1.1	2.2	7	T
GNP <u>per capita</u>	-0.6	0.2	0.8	10	T
Energy Consumption	0.0	0.0	0.0	13	N
Calories <u>per</u> Day	-4.6	3.8	8.4	1	T
Population <u>per</u> Hospital Bed	-1.2	3.1	4.3	4.5	T
Population <u>per</u> Physician	-0.5	1.5	2.0	8	T
Infant Mortality Rates	-0.2	0.4	0.6	11	T

The most interesting feature of Table 12 is the fact that on twelve of the thirteen indicators, the Centre nations, on the average, lost in rank. On the indicator, Agriculture as % of GDP, the Centre lost as much rank as the Periphery gained. On the Energy Consumption per capita neither category of nations lost or gained in average rank. Another interesting feature of Table 12 is the fact that the losses and gains in average rank-changes were very small. The Centre losses ranged between -0.2 and -4.8 while the Periphery gains ranged between

0.2 and 3.8. This conforms to the smallness of the changes in levels of concordance discussed earlier.

Table 13 below presents the amounts, the contextual ranks and the directions of change for the indicators as judged by the SIM.

TABLE 13
MAGNITUDES AND DIRECTION
OF CHANGE - SIM

Indicator	$SIM_b - SIM_t$	Rank	Trend
Adjusted School Enrolment	0.23	3	T
Number in Third Level	-0.09	11	A
Circulation of Newspapers	0.01	8	T
Radio Receivers	-0.68	1	T
Steel Consumption	-0.04	10	A
Industry as % of GDP	0.04	6.5	T
Agriculture as % of GDP	-0.18	12	A
GNP per capita	0.04	6.5	T
Energy Consumption	0.11	5	T
Calories per Day	-0.03	9	A
Population per Hospital Bed	0.22	4	T
Population per Physician	0.42	2	T
Infant Mortality Rates	-0.25	13	A

The table shows, for example, that for the indicator, Adjusted School Enrolment, the Centre's 1960 advantage over the Periphery changed by 0.23 by 1970 to narrow the gap between the Centre and the Periphery. For the indicator Number of Students in Third Level Education the table indicates that the Centre's advantage over the Periphery increased by 0.09.

Column 3 of Table 13 reveals that the biggest gap-bridging

change occurred on the Radio Receivers indicator and the least occurred in the Circulation of Newspapers. The least gap-widening change occurred on Calories per Day and the biggest on Infant Mortality Rates. Column 4 states the fact that eight of the thirteen indicators moved toward a more mixed structure of distribution and the other five away from it. In all cases the changes in the levels of inequality were very small indeed.

Table 14 contains the pertinent information regarding the magnitudes and directions of changes in the values of the indicators under the Gini, the Equal Share and the Ratio of Discrimination measures. The table provides the differences between the two years' values and ranks the resulting differences according to their closeness to the democratic distributions of the values. As presented in Table 14 below, in all cases where the values of the differences are positive the system is regarded as having moved toward democratic distribution; and when they are negative they are regarded as having moved away from democratic distribution.

The values in the Gini columns make it clear that eight of the indicators reduced their overall levels of inequality between 1960 and 1970 while five of them increased theirs. The changes involved ranged between 0.09 and -0.06. Similarly Table 14 indicates that under the Equal Share measure seven of the indicators moved their structures of distribution toward more egalitarian forms. Five indicators moved away from more democratic structures of distribution; and one, Combined Adjusted School Enrolment, did not change. The changes under this measure ranged between 14.5 and -7.0. Under the

Ratio of Discrimination measure, eight indicators moved closer to a more egalitarian structure, three moved away from it and two indicators did not change their scores between 1960 and 1970. The changes under this last measure ranged between 14.5 and -0.11. The changes involved under these three measures suggest generally that the different indicators advanced toward or retreated from a more egalitarian structure of distribution at very slow rates.

TABLE 14

LORENZ CURVES: MAGNITUDES AND
DIRECTIONS OF CHANGE

Indicator	$GI_b - GI_t$	Rank	$ESC_b - ESC_t$	Rank	$RD_t - RD_b$	Rank
Combined Adjusted School Enrolment	0.07	2	0.0	8	0.13	1
Number in Third Level Education	-0.01	9.5	-7.0	13	0.09	3
Circulation of Newspapers	0.02	7.5	14.5	1	-0.11	13
Radio Receivers	0.09	1	9.1	2	0.10	2
Steel Consumption	0.04	4	2.0	7	0.0	9.5
Industry as % of GDP	0.05	3	-4.5	12	0.08	4
Agriculture as % of GDP	-0.05	12	7.9	4	-0.08	12
GNP <u>per capita</u>	-0.01	9.5	-0.6	9	0.0	9.5
Energy Consumption	0.03	5.5	2.5	6	0.01	8
Calories <u>per</u> Day	-0.04	11	4.0	5	-0.06	11
Population <u>per</u> Hospital Bed	0.03	5.5	-2.7	10	0.05	5.5
Population <u>per</u> Physician	0.02	7.5	-4.0	11	0.05	5.5
Infant Mortality Rates	-0.06	13	8.7	3	0.03	7

5.9 Patterns of the Direction of Change

We know already from earlier discussions that in both 1960 and 1970 the structures of distribution were feudal on all indicators except on the Calories per Day indicator. It is not surprising, therefore, that, as we have just seen, the magnitudes of the changes involved between the 1960 and 1970 values were very small.

Table 15 details the trends of change characterizing each indicator under each measure. The table intimates that the different indicators moved in different but fairly consistent patterns with regard to the trends in the various changes vis a vis a more egalitarian system.

The combined descriptive force of the individual measures shows in the T, N and A columns of Table 15 that, of the sixty-five cases to be distributed into the three categories, forty-two cases were T, five cases were N and eighteen cases were A.¹⁰ The last column of this table indicates that we can group the indicators into the following three classes:

- (1) those that lend themselves most easily to changes toward comparatively more egalitarian structures of distribution, i.e. those indicators that have four or more Ts (described by M in Table 15). This first group is made up of Combined Adjusted School Enrolment, Radio Receivers, Energy Consumption, Industry as Percentage of GDP and Infant Mortality Rates.

¹⁰ It is legitimate to regard the different dimensions of the concept "equality" employed here as comparable, since each dimension could be taken independently as a measure of the extent to which the indicators were equally distributed between the Centre and the Periphery. We do not have to make weighted choices among the measures because we have perfect equality between the Centre and the Periphery as the desired norm and because the measures were selected for their ability to express the degrees of attainment of this norm reasonably well. See Section 4.5 above as well as A. B. Atkinson, Wealth, Income and Equality, pp. 63-64.

(2) Those indicators which lend themselves easily to such changes, i.e. those with 3Ts (E in Table 15) were of Steel Consumption, Number in Third Level Education, Circulation of Newspapers, Agriculture as Percentage of GDP, Population per Hospital Bed and Population per Physician.

(3) And those indicators which tend to move toward more feudal structure of distribution, i.e. those indicators with two or less Ts (F in Table 15), were GNP per capita and Calories per Day.

5.10 States of Inequality and General Trend of Change: Conclusion

The hypothesis being tested in the above sections of this chapter was whether the attributes equality gaps between the Centre and the Periphery on the thirteen value-indicators were feudal in 1960; and whether the equality gaps on these indicators had remained essentially the same by 1970. The strategy for testing this hypothesis has been first to establish the extent to which the equality gap on the various indicators were feudal in structure in 1960; second, to establish the extent to which these distributions were any different in 1970; and third, to infer from the above the nature of the trends characterizing the distributions between 1960 and 1970.

The substantive observations made above were that the 1960 structures of distribution were feudal on all indicators except the indicator, Calories per Day, and that similarly the structures of distribution were feudal on all indicators except Calories per Day in 1970. We observed further, through the construction of an index for the pattern of the directions of change for the indicators, that five indicators displayed the tendency to change their distribution from feudal to egalitarian comparatively more easily than the others.

TABLE 15

PATTERN OF THE DIRECTIONS OF CHANGE*

Indicator	Conc.	SIM	D-M	ESC	RD	T Tot.No.	N Tot.No.	A Tot.No.	Combined Description**
Combined Adj..Sch. Enrolment	T	T	T	N	T	4	1	-	M
No. in Third Level Edition	T	A	T	A	T	3	-	2	E
Circulation of Daily Newspapers	T	T	A	T	A	3	-	2	E
Radio Receivers	T	T	N	T	T	4	1	-	M
Steel Consumption	T	A	T	T	N	3	1	1	E
Industry as % of GDP	T	T	T	A	T	4	-	1	M
Agriculture as % of GDP	T	A	T	T	A	3	-	2	E
GNP per capita	T	T	A	A	N	2	1	2	F
Energy Consumption	N	T	T	T	T	4	1	-	M
Calories per Day	T	A	A	T	A	2	-	3	F
Population per Hospital Bed	T	T	A	A	T	3	-	2	E
Population per Physician	T	T	A	A	T	3	-	2	E
Infant Mortality Rates	T	A	T	T	T	4	-	1	M
TOTAL						42	5	18	

* T represents a movement toward egalitarian system, N means no change, and A stands for a movement away from an egalitarian system.

+ The Dynamic Middle (D-M) has been substituted for the Gini.

** M = Changes more easily toward more egalitarian structure.

E = Changes easily toward more egalitarian structure.

F = Moves toward more feudal structure.

Six indicators displayed the tendency to change less easily toward egalitarian structure of distribution, while two indicators tended to move toward a more feudal form of distribution. Upon this observation alone, we could have stated that the general direction of change was toward more egalitarian form of distribution. However, we cannot say this because the changes involved in the levels of inequality on the indicators for 1960 and 1970 were very small and perhaps even insignificant. The smallness of the changes involved in the 1960 and 1970 values of inequality, considered in the light of the state of data, the methods adopted earlier in this study to acquire the data and the precision of the analytical tools employed, is probably not enough to make the apparent general tendency of movement toward a more egalitarian form of distribution appreciably meaningful.

Bruce Russett in his pioneering book, Trends in World Politics, says this in connection with his GNP Gini values for 1950 and 1975 that:

We find a small over-all decrease in the inequality of the world's distribution of GNP, but only from a Gini of .66 to .62—hardly enough to be very meaningful given the margin of error involved in any projection of this sort. The improvement...is concentrated in... Western Europe and the Communist bloc.¹¹

In this study, the closing and the widening of the equality gaps, between the Centre and the Periphery, as small as they may be are concentrated in the Centre of Periphery and Periphery of Centre. These categories are occupied mainly by Latin American and Caribbean

¹¹Russett, Trends in World Politics, pp. 119-120.

nations and nations of Europe, North America and Japan, Australia and New Zealand. African and Asian nations occurred infrequently in the Dynamic Middle. Only 20.6% of African nations appeared more than four times in the fourteen Dynamic Middles. In the case of Asian nations, 31.0% appeared in the Dynamic Middle more than four times; 81.8% of Latin American and Caribbean nations appeared more than four times; while 42.0% of the international Centre appeared more than four times in the Dynamic Middle. This provides us with an average of 44.4% of the international Periphery nations appearing more than four times in the Dynamic Middle as compared to 42.0% of the International Centre.

The smallness of the differences between the 1960 and 1970 values of inequality and the closeness of the average numbers of Centre and Periphery nations appearing more than four times in the Dynamic Middle explains why the 1970 structures of distribution were basically the same as those of 1960 on each indicator as described by each technique. We submit, therefore, that the general trend characterizing the 1960-1970 structures of distribution is best described as stagnant.

Theodore Caplow concludes his "rate of growth" study with the pessimistic view that the equalization of the world's countries with respect to development indicators is impossible to visualize in the immediate future. In other words, Caplow does not see the international system as developing in our sense in the near future. This finding coincides with our conclusion that the trend characterizing change toward a fully developed world is best described as stagnant.

But what does Caplow mean by "immediate future?" Since "in the long run we are all dead," as Lord Keynes is reputed to have said, perhaps Caplow means a period not more than a generation or two.¹² Let us calculate the average rate of change for all the indicators which showed tendencies toward egalitarian structure of distribution during the 1960-1970 decade in order to calculate further how long it would take on each of the measures to reach perfect equality. The following table shows the year and the number of generations, if a generation is taken as a period of forty years.

<u>Measures</u>	<u>Years</u>	<u>No. of Generations</u>
Level of Concordance	143	3-4
Systemic Inequality Measure	103	2-3
Equal Share Coefficient	94	2-3
Gini Index	100	2-3
Ratio of Discrimination	58	1-2

The calculations show that on the most encouraging measure, Ratio of Discrimination, the international system will take between one to two generations to reach perfect equality; and on the least encouraging measure, Level of Concordance, it will take three to four generations.

These calculations are based on the overall average performance on the indicators which showed movements toward equality and therefore paint the most optimistic picture of the future. It is possible for some nations in Latin America, such as Brazil and

¹²Tord Hoivik has said, "we experience society not in the single instant, but through a life-time. The relevant frame for evaluating social inequality as a human experience would therefore be the individual life-cycle." Journal of Peace Research, VIII, No. 2, 37.

Argentina, to attain parity with the Centre nations in two to three generations. This presupposes that the system will change at the above rates and that system's structure and its workings allow the nations of the Periphery to catch up with the Centre over long periods of time. There is nothing to suggest that the system would change, and if it did, would do so at these rates. What seems likely to be the case is this, that some nations in Latin America would in the near future attain the status of the Centre while the "hard core" Periphery would certainly remain so for a long time to come.

5.11 African Nations' Performance: Introduction

In the remaining sections of this chapter, I shall attempt to evaluate the performance of African nations, as a group, on the individual indicators and in the context of the general international performance discussed above. We hypothesized in Chapter 3 that we did not expect African nations to have changed their peripheral situation very much during the 1960-1970 decade mainly because the works reviewed earlier gave no reason to think that the Periphery did change their situations. Having now sustained the proposition that the 1970 structures of distribution were basically as feudal as those of 1960 and therefore the general trend of change is best ascribed as stagnant, I intend to examine the extent to which African nations could be said to have improved upon their peripheral roles.

The evaluation of African nations' performance will be done along the following lines:

(1) Whether or not the changes in African nations' average rank-positions between 1960 and 1970 moved their 1960 average category on the Centre-Periphery continua of the different indicators to a higher category in 1970.

(2) How the changes in their real-ranks compared with changes in their apparent-ranks on each indicator. Real-rank changes being changes in nations ranks which move them from one of the stratification categories to another; while apparent-rank changes are those changes in ranks which keep nations in the same category.

(3) Examining the African nations performance within the Dynamic Middle to see whether the percentages of African nations involved in these sensitive parts of the Lorenz Curves were larger or smaller than the percentages of the total number of nations involved; and using the previous discussion (Section 5.6) to ascertain whether African nations fared better or worse than the rest of the nations on the different indicators.

The overall performance of African nations according to each of the above methods of evaluation is to be judged by the number of the thirteen indicators which made gains along the different measures to indicate improvements in the African situation by 1970.

5.12 African Nations' Performance: Changes in Categories

Appendices 5a to 5m provide the rank-changes of the individual African nations for each of the indicators. The appendices show the ranks of African nations for 1960 and 1970, the rank-changes between these years, and state whether the nations experienced positive or

negative real and apparent rank-changes. The relevant information needed to evaluate the African nations' experience according to the changes in their categories has been compiled from these appendices and presented in Table 16 below.

TABLE 16

SUMMARY OF AFRICAN NATIONS' RANK EXPERIENCES

Indicator	Average Rank 1960	Average Rank 1970	Category 1960	Category 1970	Average Rank Change	Rank	Category Change
Combined Adjusted School Enrolment	84.2	83.8	PP	PP	0.4	2	0
No. in Third Level	83.5	84.5	PP	PP	-1.0	5	0
Circulation of Newspapers	81.9	85.3	PP	PP	-3.4	11	0
Radio Receivers	80.6	80.5	PP	PP	0.1	4	0
Steel Consumption	69.3	70.0	PP	PP	-0.7	8	0
Industry as % of GDP	50.6	56.7	CP	CP	3.9	1	0
Agriculture as % of GDP	62.2	61.8	CP	CP	-0.4	7	0
GNP <u>per capita</u>	84.7	84.4	PP	PP	0.3	3	0
Energy Consumption	82.0	84.9	PP	PP	-2.9	10	0
Calories <u>per Day</u>	57.9	65.7	CP	CP	-7.8	13	0
Population <u>per Hospital</u> Bed	74.6	74.9	PC	PC	-0.3	6	0
Population <u>per Physician</u>	83.6	85.6	CP	CP	-1.7	9	0
Infant Mortality Rates	53.0	59.3	CP	PP	-6.3	12	-1

Column 2 contains the average rank-positions for 1960 and column 3 contains those for 1970. Columns 4 and 5 tell us in what categories the average rank-positions placed the African nations in 1960 and 1970 respectively. Column 6 provides the magnitudes of the 1960 and 1970 rank-change values, column 7 contextually ranks the indicators according to the values in column 6; and, finally,

column 8 states whether these changes resulted in a positive or negative category change on the individual indicators.

The most striking feature about columns 2 and 3 is that the rank-positions for both 1960 and 1970 were very high. And, therefore, not surprisingly, the categories occupied by the African nations for both 1960 and 1970 were low, except on the Population per Hospital Bed indicators,¹³ as columns 4 and 5 make clear. Another striking feature is the fact that the rank-changes were very small. Column 6 shows that the changes range between 3.9 and -7.8 with seven of the thirteen values being less than 1. Another fact to note is that, on nine of the thirteen indicators, the average rank-changes were negative, meaning that the 1970 average rank-positions were larger than those for 1960. All these facts resolve into the revelation in column 8 that in all cases but one the African nations occupied the same category in 1970 as they did in 1960. The only indicator on which there was a change in category, as column 8 shows, was Infant Mortality Rates. This indicator shows the average African nations' category to be Centre of Periphery for 1960 and Periphery of Periphery for 1970. This finding is of dubious reliability. Data were available for only four African nations and so we cannot generalize the category change on this indicator to cover all African nations as a subsystem.¹⁴

¹³The categories occupied by African nations were high mainly because of the few nations in Periphery of Periphery, who had high population per hospital beds. See footnote 9 above.

¹⁴We shall not therefore consider this indicator in the analysis of the African experience.

If, therefore, the criterion of judgment regarding the performance of African nations, as a group, is whether or not they changed their average category between 1960 and 1970, then the verdict is clearly that African nations did not perform well because they did not move into higher categories. They held their own, so to speak; they remained in the same categories for both 1960 and 1970 on all indicators except on the unreliable Infant Mortality Rates indicator.

Changes in categories may be too stringent a criterion of performance. Perhaps, a fairer criterion would be to judge the performance on the various indicators according to the sizes of the average rank-changes. When we adopt this measure of judging performance, we see that we can divide the indicators into two groups according to those which experienced positive rank-changes and those which experienced negative rank-changes. Column 7 of Table 16 shows that four of the indicators gained in ranks and nine of them lost in rank. If we regard those indicators which gained in rank as having done well and those which experienced negative changes as having done badly then we have the following listing:

Performed Well

- (1) Industry as percentage of GDP
- (2) Combined Adjusted School Enrolment
- (3) GNP per capita
- (4) Radio Receivers.

Performed Badly

- (5) Number in Third Level Education
- (6) Population per Hospital Bed
- (7) Agriculture as percentage of GDP
- (8) Steel Consumption

- (9) Population per Physician
- (10) Energy Consumption
- (11) Circulation of Newspapers
- (12) Calories per Day

Comparing the magnitudes and directions African nations average rank-changes on each indicator to those of the entire Periphery and the entire Centre would give us a comparative context within which to judge African nations' overall performance. While African nations improved their average ranks on four indicators and worsened them on nine, Table 17 restates in columns 1 and 3 the earlier findings that the entire Periphery did improve their average ranks on all the indicators and that the Centre worsened theirs on all the indicators but one.

Comparing the values of the African average changed with those of the Periphery and the Centre, columns 5 and 6 of Table 17 state whether the African sub-group of nations did better (B) or worse (W) than either the Periphery as a whole or the Centre as a whole. It is clear from column 5 that the African nations bettered the Periphery performance in only two indicators, Industry as percentage of GDP and GNP per capita; while column 6 shows that African nations bettered the Centre on seven of the thirteen indicators.

The conclusion then is that while the African nations did not change their rank-positions enough to change their average categories on the Centre-Periphery continua, their average rank-change performance were better than the Centre's performance and worse than the Periphery's. What is interesting therefore is the

TABLE 17

COMPARING AFRICAN NATIONS' AVERAGE RANK-CHANGE
PERFORMANCE WITH PERIPHERY AND CENTRE PERFORMANCE

Indicator	Periphery Rank-Change	African Rank-Change	Centre Rank-Change	Evaluation Peri. Cent.	
Combined Adjusted School Enrolment	2.0	0.04	-2.3	W	B
Number in Third Level Education	1.1	-1.0	-1.6	W	B
Circulation of Newspapers	0.4	-3.4	-0.8	W	W
Radio Receivers	1.9	0.1	-4.8	W	B
Steel Consumption	0.2	0.7	-0.3	W	W
Industry as % GDP	2.2	3.9	-2.8	B	B
Agriculture as % GDP	1.1	-0.4	-1.1	W	B
GNP <u>per capita</u>	0.2	0.3	-0.6	B	B
Energy Consumption	0.0	-2.9	0.0	W	W
Calories <u>per</u> Day	3.8	-7.8	-4.6	W	W
Population <u>per</u> Hospital Bed	3.1	-0.3	-1.2	W	B
Population <u>per</u> Physician	1.5	-1.7	-0.5	W	W

realization that the generalized Periphery "seem" to be catching up with the Centre at a much faster rate than the African subsystem within the Periphery. This means that whatever benefits the Periphery is gaining through higher rank-changes, the African subsystem is gaining little of it. However, the rank-gaps between the Centre and the Periphery are so wide that such small gains made by the Periphery and Africa cannot be considered to be of any great developmental significance. The best that can be said with regard to such small gain by the Periphery and Africa is that they can make these gains without affecting the substantial gaps in any meaningful way for a long time to come.

Thus, we can say the African nations' performance in category change and in rank-change are sub-systemic expression of the stagnant trend characterizing international development of the 1960s.

5.13 African Nations' Performance: Real and Apparent Rank-Change

The fact that African nations, as a group, did not change their 1960 average rank-positions very much does not mean that certain individual African nations did not change ranks significantly on the different indicators. A look at appendices 4a-4m will show that certain African nations experienced significant rank-changes on some indicators. For example, on the indicator Combined Adjusted School Enrolment, Ghana underwent 14.5 upward change in rank while Uganda underwent a loss of 16.0. The average rank-change for this indicator was only 0.04. Going through the appendices, we should be able to select all the African nations which experienced large changes in rank-positions.

However, the particular African nations which experienced such large rank-changes are of less immediate relevance to this study at this point. What is important now is whether the rank-changes, small or large, were real or apparent rank-changes. Real rank-change has been defined earlier as the change which moved a nation from one category to another; and apparent rank-change as the change which left a nation in the same category. What we would like to know here, regarding the real and the apparent performances of African nations, is how the number of nations which changed ranks in the real sense compared with the number of nations which changed ranks in the

apparent sense on each indicator. Real rank-changes are more significant for development than apparent rank-changes. The technique of comparison is, therefore, simply to strike the ratio between the number of African nations which experienced real rank-changes and the number which experienced apparent rank-changes on each indicator. From this, we are able to know how the real rank-changes experienced by African nations on the average, compared with a unit apparent rank-change experienced on each indicator.

Table 18 below contains the relevant information on the ratios. Columns 2 and 3 present the average gains and losses in the real rank sense experienced on each indicator by the African nations. Column 4 presents the net changes between the gains and losses in real ranks. Columns 5 to 7 present equivalent information on the apparent rank-changes for each indicator. Column 8 contains the ratios described above. The net columns show that, in the real rank-changes, African nations lost in the net sense on four of the twelve indicators, while they lost in eight of the indicators on the apparent changes. On two of the indicators, Circulation of Newspapers and Steel Consumption, there were no net real rank-changes. The generally small ratios recorded in the performance column are further expressions of African nations' poor performance on the category-change measure. If we use the extent to which an indicator gained in both real and apparent rank-changes as the criterion for evaluating performance, then it is only on Combined Adjusted School Enrolment and GNP per capita that we can say the African nations seem to have done well. Even on these two indicators the African nations remained in their

initial categories.

Of those African nations which appeared in the Dynamic Middle with a frequency of more than four, Tunisia, Malagasy, Morocco and Libya had more real rank-experiences than the others. South Africa and Liberia did not appear in the Dynamic Middle often but showed greater frequencies in real rank-change.

TABLE 18

AFRICAN NATIONS PERFORMANCE ON
REAL AND APPARENT RANK-CHANGES

Indicator	Real Rank			Apparent Rank			Performance	
	+	-	Net	+	-	Net	Net Real	Net App.
Combined Adjusted School Enrolment	15.6	3.1	12.5	37.4	37.0	0.4	12.5:	0.4
Number in Third Level Education	0.0	4.8	-4.8	38.4	48	-9.6	-0.5:-1	
Circulation of News- papers	0.0	0.0	0.0	68.4	25.2	43.2	0.0:43.2	
Radio Receivers	19.0	9.6	9.6	22.4	48.0	-25.6	0.38:-1	
Steel Consumption	4.8	4.8	0.0	28.8	57.6	-28.8	0.0:-1	
Industry as % GDP	4.8	9.6	-4.8	43.2	24.0	19.2	-0.25: 1	
Agriculture as % GDP	13.5	18.0	-4.5	27.0	31.5	-4.5	-1 :-1	
GNP <u>per capita</u>	9.0	6.0	3.0	45.0	36.0	9.0	0.33: 1	
Energy Consumption	0.0	2.9	-2.9	29.0	63.8	-34.8	-0.08: 1	
Calories <u>per</u> Day	28.0	20.9	8.0	12.0	40.0	-28.0	0.29:-1	
Population <u>per</u> Hospital Bed	25.9	18.5	7.4	11.7	37.0	-25.3	0.29:-1	
Population <u>per</u> Physician	6.6	19.5	-13.8	29.7	39.6	-9.9	-1.39: 1	

5.14 African Nations' Performance: The Dynamic Middle

The Dynamic Middle technique can be used to discuss the African nations' experiences further. I intend to compare the number of African nations involved in the Dynamic Middle to the total number of nations involved on each indicator. If those indicators which were considered developed by the Dynamic Middle technique in Section 5.8 had a higher percentage of African nations involved in the Dynamic Middle then the African nations are considered to have performed well; because they gained more of the Dynamic Middle's advantage than the other nations affected by the Dynamic Middle. If, however, the indicators moved away from democratic equality and African nations involved were a greater proportion of the total nations involved in the Dynamic Middle, then the African nations are considered to have performed badly on that indicator.

Table 19 provides the information on African nations' performance according to their experience in the Dynamic Middle. Column 2 states whether the structure of distribution according to the discussion in Section 5.8 moved toward or away from a more egalitarian system. Columns 3 and 4 show respectively the number and the percentage number of all the nations involved in the Dynamic Middle. Columns 5 and 6 provide equivalent information on African nations.

Column 7 provides the difference between the number of African nations and that of all nations which were affected by the Dynamic Middle. Column 8 states whether African nations did better (B) or worse (W) in comparison to the experience of all the nations.

TABLE 19

AFRICAN NATIONS' PERFORMANCE
WITHIN THE DYNAMIC MIDDLE

Indicator	System Perfor- mance	All Nations No.	African % No.	Diff. Afri- can % & All Nations %	Per- form- ance
Combined Adjusted School Enrolment	T	36	34.3	11 34.4 0.1	B
Number in Third Level	T	13	13.9	0 0.0 -13.9	W
Circulation of News- papers	T	27	27.2	0 0.0 -27.2	W
Radio Receivers	A	49	45.4	8 25.8 -19.6	B
Steel Consumption	N	20	21.9	1 5.0 -16.9	-
Industry as % of GDP	T	50	64.9	12 70.5 + 5.6	B
Agriculture as % of GDP	T	14	17.7	1 5.9 -11.8	W
GNP <u>per capita</u>	T	12	10.8	4 12.1 1.3	B
Energy Consumption	A	17	15.5	0 0.0 -15.5	B
Calories <u>per</u> Day	T	16	16.2	5 20.0 13.2	B
Population <u>per</u> Hospital Bed	A	42	38.9	20 76.9 38.1	W
Population <u>per</u> Physician	A	24	22.4	7 25.6 3.2	W

Steel Consumption is not considered because of its system performance of no change; and Infant Mortality Rates is not considered either because it had only four African nations for which there were data.

From Table 19 we can note from the last column that African nations performed well on six indicators and badly on five. The six indicators were:

- (1) GNP per capita
- (2) Radio Receivers
- (3) Calories per Day

- (4) Energy Consumption
- (5) Combined Adjusted School Enrolment
- (6) Industry as % of GDP

And the five indicators on which they did badly were:

- (1) Population per Physician
- (2) Number in Third Level Education
- (3) Agriculture as % of GDP
- (4) Population per Hospital Bed
- (5) Circulation of Newspapers

The overall description of African performance by this measure is clearly a mixed one. They gained on six indicators and lost on five.

5.15 African Nations' Performance: Conclusion

The hypothesis being tested with respect to African nations, as a group, is whether these nations did change their peripheral status between 1960 and 1970. The evidence suggests that African nations fall as squarely in the Periphery of Periphery in 1970 as they did in 1960. African nations' performance in category-change and in rank-change were found to be subsystemic expressions of the stagnant trend characterizing international development of the 1960's. The real-apparent rank change ratios showed further that on the whole African nations rank-changes were made up more of apparent than real rank-changes. This further explains why African nations maintained their 1960 average categories in 1970. The Dynamic Middle analysis showed that African nations did better than the international system on six indicators and worse on five. This finding again expresses the stagnant nature of the overall performance of African nations in the international context.

Which indicators did African nations frequently perform well

on? Table 20 below shows the frequency of good performance for the twelve indicators.

TABLE 20
INDICATOR FREQUENCY OF GOOD PERFORMANCE

Indicator	Average Range Change	Comparison with Periphery	Real-App. Ratio	Dynamic Middle	Total
Adjusted School Enrolment	X		X	X	3
No. in Third Level Education					0
Circulation of Newspapers					0
Radio Receivers	X			X	2
Steel Consumption					0
Industry as % GDP	X	X	X	X	4
Agriculture as % GDP					0
GNP <u>per capita</u>	X	X		X	3
Energy Consumption				X	1
Calories <u>per</u> Day				X	1
Pop. <u>per</u> Hospital Bed					
Pop. <u>per</u> Physician					

Industry as a percentage of GDP, Adjusted School Enrolment, GNP per capita and Radio Receivers seem to be the indicators. There is no doubt about the fact that African nations have pursued education at the elementary level vigorously. Radios are becoming increasingly easier to obtain and cheaper to purchase in many African nations. The good performance on the industry indicator reflects the intensity with which many African nations have pursued industrialization. Increase in GNP per capita has been regarded for a long time as the key measure of economic progress. Many African nations therefore

have followed policies which have increased their Gross National Products. However, the fact that the good performance on GNP and Industry is not accompanied by good performance on Steel Consumption and Energy Consumption suggest that the levels of economic activities in most African nations are rather low and have not yet reached what Rostow would call the "take-off" stage.

Ten years experience is perhaps too short to enable us to come to any definite conclusions about African developmental prospects. But ten years is long enough to see possible trends. From this study of African development experiences, we can agree with the generally held view that the development prospects for many African nations are not bright, except, perhaps, for the very few nations in the Dynamic Middle.

The stagnant nature of African nations' development experiences does not come as a surprise. It is enough to know that the UN counted sixteen African nations among the world's poorest nations, which cannot be expected to improve their peripheral situation without some "special help" to know that the other African nations had to do extraordinarily well to improve upon the overall African situation.

The general criteria used by the UN to isolate possible members of the "hard core" poor group of nations included low per capita income, predominance of subsistence agriculture, low productivity, low level of industrialization, low level of education, shortage of skills, weak over-all administrative and governmental organization, inadequate or rudimentary economic infrastructure, high transport costs, inadequate health services, and finally, the smallness of

size of most of these countries, with corresponding limits on the size of their internal markets.¹⁵ But in identifying the twenty-five members of this group, the UN used the following criteria: per capita GDP of \$100 or less; share of manufacturing in total GDP of 10% or less; and literacy rate - proportion of the literate persons in the age group of fifteen years and more - of 20% or less.

The UN recognized that the list of the twenty-five "hard core" poor was based on indicators which were neither wholly reliable nor sufficient in themselves to provide a faultless list, it therefore stressed the tentative character of the list. However, the Expert Group which prepared the list for the UN did state that they were impressed by the fact that these nations appear invariably at the bottom of the list of developing countries in studies carried out by the UNCTAD secretariat, regardless of the nature of the methodologies used.

Thus, we can expect this list of nations as unquestionably belonging to the Periphery of Periphery on our various indicators. The "hard core" poor nations as identified by the UN were:¹⁶

Africa: Botswana, Burundi, Chad, Dahomey, Ethiopia, Guinea, Lesotho, Malawi, Mali, Niger, Rwanda, Somalia, Sudan, Uganda, Tanzania, Upper Volta.

Asia: Afghanistan, Bhutan, Laos, Maldives, Nepal, Sikkim, Western Samoa, Yemen.

Latin America: Haiti

¹⁵United Nations, "Special Measures in Favour of the Least Developed among the Developing Nations: Report of the Ad Hoc Group of experts on Special Measures in Favour of the Least Developed Countries (New York: United Nations, 1972), p. 6.

¹⁶United Nations, "Special Measures in Favour of the Least Developed among the Developing Nations: Report of the Ad Hoc Group of experts on Special Measures in Favour of the Least Developed Countries," p. 7.

Botswana and Lesotho are the only African nations listed above which do not appear in the thirty-four nations used in this study. A combined index of the 1960 average rank-positions constructed for all the African nations used in this study confirmed the fact that with the exception of Uganda the thirteen remaining nations in the UN list were located in the last eighteen of the combined index ranking.

If we regard the thirteen African nations listed by the UN and confirmed by our combined index as the inert part of African nations' Periphery of Periphery status, then can we regard the rest of the African nations as the active part or as Wallerstein's semi-periphery? Which are the active Periphery or semi-periphery of African nations? Wallerstein's answer to this question is: "Not many. South Africa, were the rest of Africa ready to serve as its market."¹⁷ However, our analyses of the Dynamic Middle suggest that **Malagasy**, Tunisia, Uganda, Kenya, Morocco, UAR, Libya and possibly Senegal, Zambia and Algeria can be regarded as those African nations which could rise to join the Centre group of nations.

¹⁷Wallerstein, "Dependence in an Interdependent World: The Limited Possibilities of Transformation within the Capitalist World Economy," p. 17.

CHAPTER VI

THE INTERACTION AXIS: THE SEARCH FOR POLITICAL SPACE

6.1 Feudal Interaction Properties

This chapter essentially deals with the interaction axis of the model outlined in chapter III. The two interaction properties, upon which this aspect of the theory hinges, are interaction initiation and interaction intensity. By interaction initiation, we mean a nation's discrete actions which are its outputs into the international system and which are received, as inputs, by the other nations. Interaction intensity represents the quantity of such actions. Interaction intensities can be quantified in different forms depending on the nature of the indicators and the methods of analysis. They can be quantified in terms of the sum of such discrete notions; or graphically, as Steven Brams attempts to do with the digraph technique.¹ Interactions between actors in a system then means nothing more than action initiations, reactions and counter-reactions among actors of a system.

Thus, the interaction pattern in a system is said to be concentrated when interaction initiations are more intense between a dyad, or a group, of nations in a system and only a few or no interactions are initiated between other dyads or groups within the system.

The key interaction concept in this study is interaction-dependence. By this is meant a situation where the members in a subsystem interact very little among themselves, initiate comparatively more actions to other systems but receive a relatively large number of

¹Steven Brams, "The Structure of Influence Relationship in the International System," in James N. Rosenau (ed.), International Politics and Foreign Policy, pp. 583-599.

action initiations from the other sub-systems. This interaction pattern is part of the total interaction pattern which defines a system as feudal and therefore by definition low on interaction entropy.

In the discussions of the model in chapter III, we stated that the interaction patterns of nations in a feudal international system is "top-heavy", meaning the interaction between the centre nations ($C \longleftrightarrow C$) is much more intense than the interaction initiated by the Centre toward the Periphery ($C \longrightarrow P$) and this interaction is in turn more intense than the interaction initiated by the Periphery toward the Centre ($P \longrightarrow C$); and the least intense of all the interactions is that between the peripheral nations ($P \longleftrightarrow P$). It was also stated in that chapter that if the international system was changing from feudal toward egalitarian, that is, in our context, if the system was developing, then the theory expects the pattern of interaction intensity to tend toward equal distribution.

The $C \longleftrightarrow C$ interactions show the centre nations' mutual regard for each other. The $C \longrightarrow P$ interactions tell us of the Centre's need for and control of the Periphery in order to keep the Centre at the top. The $P \longrightarrow C$ interactions represent the "colonial dependence" of the Periphery on the Centre. They symbolize the Periphery's heavy social reliance on the Centre; and the practically non-existent $P \longleftrightarrow P$ interactions depict the peripheral nations mutual "disregard" for each other.

If, therefore, we recall the two conditions laid upon international development in chapter II, which were that international development to be pursued peacefully and that we should attempt to

achieve international developmental aims through the initiative of the Periphery, then the pertinent question with regard to the interaction aspect of the theory is this: How does the Periphery initiate the relevant changes in the feudal international system to move it toward an egalitarian system? In precise terms, where does the Periphery begin to initiate reinforcing actions toward equalization of interactions initiation and intensity between the units of the system?

All things being equal, if the Periphery is taking the initiative to defeudalize the interaction pattern of the international system peacefully, one would think they would begin, indeed they should begin, by changing the interactions which they could influence most; and these interactions are obviously those which originate from them. Those interactions, as Figure I in Chapter III shows, are interactions 3 and 4, i.e. $P \longrightarrow C$ and $P \longleftrightarrow P$. There is very little the Periphery could do, initially and directly, to change interactions 1 and 2, i.e. $C \longleftrightarrow C$ and $C \longrightarrow P$. Changes in interactions $C \longleftrightarrow C$ and $C \longrightarrow P$ are in the exclusive hands of the Centre nations.

It is due to these reasons that Hypothesis II suggested that if the international system was going through a process of defeudalization, then we should expect to see a decrease in the interaction-dependence of the Peripheral nations on the Centre nations. This means then that if the system is developing peacefully we should expect to see an increase in $P \longleftrightarrow P$ and a decrease in $P \longrightarrow C$.

It is in the context of this type of peaceful changes in the intensities of interactions 3 and 4 that the trade union analogy,

mentioned earlier in chapter III, has its meaning.

It is important to emphasize that the peripheral nations do not increase their inter-dependence and reduce their reliance on the centre nations for reasons of "opting out" of the system in order to avoid unfavourable comparison with the Centre, but for the strategic reasons of increasing their bargaining strength vis-a-vis the Centre so as to gain more of the systems output than before. When such "class confrontation" is initiated by the Periphery then the Periphery's interaction with the Centre becomes demand-inspired with the aim of gaining a larger share of the system's output for the Periphery.

Thus, when the theory suggests that the Periphery must increase their interaction ($P \longleftrightarrow P$) and reduce their dependence ($P \longrightarrow C$) on the Centre, it does not imply that $P \longrightarrow C$ should be dispensed with altogether. What is meant is that $P \longleftrightarrow P$ should increase while $P \longrightarrow C$ decreases until the two interactions approximate each other in intensity. It is possible, however, that over a period of time both $P \longleftrightarrow P$ and $P \longrightarrow C$ interactions increase absolutely. It is necessary, therefore, to note that the decrease-increase relations between $P \longrightarrow C$ and $P \longleftrightarrow P$ should be seen in their relative senses. What is important here is that over a period of time $P \longleftrightarrow P$ increases relative to $P \longrightarrow C$.²

²This interpretation can be viewed as implying the idea that for the Periphery to meet the Centre more as equals than subordinates, the Periphery must "break away a little" to build up their collective strength so that they can return later to meet the Centre as respected equals. In fact, the early post-revolutionary histories of both the U.S.S.R. and the Republic of China, as shown through their respective isolationist policies, are clearly informed by this principle.

Despite what has been said above, it is still legitimate for someone to ask why we are not considering interaction $C \longrightarrow P$, since these actions obviously affect the Periphery. It is true that the Periphery is affected by $C \longrightarrow P$ and that the Periphery can react to $C \longrightarrow P$ in one of more of the following ways. The Periphery can ignore $C \longrightarrow P$, or it can react positively or negatively to them. The Periphery, in a general sense, cannot stop the Centre from initiating any action. The non-consideration of $C \longrightarrow P$ interactions become even more worrisome when we recall that the intermediary class system calls for the apparent reduction in $P \longrightarrow C$ but the theory, as such, says very little about $C \longrightarrow P$. Why then do we not consider $C \longrightarrow P$ in this study? We do not consider $C \longrightarrow P$ because the focus of the study, as it is informed by the theory, is on the initiatives that the Periphery can take. With this focus, ignoring $C \longrightarrow P$ interaction does not do any damage to the scope of the study. This last point needs further elaboration.

In many scholarly writings³ on the international structural problems of imperialism and neo-colonialism, the position is often taken that the colonial and imperialist problems would vanish if only the Centre would desist from exercising their enormous systemic influence through the media of combinations of threat and reward in such a way as to keep Periphery in the bottom position. This view translates into a plea for changes in the make-up of $C \longrightarrow P$ to make them possible for the Periphery to "do their thing," so to

³The group of scholars discussed earlier as the "moral school" of thought represent this kind of thinking.

speak, unencumbered by the strong Centre influences in the international environment. This view amounts to a misunderstanding of the workings of the international system; a misunderstanding which the feudal interpretation of the international system seeks to remove. The logic of feudalism is this: if there is anything immutable in the relations between nations, the nearest thing to it is the Centre influencing⁴ the Periphery, through $C \longrightarrow P$, in such a way as to keep the latter in the bottom position. The reason for this is simple. As we saw in chapters II and III the Centre nations are at the top and want to stay there, but they are at the top because the Periphery occupy the bottom rungs of the stratified system. From this, it is easy to see that the generalized Centre will use their influence through $C \longrightarrow P$ to manoeuvre the Periphery in order to keep them at the bottom.⁵ It is therefore not realistic to expect $C \longrightarrow P$ to change in both content and intensity by itself. The changes in $C \longrightarrow P$ will occur as reactions to changes in $P \longrightarrow C$ and $P \longleftrightarrow P$. It is for these reasons that it is legitimate, indeed imperative, not to worry initially about changes in $C \longrightarrow P$, when the concern is feudal-egalitarian transition, until changes in $P \longrightarrow C$ and $P \longleftrightarrow P$ have been demonstrated. These latter changes give us the hope to expect possible changes in $C \longrightarrow P$ as well as in $C \longleftrightarrow C$.

⁴See J. David Singer, "Inter-Nation Influence: A Formal Model," in James N. Rosenau, International Politics and Foreign Policy, pp. 380-392.

⁵This should not be taken to mean that the Centre would never do anything which is in the objective interest of the Periphery. It is possible that some $C \longrightarrow P$ interactions could indirectly be beneficial to the Periphery. In fact it is even possible that $C \longrightarrow P$ interactions could be motivated by genuine developmental intentions. The argument here is that such interactions are rather more the exception than the rule.

6.2 The Essence of the Trade Union Analogy

The residual meaning of the trade union analogy is this:

1. The Periphery is to increase their intra-group-interactions, $P \longleftrightarrow P$, so as to form a pressure group within the system.

2. Interaction resources are limited at any given point in time in all nations, especially so in the Periphery. For this reason counselling an increase in $P \longleftrightarrow P$ implies an advice for the Periphery to decrease $P \longleftrightarrow C$.

3. As we noted above $P \longrightarrow C$ is more intense than $P \longleftrightarrow P$ because $P \longrightarrow C$ includes colonial dependence of the Periphery on the Centre. That is to say, $P \longrightarrow C$ represent the interactions made necessary by the inter-dependent nature of the international system as well as the interaction of colonial dependence, i.e. interactions accounted for by the colonial past of the Periphery and other related factors in the international system. Therefore, the true meaning of $P \longrightarrow C$ reduction is to shear $P \longrightarrow C$ of its colonial-dependence content and to make the residual content demand-laden. The reduction in $P \longrightarrow C$ can also be viewed another way. It could mean the diversification of Periphery's normal interaction with the Centre, i.e. the Periphery is to interact with as many members of the generalized Centre as possible.

4. The essence of the trade union analogy then is for the Periphery to come together to form a pressure group (i.e. increase $P \longrightarrow P$) so as to exert pressure on the Centre, ($P \longrightarrow C$), for reforms which are beneficial to the Periphery within the system. The rationale underlying this thinking is that once this happens other interactions within the system, notably $C \longrightarrow P$, will

re-arrange themselves both in intensity and content to make all the interactions within the system eventually tend toward equality. It is extremely important to note that when we talk about interactions tending toward equality we do not mean just the interaction intensities evening out between the subsystems. By this we also mean that interaction contents or meanings tend to be similar. Very often scholars of the communication school of thought in international relations do emphasize interaction intensity to the neglect of interaction content. Knowing the volume of mail between two nations, and knowing nothing about their contents, is knowing only one dimension of a multi-dimensional phenomenon. It is not enough to enable anyone to conclude about the "degree of closeness between the two countries."

From the above, and the already expressed purposes of this study, it should be expected that the interaction aspect of this study will concern itself with the extent to which Peripheral nations have de-emphasized their general $P \longrightarrow C$ interactions and comparatively emphasized their general $P \longleftrightarrow P$ interactions. But since this part of the study is a case study in the changing patterns of African Peripheral nations, in particular, the focus will be on the changes in the relation of the African nations.

6.3 The Decolonizing Intentions of Post-Independence African International Interaction

The main cause of the disaffection of African states with the existing international system of values can be found in their claim that they belong to the human race and their desire to live and be recognized as such. As we saw in Chapter IV

the key concern in the aspirations of African nations in the international system has been the pursuit of human dignity for their citizens. Dignity was interpreted then, as having what "dignified" nations have - including higher levels of wealth, health, and education among other things.

An important aspect of "what dignified nations have" in the contemporary international system is the relative freedom to choose. Therefore, if African nations' aspirations for dignity has any contextual meaning at all, they seek to increase their individual and collective political space, the room needed to exercise their freedom to choose and to pursue chosen objectives without undue constraints.⁶

Morton Kaplan, writing on "freedom" in international politics, has said,

"the freedom of a 'free' action depends on the choosing and not on the choice...subjective awareness of freedom is an awareness that accompanies the act of choosing... the act may appear to the choosers as completely determined. And so it may be, except in the act of choosing, the display of alternative ends and alternative means reveal the scope and range of the decision framework and therefore acquaints the chooser with the array of alternatives that he is physically and biologically and perhaps even socially and psychologically free to choose from, although perhaps constrained upon deeper examinations by intellectual or moral considerations to merely a single one of the alternatives...an end is considered in the absence of given constraints and rejected as the appropriate constraint is recognized."⁷

⁶ Sheldon S. Wolin uses this term to express a similar idea in his Politics and Vision: Continuity and Innovation in Western Political Thought (Boston: Little, Brown and Co., 1960) pp. 16-17. Ato Sakyi-Otu uses the term "third sense of Freedom" to define the collective aspect of political space in order to distinguish it from Western liberal philosophers' excessive concern with individual freedom. See his "On the 'Third Sense' of Freedom in the Third World," Papers Presented at the Forty-Third Annual Meeting of the Canadian Political Science Association, V, No. 70 (June, 1971).

⁷ Morton Kaplan, "Freedom in History and International Politics," in James Rosenau, Vincent Davis and Maurice East (eds.), The Analysis of International Politics, p. 100.

What, then, have been some of the inappropriate or undue international constraints which have impeded African nations in their efforts to gain dignity in the context of free nations? It is believed, and indeed it is the underlying thesis of this study, that these inappropriate constraints are primarily structural in nature.

Some prominent observers of African nations' diplomatic history since the early 1960's have remarked on these nations' attempts to fashion independence of action in the international system. The thrust of this history has been characterized by Ali Mazrui as "protest diplomacy" of the transformation variety. Mazrui describes protest of transformation as "manifestation of a profound disaffection with an existing system of values, system of rewards and penalties. The great impetus behind protests of transformation is a commitment to radical change "...protests of transformation are oriented toward the future and its reformulation."⁸ Ali Mazrui again proposes that "involved in African nationalism and in its aftermath is a bundle of complexes, aspirations, fears and values."⁹ This "bundle" has an important bearing on how African nations have acted in the international system. Mazrui adds: "The point of rendezvous between a consciousness of these events in the sense of mental perception and a consciousness of these events at the level of psychological

⁸ Ali Mazrui, "Postlude: Toward a Theory of Protest," in Robert I. Rotberg and Ali A. Mazrui (eds.), Protest and Power in Black Africa (New York: Oxford University Press, 1970), p. 1185.

⁹ Ali Mazrui, International Organization, XVIII, (1964), 499.

response is the area of experience where attitudes are found and then rationalized."¹⁰

An important question at this point is whether the psychological response has produced a rationalized sort of behaviour of which a trade union form of association between African nations is a part? An essay by Robert Good¹¹ does suggest there are grounds to think it has. Good states that an aspect of the post-colonial African nations's protest diplomacy has taken the form of the creation of many associational forms. He explains it this way:

"the vocabulary of the post-colonial era is cluttered with place names where attempts have been made to mould the new nations into politically significant groups. To Bandung and Belgrade have now been added a list of African towns: Brazzaville, Casablanca, Monrovia, Lagos and...Addis Ababa. The impetus is understandable; to relate the new states to one another and, more importantly to create a new international system to take the place of the defunct colonial order."¹²

An essay by Patrick McGowan,¹³ which bases its empirical side on ten indicators suggested by Robert Good in his essay just cited, attempts to examine the African nations' response to the Cold War. The underlying question of McGowan's study is: "how have the newly independent states of Africa responded to the choice of alignment

¹⁰ Mazrui, International Organization, XVIII, 499.

¹¹ Robert C. Good, "Changing Patterns of African International Relations," American Political Science Review, LVIII, No. 3 (September, 1964), 632-641.

¹² Good, American Political Science Review, LVII, No. 3, 634.

¹³ Patrick J. McGowan, "Africa and Non-Alignment: A Comparative Study of Foreign Policy," International Studies Quarterly, XII, No. 3 (September, 1968), 262-295.

and non-alignment presented to them by the roughly balanced, loose bipolar international system of the early 1960's?"¹⁴ His operational definition of African response to the Cold War is "the relative amount of interaction or contact between African and Communist societies permitted by the relevant African decision-makers."¹⁵ The main defining criteria of African response to the Cold War are the intensity and scope of African nations' interaction with the Communist world. It is assumed, in McGowan's study that "all African states would have nil scores on almost any conceivable measure of co-operation with the Communist world prior to the granting of independence. But after independence an increase in interaction with the bloc can be measured by selecting appropriate indicators of contact between African states and Communist states and taking readings of those indicators during the period of interest."¹⁶

McGowan found Good's idea that the ten measures relate to a "single underlying policy" orientation to be the case. This single underlying factor in African foreign policy is identified by McGowan's study as the policy of non-alignment. He explains it this way: If an African state receives military aid from members of the Communist world, then the African nation will show a higher level of general interaction with that alliance than the African nations

¹⁴ McGowan, International Studies Quarterly, XII, No. 3, 266, Emphasis added.

¹⁵ McGowan, International Studies Quarterly, XII, No. 3, 267.

¹⁶ McGowan, International Studies Quarterly, XII, No. 3, 268.

that do not receive such military aid.¹⁷

Another very relevant essay, by McGowan,¹⁸ quantitatively treats the pattern of African diplomatic interaction during the middle-sixties. In this essay, McGowan undertakes to study the foreign policy options open to African states and to examine the possible causal relations between these options. He isolates three foreign policy options. They are: (1) the scope of individual African state's international contacts; (2) the establishment of diplomatic, economic and cultural contacts with the Communist world; and (3) the option to normalize the African state's international relations "so that the predominant position of the former metropole is reduced to a status roughly equal to other international contacts."¹⁹ He suggests that this third option may be thought of as the decolonialization of external relations under the rubric of "the struggle against neo-colonialism." McGowan found the decolonialization of external relations to be the most valued foreign policy goal for African countries. So strong was the evidence for this that he felt encouraged to impute causal dependence of this third option on the other two.

¹⁷ McGowan, International Studies Quarterly, XII, No. 3, 292. This is regarded as non-alignment because McGowan sees the diversification of African nations military interactions away from the former colonial metropolises as an expression of independence.

¹⁸ Patrick J. McGowan, "The Pattern of African Diplomacy: A Quantitative Comparison," Journal of Asian and African Studies, IV, No. 3 (July, 1969), pp. 202-221.

¹⁹ McGowan, Journal of Asian and African Studies, IV, No. 3, 203.

The main hypothesis resulting from this study is this:

"Among the three options examined...the decolonization of foreign relations is the chief goal. In order to achieve this some African states initially develop contacts with Communist states to balance their international relationships which directly increase the African states participation in the international political system."²⁰

Another very relevant study is being carried on by Charles and Immanuel Wallerstein. The purpose of their study, in the words of the authors, is:

"Nous voulons étudier les politiques étrangères des Etats africains sous l'angle de leur dépendance. Il s'agit de déterminer et de mesurer les caractéristiques générales de ces politiques pour saisir à quel point elles résultent de certaines pressions extérieures et de contraintes structurelles propres ou dues à la position de ces Etats dans la monde."²¹

Our study is related to the Wallersteins' study. The relation lies in the similarity of the two studies' key concepts. The Wallersteins are interested in dependence and we are interested in interaction-dependence. There is, however, a fundamental difference between the two studies in the way they use these concepts.

The Wallersteins use dependence of African countries on other countries as the dependent variable. They relate it to independent variables made up of both qualitative and quantitative measure of domestic and international indicators. Our study considers dependence

²⁰ McGowan, Journal of Asian and African Studies, IV, No. 3, 213.

²¹ Charles and Immanuel Wallerstein, "Politique Etrangere des Etats Africains, sous L'Angle de La Dependence," (Mimeograph), Centre Quebecois de Relations Internationales, Universite Laval, 1972.

initially as an independent variable relating directly to the changing nature of the international feudal system and our indicators representing dependence, as will be seen soon, are conceived in solely quantitative aggregate terms.

The above conceptual difference must not be exaggerated because a closer look reveals it to be only partially true. While initially, in our theory, when considering social system's change from feudal to egalitarian, we regard interaction-dependence as an independent variable, when we come to operationalize "dependence" we have to regard it as the dependent variable related directly to selected interaction indicators. This shift of "dependence" from the role of independent variable to that of dependent variable occurs because the feudal and the other three systems, mixed, class and egalitarian, are defined initially and parsimoniously in terms of the degrees of interaction-dependence and rank-concordance; and to give the term interaction-dependence any substance and meaning we have to relate it to precise and quantifiable indicators.

Even though both studies use the concept "dependence" as the dependent variable, the analytical objectives of the two studies differ. The Wallersteins' study seeks to illuminate types and degrees of African nations' dependence on other nations. They seek to distinguish between the African nations which depend on other nations because of the normal flow of international interactions from those which depend upon other nations over and above the extent which is "objectively" demanded by the "normal" flow of international

interactions.²² This objective accounts for the Wallerstein's use of domestic and international as well as qualitative and quantitative, measures to operationalize the concept "dependence." Our study implies, but does not assume, African nations' dependence on other nations. In part it seeks to establish the existence of this dependence. The analytical intention of our study is to illuminate the pattern of change characterizing the established dependence and hence our intention to use only quantitative international indicators.

The two objectives are by no means unrelated. The data we shall gather to test our interaction hypothesis could be used to explain the types and degrees of dependence as well as to establish the existence of dependence.

The pertinent questions, made imperative by Mazrui's discussion of protest diplomacy, the Good and McGowan concern with non-alignment and decolonization as well as the Wallersteins' interest in types of dependence must be raised. The first is: How can nations possessing only nominal political standing, a non-existent or at best fragile economic base, shaky racial confidence and rickety military capability, back up their intention to revise a feudal world by decolonizing it? This question can be answered by referring to Galtung's theory of

²²In less refined terminology, the Wallersteins' analytical objective can be said to distinguish the African nations who are attempting to pursue "independent post-colonial foreign policy" from those who are pursuing "dependent or neo-colonial post-colonial foreign policy." The term "normal" has been emphasized to show the awareness of the fact that international interaction are, by their very nature, interdependent. The objectively determined "normal" provides the distinction between the two type of foreign policies.

defeudalizing the international system through a trade union association of the periphery.

The second question is: Given that decolonization is the main goal of African states' foreign policy - and this seems to be the case judged by Ali Mazrui's metaphysical treatment of protest diplomacy, Good's initial analysis of the problem, McGowan's subsequent empirical handling of it and, not to mention, the Wallersteins' concern with dependence - is there any evidence that decolonization is accompanied by increasing interactions between the African states themselves?

The answer to this second question is the burden of the fourth hypothesis of this study. It is formulated to enable us to examine the extent to which increasing association between African states, defined in terms of changing patterns of interactions, does characterize African nations' international activities, by comparing the patterns of these activities for the various nations' years of independence to those of 1970.

When we come to examine the extent of inter-African state association, the literature offers very little assistance. Apart from the early studies done on African participation in the United Nations,²³ and those reviewed above, very few works using rigorous

²³Thomas Hovet Jr., Block Voting in the United Nations (Cambridge, Mass.: Harvard University Press, 1961); Hayward Alker Jr., "Dimensions of Conflict in the General Assembly," American Political Science Review, LVII, No. 3 (September, 1964), Hayward Alker Jr. and Bruce Russett, World Politics in the General Assembly (New Haven, Conn.: Yale University Press, 1965); K. M. Weigert and Robert E. Riggs, "Africa and the United Nations: An Aggregate Data Analysis," International Organization, XXIII, No. 1 (1969), 1-19.

operationalization and quantitative data worry about the extent to which African nations are "discovering themselves" so as to form a pressure group in the international system.²⁴ ~~The reluctance on~~ the part of scholars to investigate this inter-African phenomenon is probably explained by the apparent failure of the early formal African associational efforts. The quarrelsome co-existence of the Brazzaville and the Casablanca groups before their formal dissolution, and despite this dissolution, the consequent divided opinions regarding the posture to be adopted toward South Africa and the inability of the Organization of African Unity (O.A.U.) to live up to its attested intentions are all indications which on the surface suggest that Africa is as divided as ever and is a long way from any sustained associational effort.²⁵

This may very well be the case, but even in the face of such divisions, the question still remains whether there are efforts being directed at establishing a more intensive relation between African nations while their reliance on extra-Africa Centre nations is reduced? The findings of this study are intended to be a first approximation answer to this question.

²⁴These are some works which come close to doing this, but are either cast in different modes or seek to answer different questions. Such works include, in particular, John Sigler, International Studies Quarterly, XIII, No. 4, 381-397; Carol Cosgrove, "The Common Market and its Colonial Heritage," Journal of Contemporary History, IV, No. 1 (January, 1969), 73-87; Larry Bowman, "The Subordinate State System of Southern Africa," International Studies Quarterly, XII, No. 3 (September, 1968), 231-251.

²⁵The recent dialogue approach to the South African problem initiated by Houphet-Boigny of Ivory Coast and opposed by many African leaders is a case in point.

6.4 Interaction Indicators

In order to answer the principal questions raised above, we are about to select some interaction indicators, the structural and longitudinal examination of which would enable us to know how the International Periphery, in particular Africa, did change their interaction by decreasing their $P \rightarrow C$ and increasing their $P \leftrightarrow P$ during the 1960's.

This section will develop the criteria of relevance for the selection of the interaction indicators and define them. The next section will discuss the techniques to be used for the analyses of the interaction data collected.

The interaction structures like the attribute structures are also multi-dimensional. They have economic, political, military and other social aspects. But for the present purpose we consider the economic and the political aspects to be more important than the others. The importance of these two structures is due to two main reasons. The first is largely for reasons of convenience. It is that the resources available for the present study are limited and therefore we cannot treat all the different dimensions. The second, and the more substantive reason, is that African nations, since the early 1960's have regarded economic and political interactions as more important than other interactions.

The areas of economics and politics stand out as the areas of main concern during the decade for African nations. On the political front practically every African nation subscribes, at least in principle, to the stand of "hands off Africa, Africa must

be free." These nations believe that Africa should be left alone by outside powers to pursue their various collective interests without undue interference. An extension of this stand is the policy or the doctrine of "positive neutrality," which, interpreted in the international context of the 1960's essentially meant a recognition of the "Cold War" but a disregard of it as being irrelevant to African interests and immediate concerns.

From the above, we can see that the structure of individual African nations' formal contacts with other nations of the world can be represented by the indicator, structure of Diplomatic Representation. This indicator expresses the way in which African nations distributed their diplomatic representation between the Centre and the Periphery nations. The Diplomatic Representation indicator will tell us about the extent to which African nations are de-emphasizing such contacts with the Centre and emphasizing their contacts with the nations of the international Periphery. That is, this indicator will tell us about the relative rates of change in $P \longrightarrow C$ and $C \longrightarrow P$. In particular, we shall observe along this indicator the rates at which the nations of the African periphery are diversifying such contacts and discovering themselves through mutual recognition so as to form a trade union association.

The economic indicators which could be used in the study are many. They include indicators representing economic structures such as trade, aid, monetary and financial arrangements, etc. Of all these economic structures, the trade aspect is the one closest to the hearts of African nations. International philosophies of

economic development have undergone many changes in emphasis since World War II. In the late 1940's and the early 1950's the belief was that the main international contribution to the development of the Periphery was technical aid, - machinery and education.²⁶ Later in the 1950's, the vogue became grants and loans with emphasis on soft loans (long term loans at low interest rates) as opposed to hard loans, (short term and high interest rates). In the late 1950's, however, the idea of "self-respect for the receiver", largely propagated by the developing nations, began to creep into the economic development philosophy so that by the early 1960's the slogan of "Trade not Aid" had become the demand slogan of the Periphery. The "Trade not Aid" idea was first sounded in the chambers of the General Agreements on Tariffs and Trade (GATT). The GATT's reactions to it were not considered adequate by its periphery member-nations.²⁷

It must be pointed out here that as more and more nations and experts acceded to the "Trade not Aid" idea, the Periphery began to perceive the GATT more and more as the "Richman's Club". By the early 1960's these nations had precipitated a crisis of global confidence in the GATT and were asking, as an alternative to GATT, for the creation of an international forum in which they could articulate their trade and other developmental demands. By so

²⁶ See U.S., Staff Papers: Commission on Foreign Economic Policy (Washington, D.C.: U. S. Government Printing Office, 1954).

²⁷ See Herb C. Addo, "International Organization Versus Developing Nations: The Case of the General Agreement on Tariffs and Trade (GATT)" (unpublished M.A. thesis, Dept. of Political Science, McMaster University, 1963).

doing, they hoped to gain effective action through world opinion - a good example of the international version of "carrying the case to the people".

The convening of UNCTAD I in 1964, its subsequent institutionalization in 1968 and the calling of UNCTAD III in 1972 were, in a sense, confidence restored in the international trade system. The GATT spent more time on the peripheral nations trade problems in 1960's than on any other single activity. The UNCTAD has as its main concern the creation of international conditions conducive to peripheral nations trade. It is pertinent, then, to ask at this point whether the concerns shown in the 1960's have produced any beneficial changes for the Periphery in the pattern of trade structure between nations. Before we can answer this question meaningfully we have to discuss the basic, or the particular trade matters of interest to the Periphery.

Put generally, the Periphery's concern is that the structure of international trade has been such that they produce the raw materials for the Centre to convert into manufactured or processed goods. The economic logic of this exchange, the doctrine of comparative advantage notwithstanding,²⁸ is that the Periphery act as the "hewers of wood and drawers of water" for the Centre's industrial output, the prices

²⁸ For a discussion on the international division labour and the doubtful relevance of the doctrine of comparative advantage to North-South trade, see Zarko Mrkusic, "On Criteria for International Division of Labour," International Problems (Belgrade), XI, (1970), 49-63; Ragnar Nurksa, Problems of Capital Formation in Underdeveloped Countries and Patterns of Trade and Development (New York: Oxford University Press, 1967); and Arghiri Emmanuel, Unequal Exchange: A Study of the Imperialism of Trade (New York: Monthly Review Press, 1972).

of which steadily keep rising while on the average the prices of raw materials fluctuate at best, and at worst fall.²⁹ This structure of exchange is the international trade version of "colonial dependence" of the Periphery on the Centre. The Centre can substitute synthetics for the raw materials produced by the Periphery. The long term pattern of trade is one where the Periphery is heavily dependent on the Centre for sophisticated goods and the Centre does not need the Periphery very much as the suppliers of raw materials, thus perpetuating the latter's peripheral roles.

The Periphery's general position is that they would like to produce as much processed goods as they can in order to take advantage of the benefits of industrialization. Their specific demands include, among other things, the positions that: (1) they should be allowed to sell their processed and semi-processed goods in the Centre's huge markets; (2) the prices for their raw materials be increased or at least be stabilized; (3) they should be allowed to use the infant industry argument to close their borders to competing processed goods from the Centre.

These demands have not escaped the scathing criticisms of liberal defenders of the principles of free trade. Harry Johnson refers to the Periphery's trade demands in terms of "acquisitive nationalism". He writes:

²⁹For a discussion of this matter see GATT, Trends in International Trade, A Report by a Panel of Experts (Geneva: GATT, 1958).

"In this connection nationalism appeals to a double standard of economic ethics, according to which discrimination against...the nation by foreign nations is inequitable and immoral, but discrimination by the nation on behalf of its nationals against foreigners is totally equitable and ethically justified. Indeed, nations believe not only that foreigners should approve of being discriminated against, but that they should actively discriminate against themselves in favour of nations. As will appear later this double standard—applied as between advanced and developing nations—is the foundation of developing nations' views on the proper organization of international economic relations between the two groups."³⁰

The Periphery's position has its defenders. The best known of these defenders is Raul Prebisch,³¹ who takes the position that the Periphery have been discriminated against or exploited for so long that the only way to break even is to be allowed to discriminate as well as to have this discrimination sanctioned by the international community as economically and morally legitimate in view of the existing built-in automatic structural trade exploitation against the Periphery.

Thus, the essence of the Periphery demand for changes in the structure of their trade interaction with the Centre is to change this exchange from a pattern where the Periphery plays the role of producers of raw materials and buyers of Centre-produced processed goods. What they would like the structure of this exchange to be is one in which they play the roles of producers of high-priced raw

³⁰ Harry G. Johnson, The World Economy at the Crossroads (London: Oxford University Press, 1965), p. 79.

³¹ Raul Prebisch, Toward a New Trade Policy for Development, A Report by the Secretary-General of the United Nations Conference on Trade and Development (New York: United Nations, 1964).

materials as well as producers of processed goods. In short, the change which the Periphery want in their $P \longrightarrow C$ trade interaction is a change from A to B below:

The $P \longleftrightarrow P$ aspect of these trade issues lies in the extent to which the Periphery realize that the markets for both raw materials and processed goods are not confined only to the Centre's markets and and that some real, but mainly potential, markets do exist within the Periphery subsystem. It is ironic that, at UNCTAD I it was the United States who raised the question of the importance of inter-periphery trade and insisted upon the insertion as part of the general principles of the conference. It is an expression of the colonial or the peripheral mentality to ignore the existence and the development of $P \longleftrightarrow P$ trade interaction and to pursue $P \longrightarrow C$ interactions. Therefore, to be able to say positively that the international system is developing, judged by the system's changes in interaction structure, we should be able to say not only that $P \longrightarrow C$ is changing in intensity and content but also that $P \longleftrightarrow P$ is changing in intensity and in content.

We need certain economic indicators, changes along which, would tell us whether the international system is moving away,

structurally from or toward an egalitarian system. Three such indicators which Galtung³² uses suggest themselves readily. They are: (1) Commodity Concentration Index (C.C.I.); (2) Trade Composition Index (T.C.I.); and (3) Partner Concentration Index (P.C.I.)³³

Commodity Concentration Index of a country is the ratio of the value of the three most important export commodities relative to the value of total exports. Trade Composition Index represents a variable which measures the degree of processing. It relates the values of imported and exported raw materials to those of imported and exported processed goods. The third index, Partner Concentration Index, is the ratio between the value proportion of a nation's exports going to the one most important customer relative to the seller's total export value.

We find these three indices appropriate for this study's expressed interest. The commodity concentration index would tell which nations are changing the structure of their export trade and in which direction. It would give us ratios of a nation's three most important exports relative to the total for the base year and the terminal year. Changes in structure of exports will be reflected in a difference in the two time-period's ratios. Knowing what these three commodities are for both the base and the terminal years, we should be able to interpret changes in the ratios as due to either

³²Galtung, Journal of Peace Research, VIII, No. 1, 102-117.

³³Galtung, Journal of Peace Research, VIII, No. 1, 102.

- (1) a shift from raw materials to processed goods or vice versa; or
- (2) due to possible changes in prices of the three commodities.

The Trade Composition Index measures relative degrees of processing that enter exports and imports of a nation's international trade interactions. The index is based on a formula constructed by Johan Galtung and Kurt Hongro.³⁴ Galtung says of this formula: "there is no doubt that this index is a crude measure, among other reasons, because the variable degree of processing, so crucial to the whole analysis, has been dichotomized in 'raw materials' Vs. 'processed goods' neglecting completely the problem of degree....However, despite its shortcomings, it serves to sort nations apart." The problem of estimating the degree of processing is a long standing one and this formula makes no pretense at solving it. The advantage it provides this study is that it sorts nations with high degree of processing in their international trade from those with low degree of processing.³⁵ The analytical advantage of this index, as will be seen in the next section of this chapter, is its ability to show in which direction the structure of a nation's international trade is moving—whether toward higher or lower degrees of processing.

It is a known and accepted fact that nations of the Periphery, especially those with a long colonial history, tend to be attached to

³⁴Galtung, Journal of Peace Research, VIII No. 1, 116, footnote 34. For the formula see below, Section 6.5.

³⁵The sorting apart is fairly reliable when the nations being sorted are high-ranking and low-ranking nations. The problem of reliability arises when the nations include middle ranking nations. This problem of categorization is common in the Social Sciences and we should not let it deter us from performing first approximation analysis on important social problems.

the few traditional markets which they have access to in the Centre and find it difficult to look for markets elsewhere in the Centre or in other Periphery nations. Thus, the Periphery nations tend to have one main export customer accounting for a high proportion of their export trade. This makes such peripheral nations heavily reliant on a few Centre nations. Herein lies the irony in the fact that intra-Periphery trade should be highlighted by the United States at UNCTAD I.³⁶ An indication of a periphery nation's attempt to break away from "colonial dependence" on a Centre nation is the extent to which its proportion of export to its one most important customer is decreasing. A measure of a periphery nation's participation in the trade union pressure group formation could be inferred indirectly if the shift from reliance on a Centre nation seems to indicate a reliance on periphery nations.³⁷ From the above, it can be seen that with the P.C.I. we are concerned with who the most important Centre partner and Periphery partner are, and what the indices are for each of those two partners and how they have changed during the decade under study. We shall turn now to define our indicators and to identify the sources from which the data are taken.

³⁶The U.S. most probably insisted on this principle to pacify domestic lobbies against "cheap labour" processed goods from the Periphery. This notwithstanding, the U.S. position illustrates some of the indirect benefits to the Periphery's course as a result of "selfish" Centre actions.

³⁷Part of the Periphery's reluctance to seek new markets outside the markets of the Centres could be accounted for by the fact that in many cases, the Periphery lack the expertise for market research in potential new markets. This is not an excuse only an explanation. The most important thing is what have they done about this handicap since 1960 or since after their year of independence?

6.5 Definition and Sources of Interaction Indicators

(1) Structure of Diplomatic Representation, (S.D.R.). The scores for this indicator are the total number of diplomatic missions an African nation had in the world during its first year of independence, or if it gained independence before 1960, the number of missions it had in 1960, and in 1970. Where a mission is accredited to several countries, it will be counted as if it were only in the country where the ambassador resides. Source, The Statesman's Yearbook, London: Macmillan, (appropriate base year and 1970).

(2) Commodity Concentration Index, (C.C.I.). This indicator refers to the ratio between the value of the three most important commodities and the value of total export for an African nation. Source, Calculated from United Nations Yearbook of International Trade and Statistics, New York: United Nations, 1963 and 1971.

(3) Trade Composition Index, (T.C.I.). This indicator relates the degree of processing that go into exports and imports of African nations. This index is based on this formula:

$$\frac{(a + d) - (b + c)}{(a + d) + (b + c)}$$

where a = value of raw material imported
 b = value of raw material exported
 c = value of processed goods imported
 d = value of processed goods exported

Source, import and export data taken from same source as in 2 above.

(4) Partner Concentration Index, (P.C.I.). This indicator represents the proportion of exports of an African country going to the one most important export customer. Source, United Nations, (New York: United Nations), The Direction of Trade 1972.

6.6 Problems of the Interaction Data

The major problems encountered in collecting the interaction data were of the same kind as those encountered in collecting the attributes data, except that they were much less severe with the interaction data. The problems were mainly the absence or incompleteness of data.

The Statesman Yearbook, surprisingly showed some significant omissions for the diplomatic representation data for some African countries. The French-speaking and the smaller nations such as Burundi and Rwanda had their diplomatic representations sparsely reported for both the base and the terminal years. Either those nations for which data are missing had no diplomatic representations or the representations they had were not reported. Three options were open to us in the circumstances. We could either use some other sources such as the Europa Yearbook of International Events, or do extensive research to fill in the gaps or we could use only those countries for which the reporting seemed complete. The second option was chosen because of the scarcity of resources to pursue the other options properly. This left us with twenty African nations with complete entries.

Data for the other three indicators were taken from the Yearbook of International Trade Statistics. The information from this source was very nearly complete. The main problem here was the classification of exports and imports into processed goods and raw material categories for the computations of the TCI and the CCI. The United Nations classifies imports and exports into nine broad

categories, listed below, according to the Standard International Trade Classification (SITC).

- (1) Food and live animals
- (2) Beverages and Tobacco
- (3) Crude material, Inedible oil, except Fuel
- (4) Mineral fuels, Lubricants and related material
- (5) Animal and vegetable oil
- (6) Chemical
- (7) Manufactured
- (8) Machinery and transport equipment
- (9) Miscellaneous manufactured articles
- (10) Commodities and transactions

This study considered classifications 1, 2, 3, 5 in addition to crude mineral fuels from classification 4 as raw material; and classifications 6 to 9 in addition to refined fuel from classification 4 as processed goods. This distinction was made because we considered raw material distinct from processed goods, in the sense that the former contain the minimum of value added in the chain of production. Classification 10 of the SITC was ignored due to the fact that it tended in the case of the Periphery nations to be a small residual term and principally because it was never clear which items made up this category.

6.7 Interaction Research Design

The research design for the interaction aspect of the study has been based on the assumption that African, Asian, and the South American and Caribbean nations, with the exceptions of Australia, New Zealand and Japan, constitute the generalized international Periphery; while nations of Europe and North America and the three nations just named above constitute the international Centre. There is no need for this assumption to be argued beyond what has been

said earlier in this chapter.

The aim of the analyses of the interaction data in Chapter VII is to see whether the base year interaction patterns of Periphery nations were of the kind suggested by the model in Chapter III; and whether there were any changes in comparative intensities by the terminal year. In order to achieve this aim, very simple mathematical techniques have been constructed for comparing the base and the terminal years' $P \longleftrightarrow P$ and $P \longrightarrow C$ interaction intensities. Except the SDR techniques, the techniques are so simple that they will be introduced in the context of the actual analyses in Chapter VII.

The data on the SDR indicator will be analysed by manipulating the ideal and the real diplomatic scores of the Periphery nations to give us their feudal scores. We shall first calculate the feudal scores individually for the African, Asian and South American and the Caribbean Peripheries; and then go on to calculate the feudal scores for the entire Periphery. The ideal score (IS) for a Periphery nation is the maximum diplomatic missions it could possibly have had within the Periphery (or a subsystem within it) or with the Centre group of nations. The real score (RS) is the actual number of missions it had within the Periphery or the Centre group of nations. The difference between the ideal and the real scores is the feudal score (FS). The FS shows whether the $P \longleftrightarrow P$ diplomatic relations depict feudal disregard or class solidarity; or whether $P \longrightarrow C$ diplomatic relations depict feudal dependence.

Therefore, if $IS = N$ and $RS = r$, then $FS = N - r$. However, in order to give some definite limits to the feudal scores, so as to

enable us to interpret them meaningfully, the scores will be standardized. Thus,

$$IS = \frac{N}{N}$$

$$RS = \frac{r}{N}$$

$$\text{And so, } FS = 1 - \frac{r}{N}$$

When a $P \longleftrightarrow P$ feudal score is 1.0 it shows the diplomatic relations between the Periphery to be one of maximum feudal disregard; and when such a score is zero it shows the relation between them to be one of maximum class awareness or maximum class solidarity. However, when the feudal score is 1.0 in the case of a $P \longrightarrow C$ interaction it means there is a complete break between the Periphery and the Centre; and when the score is zero it shows the Periphery's maximum dependence on the Centre.

With regard to the PCI the intention is to measure the extent to which the Periphery nations depended on their one most important customer for selling their products. It must be borne in mind that PCI is concerned with only the intensities of the individual Periphery nations' dependence upon their one most important customers in the international system. The bigger the $P \longrightarrow C$ indices the greater the feudal dependence, and the smaller the $P \longleftrightarrow P$ indices the greater the feudal disregard.

The COI scores are to be interpreted simply that the higher the scores the more dependent the Periphery nations are on the Centre, since it is believed that the Centre buy practically all the Periphery's commodities.

In all cases, the measure of the extent to which the international system is moving from the feudal to the egalitarian form is the extent to which the scores suggest the intensification of $P \longleftrightarrow P$ or the decline of $P \longrightarrow C$ between 1960 and 1970.

From the TCI formula, we have a way of segregating the nations with high degree of processing from those with a low degree of processing. From this, we see that nations with high degree of processing will have scores closer to +1 and those with low degree will score closer to -1.

The high index score of the Periphery in the indicator CCI is accounted for by the fact that the nations of the Periphery tend to specialize in supplying the Centre with only a few raw materials which, according to the theory of comparative advantage, they would produce most efficiently. These products tend to be few in number so that the peripheral nations have a high proportion of their exports accounted for by the three most valuable export products.

The high scores on indicator PCI is explained by the few products the peripheral nations export and by the fact that most of these products have "traditional markets" in one or two Centre nations. These traditional markets usually have some colonial history supporting them, and they are protected from competition by other Peripheral nations by preferences and other favours. This results in the Peripheral nations relying on one Centre nation to account for a high proportion of their exports, and hence the high scores for the indicator PCI.

Therefore, the first tentative measures of how the international system is developing between the base and the terminal years could

be gauged by the extent to which the high scores of the Periphery on each of these three indices are tending toward low scores. A change in the TCI from high toward low suggests that the Periphery nation is increasing the proportion of processed goods in its total export trade. A movement toward lower levels of the CCI may mean that the dominating role of raw materials in Periphery foreign trade is being challenged by increasing proportion of semi-processed goods or that the Periphery nations have diversified their raw materials trade. Similar directional change in the PCI means that the Peripheral nations are de-emphasizing their reliance on a few Centre nations as export customers and are diversifying. The above interpretations are based on the assumption that exports (and imports in the case of TCI) prices have remained the same and that there have been no other major changes in the trade relation between nations.

CHAPTER VII

ANALYSES OF INTERACTION DATA

7.1 Introduction

This chapter analyses the data on the interaction aspect of this study. Sections 7.2-7.4 treat the Asian (PAS), the African (PAF) and the South American and Caribbean (PSAC) Periphery cases comparatively with one another as well as individually in comparison with the experience of the generalized Periphery. The Centre nations are not differentiated between the possible subsystems within this category of nations.

Sections 7.5-7.8 deal with the African nations' experience in detail. The tripartite distinction within the Periphery category of nations is maintained; and the Centre is differentiated into the Western Centre (WC) and the Eastern Centre (EC), in order to allow for the consideration of African nations relations with the two politically sensitive subsystems within the Centre. The Western Centre consists of the so-called North Atlantic nations plus New Zealand, Australia and Japan; and the Eastern Centre consists of all the socialist nations of Eastern Europe.

7.2 Interaction Findings: Periphery Structure of Diplomatic Representation

Table 21 below contains the $P \longleftrightarrow P$ and $P \longrightarrow C$ diplomatic scores for both the base year and the terminal years. The table shows for example that India had thirty-one diplomatic representations in the nations of the Periphery in 1960 and had sixty-two such representations in 1970; while it had thirty diplomatic representations in 1960

and thirty in 1970 in the nations of the Centre. Similarly, the table shows that Algeria had two diplomatic representations in the Periphery in 1962 (year of independence) and fourteen diplomatic representations in 1970. It had no diplomatic representation with any of the Centre nations in 1962 but in 1970 it had ten such representations in the Centre nations.

TABLE 21

PERIPHERY STRUCTURE OF DIPLOMATIC REPRESENTATION

	PERIPHERY (P $\longleftrightarrow$ P)		CENTRE (P $\longrightarrow$ C)	
	BASE	TERM	BASE	TERM
	A S I A N P E R I P H E R Y			
INDIA	31	62	30	30
PAKISTAN	23	56	24	30
CEYLON	14	25	18	28
MALAYSIA	6	23	6	20
CAMBODIA	9	8	9	8
INDONESIA	19	27	25	21
IRAN	13	15	18	20
IRAQ	17	18	22	14
ISRAEL	29	54	25	18
JORDAN	11	16	6	10
S. KOREA	5	17	7	14
LEBANON	13	21	11	18
NEPAL	4	4	12	6
PHILIPPINES	13	19	17	19
THAILAND	13	15	14	16
S. VIETNAM	6	9	9	13
	A F R I C A N P E R I P H E R Y			
ALGERIA	2	14	0	10
ETHIOPIA	5	19	10	9
GHANA	9	15	7	15
IVORY COAST	0	5	1	7
KENYA	2	7	1	4
LIBERIA	7	12	8	11
LIBYA	5	12	3	10
MALAWI	0	3	1	3
MOROCCO	6	11	13	14
NIGERIA	5	20	4	12

TABLE 21 (Cont'd)

	PERIPHERY (P $\longleftrightarrow$ P)		CENTRE (P $\longrightarrow$ C)	
	BASE	TERM	BASE	TERM
	A F R I C A N		P E R I P H E R Y (Cont'd)	
S. AFRICA	3	3	15	14
SIERRA LEONE	4	4	2	3
SOMALIA	0	7	1	7
SUDAN	7	16	6	7
TANZANIA	2	9	1	8
TUNISIA	8	10	19	15
UAR	29	47	22	24
UGANDA	1	3	1	5
ZAIRE	1	13	0	12
ZAMBIA	2	7	1	4
	SOUTH	AMERICAN	AND	CARIBBEAN PERIPHERY
ARGENTINA	31	38	27	30
BOLIVIA	14	10	10	7
BRAZIL	29	32	23	20
CHILE	22	22	18	18
COSTA RICA	14	13	5	5
CUBA	27	22	24	24
DOMINICAN REP.	19	16	10	11
ECUADOR	20	15	10	11
EL SALVADOR	16	16	7	8
GUATEMALA	18	20	6	7
HAITI	13	14	9	9
HONDURAS	13	11	6	7
MEXICO	24	26	20	22
PARAGUAY	14	13	8	9
PERU	20	22	13	23

In Table 22, we see that in the base year the Asian Periphery had a diplomatic representation feudal score of 0.82, the African Periphery had a score of 0.94 and the South American and the Caribbean Periphery had a score of 0.76 in their P $\longleftrightarrow$ P interactions. The Periphery as a whole had an average feudal score of 0.85. The feudal situation of perfect Periphery mutual disregard has a feudal score of one. This makes the base year feudal scores of the Periphery and its subsystems appear very close to the feudal-end of the feudal-class

diplomatic score scale.

The 1970 $P \longleftrightarrow P$ diplomatic scores, as Table 22 indicates, for the African Periphery was 0.85, the score for the Asian Periphery had a score of 0.72 and that for the South American and the Caribbean Periphery was 0.77. The entire Periphery had a score of 0.79 in 1970. These scores again appear to be highly feudal.

TABLE 22

PERIPHERY DIPLOMATIC FEUDAL SCORES

	PERIPHERY ($P \longleftrightarrow P$)			CENTRE ($P \longrightarrow C$)		
	B	T	%DIFFERENCE	B	T	%Difference
ASIA	0.82	0.72	-12.5	0.49	0.42	-14.3
AFRICA	0.94	0.85	- 9.6	0.81	0.68	-16.5
S.A.C.	0.76	0.77	1.3	0.57	0.54	- 5.3
PERIPHERY	0.85	0.79	- 7.0	0.58	0.56	-12.5

In the base and the terminal years the Asian Periphery had $P \longrightarrow C$ scores of 0.49 and 0.42 respectively; the African Periphery had $P \longrightarrow C$ scores of 0.81 and 0.68, and the South American and the Caribbean Periphery had scores of 0.57 and 0.54. The generalized Periphery had a base year score of 0.64 and a terminal year score of 0.56 for their $P \longrightarrow C$ interactions.

The above suggests that the African Periphery had the highest disregard for the Periphery and at the same time it depended the least on the Centre in its diplomatic interactions in both the base and the terminal years. This can be explained, in part, by the fact that African nations on the average, did not have many diplomatic missions. But even so, the few they had were distributed unevenly between the Centre and the Periphery nations. The same uneven distribution of

the Periphery's diplomatic representations is revealed for the Asian, the South American and Caribbean Peripheries as well as the entire Periphery when we compare the scores in columns 2 and 5 and columns 3 and 6 of Table 22.

The feudal scores in all cases did change between the base and the terminal years, as columns 2 and 3 and 5 and 6 of Table 22 show. The Asian and African intra-Periphery scores changed from high to relatively lower levels of disregard. The South American and Caribbean score rose by 0.01 to a slightly higher level of disregard for the other Peripheries; while the entire Periphery changed their score a little to a lower level of mutual disregard. In the $P \rightarrow C$ interactions, all the scores consistently changed toward higher levels of dependence. In all cases, the $P \rightarrow C$ scores for both the base and the terminal years were closer to the perfect feudal dependence score of zero than they were to the perfect class neglect score of one. Again, in all cases the $P \rightarrow P$ scores were closer to the perfect feudal mutual disregard score of one than they were to the perfect class solidarity score of zero.

Columns 4 and 7 of Table 22 make it plain that the rates at which the Periphery as well as its subsystems increased their dependence on the Centre were higher than the rates at which they intensified the interactions between themselves. The African Periphery in this regard, did rather very poorly. It increased interactions within the Periphery by 9.6% and increased its interactions within the Periphery by 9.6% and increased its interactions within the Centre by 16.5%, a net change of 5.9% toward greater dependence upon the Centre. The Asian Periphery intensified its interactions within the

Periphery by 12.5% but increased those within the Centre by 14.3%. The South American and Caribbean Periphery actually decreased their interaction with the Periphery by 1.3% and increased their interactions with the Centre by 5.3%. The generalized Periphery increased their interactions within it by 7.0% and its interaction with the Centre by 12.5%. The structural expression of a movement from the feudal to the class system is described by a situation where $P \longleftrightarrow P$ increases faster than $P \longrightarrow C$. The above figures describe the opposite situation where $P \longrightarrow C$ is intensifying at a faster rate than $P \longleftrightarrow P$ and thus keeping the situation basically feudal.

The situation then was that the structure of interactions characterizing the diplomatic relations of nations in the international system was one where the Periphery interacted less among themselves and more with the Centre. The Periphery nations seem to have contributed to a general increase in the level of diplomatic interaction entropy and have shied away from a clear case of class confrontation.

7.3 Interaction Findings: Periphery's Partner Concentration Index

Table 23 below presents information on the Partner Concentration Index. It is clear from the country columns that the Periphery depended on a few Centre nations for their exports. France, the United Kingdom and the United States features as the most important customers of the Periphery in both the base and the terminal years. U.K. featured fifteen times in the base year and nine times in the terminal year as the most important customer; France appeared fourteen and twelve times, and U.S.A. fourteen and twenty times. This means that of the

total of fifty-seven Periphery nations considered, U.K., France and the U.S. between them accounted, as the most important customers, for forty-three in the base year and forty-one in the terminal year. In contrast, only six Periphery nations had other Periphery nations as their most important customers (see asterisks in Table 23). Jordan had Syria, Lebanon had Saudi Arabia, Mali had the Ivory Coast, Uganda had India, Upper Volta had Ghana and Paraguay had Argentina as their most important customer in the base year. In the terminal year the number had shrunk from six to three. Kuwait replaced Syria as Jordan's most important customer, Ivory Coast remained as Mali's and Ivory Coast replaced Ghana as Upper Volta's most important customer. The other nations which appeared as the Periphery nation's most important customers in addition to those named above, were all nations of the Centre.

TABLE 23

PERIPHERY PARTNER CONCENTRATION INDEX

BASE		TERMINAL		CHANGE	
COUNTRY	SCORE	COUNTRY	SCORE	COUNTRY	SCORE
	A	S	I		A
INDIA	UK 27.00	USA	16.88	C → C	10.12
PAKISTAN	UK 17.06	USA	11.09	C → C	5.97
CEYLON	UK 28.28	UK	20.21		8.07
MALAYSIA	JAPAN 14.08	USA	17.76	C → C	-3.68
CAMBODIA	FRANCE 18.25	S. VIETNAM	20.35	C → P	-2.10
INDONESIA	USA 14.15	JAPAN	31.49	C → C	-17.34
IRAN	UK 19.85	JAPAN	27.69	C → C	-7.84
IRAQ	UK 17.74	ITALY	24.45	C → C	-6.71
ISRAEL	UK 14.67	USA	18.79	C → C	-4.12
JORDAN*	SYRIA* 18.90	KUWAIT*	14.45	P ↔ P	4.45
S. KOREA	USA 2.44	USA	50.14		-37.70
LEBANON*	SA. ARABIA* 34.64	USA	10.31	P → C	24.33
PHILIPPINES	USA 53.84	JAPAN	42.25		-3.48
THAILAND	JAPAN 18.05	JAPAN	21.53		-3.48
S. VIETNAM	FRANCE 35.73	FRANCE	47.69		-11.49

TABLE 23 (Cont'd)

	BASE		TERMINAL		CHANGE	
	COUNTRY	SCORE	COUNTRY	SCORE	COUNTRY	SCORE
	A	F	R	I	C	A
ALGERIA	FRANCE	80.81	FRANCE	54.45		26.36
CAMEROON	FRANCE	57.01	FRANCE	39.61		17.40
CEN.AF.REP.	FRANCE	65.52	FRANCE	51.17		14.32
CHAD	FRANCE	69.18	FRANCE	82.96		-13.78
ZAIRE	BELGIUM	44.69	BELGIUM	43.20		1.49
DAHOMEY	FRANCE	67.00	FRANCE	35.90		31.10
ETHIOPIA	USA	38.13	USA	40.08		-1.95
GHANA	UK	24.15	UK	25.43		-1.20
IVORY COAST	FRANCE	47.83	FRANCE	31.39		16.34
KENYA	UK	25.13	UK	23.08		2.05
LIBERIA	USA	52.82	USA	27.63		15.19
LIBYA	ITALY	36.38	ITALY	23.19		13.19
MALAGASY	FRANCE	55.85	FRANCE	36.22		19.63
MALI*	IVORY		IVORY			
	COAST	25.23	COAST*	39.24		-14.01
MOROCCO	FRANCE	40.19	FRANCE	35.14		5.05
NIGERIA	UK	48.11	UK	27.43		20.68
NIGER	FRANCE	57.32	FRANCE	62.73		-5.41
S.AFRICA	UK	27.91	UK	33.52		-14.59
SENEGAL	FRANCE	81.64	FRANCE	60.22		21.42
SIERRA LEONE	UK	82.89	UK	75.21		7.76
SOMALIA	ITALY	55.99	ITALY	26.65		29.34
SUDAN	UK	25.97	ITALY	12.50		13.47
TANZANIA	UK	31.65	UK	25.53		6.12
TOGO	FRANCE	62.26	FRANCE	34.09		28.17
TUNISIA	FRANCE	52.25	FRANCE	26.64		25.62
UAR	USR	16.20	USR	45.04		-29.74
UGANDA*	INDIA*	20.10	UK	22.59	P → C	-2.49
UPPER VOLTA*	GHANA*	83.74	IVORY	40.38	P → P	43.36
			COAST*			
SOUTH AMERICA AND CARIBBEAN						
ARGENTINA	UK	20.48	ITALY	14.26	C → C	6.22
BOLIVIA	UK	56.06	UK	46.19		0.87
BRAZIL	USA	40.19	USA	26.39		13.80
CHILE	USA	37.15	USA	17.41		19.74
COSTA RICA	W.GERMAN	24.46	USA	47.44	C → C	-22.98
DOMINICAN REP	USA	62.22	USA	88.04		-25.82
ECUADOR	USA	44.15	USA	33.75		10.40
EL SALVADOR	USA	34.93	W.GERM.	22.17	C → C	12.76
GUATEMALA	USA	54.15	USA	28.58		25.57
HONDURAS	USA	57.93		47.43		10.50
MEXICO	USA	69.08	USA	56.81		12.27
PARAGUAY*	ARGENTINA*	29.62	USA	21.56	P → C	8.06
PERU	USA	36.18	USA	34.79		1.39
JAMAICA	UK	31.53	USA	20.99	C → C	10.54

Thus, we see that of the fifty-seven Periphery nations, fifty-one in the base year had nations of the Centre as their most important customer and fifty-four in the terminal year had nations of the Centre as their most important customer. It is clear, therefore that in terms of number of customers the Periphery depended heavily on the Centre nations and more so in the terminal than the base year.

The values of the PCI scores as presented in Table 24 are noteworthy. They range between South Korea's 12.44 and Upper Volta's 83.74 for the base year and Pakistan's 11.09 and Dominican Republic's 88.04 for the terminal year. These ranges are high. But what are, perhaps, more noteworthy are the average values of the Periphery and its subsystems' PCI scores. The African Periphery had an average scores of 49.14 for the base year and 38.64 for the terminal year. The Asian scores were 22.03 and 25.00 and the South American and Caribbean scores were 42.72 and 36.13 for the base and the terminal years respectively. The generalized Periphery had a base year score of 40.43 and a terminal year score of 34.43.

TABLE 24

	<u>PARTNER CONCENTRATION INDEX AVERAGE SCORE</u>		
	<u>1960</u>	<u>1970</u>	<u>Difference</u>
AFRICA	49.14	38.64	10.50
ASIA	22.03	25.00	-2.97
S.A.C.	42.72	36.13	6.59
PERIPHERY	40.43	34.43	6.00

These scores are by all standards very high. They mean that the African Periphery, for example, sold as much as an average of

49.14% of its exports to its one most important customer in 1960 and 38.64% in 1970. And the Periphery as a whole sold 40.43 on the average in 1960 and 34.43% in 1970 to the most important customers. Even the Asian average scores of 22.03% and 25.00% are still very high.

The above high score plus the fact that the Periphery, by far, depended so heavily on so few Centre nations, as their most important customers enables us to say that the structures of interaction on this indicator in both 1960 and 1970 were feudal.

The country column under the change section of Table 23 tells us that seventeen nations changed their most important customer between 1960 and 1970: Of this number, eleven of the changes involved swapping a Centre nation for another Centre nation. In three cases, the changes involved replacing a Periphery nation with a Centre nation; in two cases they were within-Periphery changes and in one case it involved changing a Centre nation for a Periphery nation. This means that there were no spectacular changes in the kinds of nations who occupied the roles of the most important customers for the Periphery nations. As has already been stated, the only significant change in the kinds of nation that occupied these roles was that there were more Centre nations (54) in 1970 than there were in 1960 (51). This information can be interpreted in two different ways. It can mean that the Periphery have diversified their dependence within the Centre, or that they have increased their dependence to fifty-four within the Centre. I prefer to interpret this information in the first sense, that the Periphery nations have diversified their dependence on their customers within the Centre, as I believe this interpretation is more significant

than the slight increase of three meaning an increase in an already high level of dependence.

The 1970 PCI scores were lower than the 1960 score in all cases except in the case of the Asian Periphery. The African Periphery, as column 4 of Table 24 shows, decreased its average score by 10.50, the South American and Caribbean Periphery decreased their score by 6.59 and the entire Periphery by 6.00. The Asian Periphery increased its average score a little by 2.97. This means that on the whole there was a general tendency toward a decrease in the dependence on the most important customer. Despite these changes the levels of dependence were still very high. We can therefore say that despite the comparatively lower scores of 1970 (except the case of the Asian Periphery), the situations in both 1960 and 1970 were feudal, except that in 1970 the feudal situation was less severe than in 1960.

Considering the modest attempt made by the Periphery to diversify their customers within the Centre together with the 1970 reduced PCI scores we conclude that there has been some attempt on the parts of the Periphery nation to reduce the overall severity of a basically feudal situation.

7.4 Interaction Findings: Periphery Commodity Concentration Index

Approaching the Commodity Concentration Index data with the above foreknowledge of the feudal structure of the PCI indicator gives added meaning to the CCI scores. Table 25 below presents the CCI dependence scores for the individual Periphery nations. Table 26 gives the average scores for the subsystems within the Periphery as

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well as for the whole Periphery. It is clear from Table 26 that the various scores were high for both 1960 and 1970. The African Periphery had a score for the base year of 0.68; the Asian Periphery 0.65; and the South American and Caribbean Periphery 0.72. The Periphery as a whole had 0.68. These scores mean that in 1960 as much as an average of about two-thirds of individual Periphery nations export trade was accounted for by the three most important commodities. This is a clear case of the international Periphery hewing wood and drawing water for the international Centre.

TABLE 25

COMMODITY CONCENTRATION INDEX, PERIPHERY DEPENDENCE SCORES

	A	S	I	A	
	<u>BASE</u>		<u>TERMINAL</u>		<u>CHANGE</u>
INDIA	0.27		0.30		-0.03
PAKISTAN	0.58		0.57		0.01
CEYLON	0.88		0.84		0.04
MALAYSIA	0.65		0.55		0.10
CAMBODIA	0.85		0.31		0.54
INDONESIA	0.62		0.55		0.07
IRAN	0.66		0.80		-0.14
IRAQ	0.99		0.96		0.03
ISRAEL	0.53		0.45		0.08
JORDAN	0.51		0.42		0.09
S. KOREA	0.37		0.12		0.25
LEBANON	0.26		0.25		0.01
PHILIPPINES	0.69		0.63		0.06
THAILAND	0.99		0.59		0.40
S. VIETNAM	0.88		0.82		0.60

	A	F	R	I	C	A
ALGERIA	0.67				0.94	-0.27
CAMEROON	0.57				0.64	-0.07
CEN. AFRICAN REPUBLIC	0.74				0.43	0.34
DAHOMEY	0.81				0.47	0.34
ETHIOPIA	0.77				0.79	-0.02
GHANA	0.01				0.63	0.18

TABLE 25 (Cont'd)

	<u>BASE</u>	<u>TERMINAL</u>	<u>CHANGE</u>
IVORY COAST	0.58	0.79	-0.21
KENYA	0.54	0.56	-0.02
LIBERIA	0.92	0.92	0.00
LIBYA	0.79	0.99	-0.20
MALAGASY	0.52	0.53	-0.01
MAURITANIA	0.76	0.97	-0.21
MALI	0.72	0.72	0.00
MOROCCO	0.58	0.53	0.05
NIGER	0.84	0.79	0.05
S. AFRICA	0.45	0.23	0.22
SENEGAL	0.85	0.54	0.31
SIERRA LEONE	0.29	0.18	0.09
SOMALIA	0.74	0.98	-0.24
SUDAN	0.91	0.86	0.05
TANZANIA	0.58	0.38	0.20
TOGO	0.74	0.79	-0.05
TUNISIA	0.37	0.44	-0.07
UAR	0.78	0.99	-0.21
UGANDA	0.82	0.76	0.06
UPP. VOLTA	0.82	0.69	0.13
SOUTH AMERICA AND CARIBBEAN			
ARGENTINA	0.42	0.48	-0.06
BOLIVIA	0.76	0.69	0.07
BRAZIL	0.67	0.46	0.21
CHILE	0.76	0.14	0.52
COSTA RICA	0.83	0.66	0.17
DOMINICAN REPUBLIC	0.69	0.67	0.02
ECUADOR	0.91	0.81	0.10
EL SALVADOR	0.83	0.56	0.27
GUATEMALA	0.85	0.52	0.30
HONDURAS	0.75	0.66	0.09
MEXICO	0.53	0.28	0.25
PERU	0.44	0.20	0.24
JAMAICA	0.87	0.10	0.77

TABLE 26

COMMODITY CONCENTRATION INDEX AVERAGE SCORES

	<u>1960</u>	<u>1970</u>	<u>Difference</u>
AFRICA	0.68	0.68	0.00
ASIA	0.65	0.54	0.11
S.A.C.	0.72	0.48	0.24
PERIPHERY	0.68	0.59	0.09

The terminal situation was the same for the African Periphery as it was in the base situation. The Asian Periphery reduced its 1960 scores by 0.11 by 1970, while the South American and Caribbean Periphery reduced theirs by as much as 0.24. The Periphery, as a whole, improved the average situation by 0.09.

The 1970 situation, even though better than the 1960 situation, still had high scores. The conclusion then is that, while the structure was still basically feudal in 1970, it seems to have moved toward a comparatively less severe state of Periphery dependence on the three most important commodities, with the notable exception of the situation of the African Periphery.

The conclusion reached on all three indicators was that the patterns of interactions for both 1960 and 1970 were basically feudal, except that in cases of the PCI and the CCI the severity of the feudal structure of interactions were less severe in 1970 than in 1960. The analysis of the SDR data revealed that the intra-Periphery interactions intensified but kept their basic feudal structure. The Periphery initiated interactions to the Centre also intensified, thus entrenching the basic feudal character of this particular form of interaction. Taking the two findings from the SDR analyses together the conclusion is that the Periphery nations did contribute generally to international interaction entropy but did not demonstrably move toward a class-confrontation type of interaction pattern.

7.5 Interaction Findings: African Nations' SDR Performance and Interpretation

Table 27 provides the feudal scores of African nations' diplomatic interactions among themselves, with the other Periphery subsystems, and with the Centre subsystems. The respective feudal scores were obtained through the use of the $FS = \frac{r}{1-N}$ formula and by considering r , the real score, as the average interaction intensity of African nations and N , the ideal score, as the maximum average number of interaction links African nations could possibly have within each subsystem in the base and the terminal years.

TABLE 27

AFRICAN NATIONS' FEUDAL SCORES

<u>Periphery (PAF → P)</u>				<u>Differ-</u>
	<u>Base Feudal Score</u>	<u>Terminal Feudal Score</u>		<u>ence</u>
Africa → Africa	0.88 (2.5)	0.57 (1)	0.31 (1)	
Africa → Asia	0.94 (4)	0.88 (4)	0.06 (4)	
Africa → SAC	0.96 (5)	0.94 (5)	0.02 (5)	
<u>Centre (PAF → C)</u>				
Africa → East Centre	0.88 (2.5)	0.79 (3)	0.09 (3)	
Africa → West Centre	0.77 (1)	0.63 (2)	0.14 (2)	

The base year scores indicate that African nations interacted the most with the Western Centre (0.77). The African nations interacted as much with themselves as they interacted with the Eastern Centre (0.88). They interacted very little in the base year with the Asian Periphery (0.94), and the least with the South America and Caribbean Periphery (0.96). The terminal year scores show that the African nations interacted the most among themselves (0.57), followed by their interaction with the Western Centre (0.62). The African nations

interactions with the Eastern Centre comes next (0.79). Their interactions with the Asian Periphery remains fourth in the terminal year (0.88) and their interaction with the South America and Caribbean Periphery remains fifth (0.94).

If we recall that the feudal score for perfect Periphery feudal disregard is one and that for perfect Periphery dependence on the Centre is zero, then it becomes clear that, in the base year and within the Centre group of nations, the African depended more on the Western Centre than on the Eastern Centre. Within the Periphery group, African nations, in the base year, disregarded themselves the least but showed great disregard for the Asian and the South American and Caribbean Periphery.

Column 4 of Table 27 shows that in all cases African nations reduced ~~their~~ base year feudal scores by the terminal year. The intra-Africa score was reduced significantly by as much as 0.31. The African interaction score with the Western Centre was changed by 0.14 and that with the Eastern Centre was changed by 0.09. The initially high scores with the Asian and the South American and Caribbean Peripheries changed very little by 0.06 and 0.02 respectively.

From the above, it is clear that African nations did significantly increase their mutual recognition and did increase, to a much lesser extent, their dependence on the Centre nations. They also did increase their recognition of the other Periphery subsystems. This means that the African nations' contribution to the international systems diplomatic entropy level has been, on the whole, to move this system from a lower to a higher interaction entropy level.

The relative changes discussed above suggest that because African nations increased their intra-African dependence, or recognition, at a much larger margin than they increased their dependence upon the Centre subsystems, grounds do exist on the basis of our theory to say that the African nations may be embracing the "trade union mentality" on this indicator. This position, however, is to be tempered by the finding above that African nations increased their interaction the least with the Asian and the South American and the Caribbean Peripheries. The conclusion, therefore, is that while African nations may be embracing the "trade union mentality" on this indicator they are not embracing it widely enough to include the other Peripheries. They are, perhaps, in the process of discovering themselves before they discover the other Peripheries; and in the course of doing this they are not confident enough to decrease their dependence on their old colonial masters.

It is significant that the scores of the Eastern Centre changed by as much as 0.09. The significance of this fact is two fold. First, it shows the African nations' independence of action in interacting with a group of nations they were forbidden to even notice during the colonial years. This is an expression of African nations exercising their sovereign right to interact with whom they wish. This fact shows, at least, the right feudal-class transition spirit in disregarding diplomatic taboos¹ of feudal systems by

¹This is in reference to what Johan Galtung describes as "types of incestuous relations". See Journal of Peace Research, III, No. 2, p. 149.

diversifying interaction with an opposing group within the Centre.

The African nations intensified interactions with themselves and the Asian nations contrast with the scant attention which the former paid to the South America and Caribbean Periphery. This fact is a direct reflection of the seriousness with which the African nations approached the Afro-Asia ideology of "solidarity" in pursuit of common benefits in the international system which dates from the Bandung Conference of 1955. The comparative low scores of African nations interactions with South America and the Caribbean also reflects the fact that there has been a long historical disregard between these two subsystems. The South American nations had their pre-independence politics earlier and they did not see anything common between themselves and the Afro-Asian nations during the latter's politics of independence until the middle sixties when the nebulous idea of the "Third World" took hold of international imagination in international forums such as the GATT and the UNCTAD.

7.7 Interaction Findings: African Nations' PCI Performance and Interpretation

We know already from section 7.3 that the African nations depended on their one most important customers for as much as an average of 49.14% and 38.64% of their export trade in 1960 and 1970 respectively. We know also from this same section that like the other Periphery nations the most important customers for African nations were mainly nations of the Western Centre. The twenty-eight African nations for which data were available had France, U.K., Italy and U.S.A. most often as the most important customers. France

occurred twelve times each for the base and the terminal years; U.K. occurred seven times each; U.S.A. occurred two times each for the base and terminal years; and Italy featured two times in the base year and three times in the terminal year. The only Periphery nations to appear as the most important customers were Ivory Coast for Mali for both years; India for Uganda for the base year; and Ghana and Ivory Coast for Upper Volta for the base and terminal years respectively. In the Eastern Centre, the Soviet Union was the only nation to appear as the most important customer. It served the U.A.R. in this role for both the base and the terminal years.

It is noteworthy that in the base year three Periphery nations acted as the most important customer for African nations and that of these three, two were African. In the terminal year, the two most important Periphery customers were both African. The U.K. replaced India in the terminal year as Uganda's most important customer. It is also important to note that for the African nations' average dependence of 49.14% on the principal customer in the base year, the dependence upon Periphery nations accounted for only 4.61% and in the terminal year the dependence upon the Periphery accounted for only 2.84% of the total of 38.64%.

This pattern of dependence is not unexpected. France, U.K. and U.S.A. were the countries which had the wealth and presumably the need to import from the African countries. France and U.K. also happen to be the two main former colonial powers in Africa. But still, the fact that African nations depended so heavily on Western Centre nations for their export trade amounts to unambiguous

expressions of colonial dependence of African nations on the Western Centre, feudal non-diversification within the Centre and feudal disregard of the Periphery by African nations. The base year feudal structure of African interaction pattern on this indicator remain intact in the terminal year, except that because of the reduced average score we are perhaps justified in saying that the level of feudal severity in the terminal year was less than that in the base year.

Even though African nations have reduced their average dependence on their three most important customers in the Western Centre to tone down the feudal severity of their dependence, that is not to say that the African nations' total export dependence on the Western Centre was reduced. Another way to find out the degree of African nations export dependence on extra-African regions of the world will be to compare African nations' total export dependence on the African region with their total export dependence on other regions. This comparison can be done most conveniently through the use of African nations' various Dependence Ratios (DR). This ratio is the total value of African exports to a region (Er) relative to the total value of African nations' exports within Africa (Ea). Thus, $DR = \frac{Er}{Ea}$.

Table 28 below shows the comparative African Dependence Ratios for the Asian, South American and Caribbean Peripheries, the Eastern and the Western Centres for both the base and the terminal years, and the differences between the two scores. The figures in brackets are the contextual ranks of the scores.

TABLE 28

AFRICAN EXPORT DEPENDENCE RATIOS

	<u>Base</u>	<u>Terminal</u>	<u>Difference</u>
Africa—Africa	1.00 (2)	1.00 (2)	0.00
Africa—Asia	0.09 (4)	0.14 (4)	0.05
Africa—SAC	0.02 (5)	0.04 (5)	0.02
Africa—East. Centre	0.21 (3)	0.66 (3)	0.45
Africa—West. Centre	6.08 (1)	7.37 (1)	1.29

The table shows that in both the base and the terminal periods African nations depended the most on the Western Centre with the Asian and the SAC Peripheries lagging very far behind. African nations' dependence on the Western Centre increased the most between the base and the terminal periods by 1.29; followed by their dependence on the Eastern Centre by 0.45, another expression of disregarding feudal interaction taboos. Their dependence on the Asian and the SAC Peripheries increased by as little as 0.05 and 0.02 respectively. The evidence in this context then suggest that African nations did intensify their dependence on the Centre nation more than they did intensify their class recognition of the Periphery and therefore the system did become more feudal in the export relations of African nations.

7.8 Interaction Findings: African Nations' CCI Performance and Interpretation

Table 26 shows that the African nations scores on the commodity concentration index were the same (0.68) for both the base and the terminal years. This means African nations depended as heavily on their three most important export commodities in the terminal year as they did for the base year. Very little else, therefore, can be

said about African nations' performance on this indicator. The situation was as feudal in 1970 as it was in 1960.

The commodity concentration index scores suggest that commodities played as important a role in the terminal year exports as they did in the base year. However, this rather cryptic description of African nation performance on this indicator can be explained further by investigating the importance of raw materials in general in the foreign trade of African nations. We can do this by discussing the Trade Composition Index (TCI) of African nations for the base and the terminal years. The trade Composition Index formula² enables us to compare nations according to the degree of processing that goes into their total foreign trade. Nations with high degrees of processing have scores closer to +1 and those with low degrees of processing have scores closer to -1. The Periphery nations tend to have high negative scores by virtue of their dependence on the exportation of raw materials³ and the importation of processed goods. Thus, if the African nations' terminal year score

²The TCI formula is:

$$\frac{(a + d) - (b + c)}{(a + d) + (b + c)}$$

where:

- a = value of raw materials imported
- b = value of raw materials exported
- c = value of processed goods imported
- d = value of processed goods exported

See Galtung, Journal of Peace Research, VIII, No. 1, 102 and 116, footnote 34.

³Table 25 shows that the exports of African nations are made up largely by the three most important commodities.

was larger than the base year score then it means that the combined value of raw materials exported and processed goods imported tended, during the period, to lessen their dominance in African nations' international trade and that the combined value of raw materials imported and processed goods exported increased. In other words, if the score for the terminal year is larger than base year's, then it suggests that the fundamental structural imbalance in African nations' foreign trade was in the process of being redressed.

Appendix 6 shows that the Trade Composition Index scores were very high for most African nations. In the base period twenty-three of the thirty nations for which data were available had scores larger than -0.50; and of these twenty-three cases, nine cases had values larger than -0.70 and another nine had values ranging between -0.60 and -0.70. Kenya had the most desirable score of zero in the base period. In the terminal period, twenty-two out of the twenty-nine cases had values larger than -0.50, thirteen cases larger than -0.70 and seven cases ranged between -0.50 and -0.60. Zaire had a score of Zero in the terminal period.

The average score for the African nation in the base period was -0.55 and that for the terminal period was -0.60. This means that average performance of the African nations worsened by -.05 points on this measure during the decade.

In other words, even though the three most important commodities retained their level of importance in African nations export trade during the decade the overall importance of raw materials, valued together with processed imports in the foreign trade of

African nations, did increase, thus making the structural imbalance worse in the terminal year.

7.9 African Nations' Interaction Performance: Summary

It is clear from the preceding sections on the African interaction performance that on all the three indicators the patterns of African interaction were basically feudal in both the base and the terminal periods. In no case was there any clear evidence to suggest that African nations succeeded, during the decade, in breaking through the structural inertia, which constrained their freedom, to change their pattern of interaction from the feudal form to the egalitarian.

On the Diplomatic Representation indicator the African experience showed the rudimentary signs of the trade union mentality. The African nations increased the interaction among themselves but maintained their strong links with the Centre, especially with the former colonial powers and initiated very little interactions with the other Peripheries.

The African nations changed their score on Partner Concentration appreciably, but that was about all. The most important customers remained predominantly within the Western Centre group of nations. The pattern of interaction maintained the feudal form of colonial dependence, feudal non-diversification within the Centre and feudal disregard of other Periphery subsystems by African nations. The Feudal Dependence method of analysing the situation showed that in fact African nations did intensify dependence on the Western Centre the most followed by their dependence on Eastern Centre with very

little increases in their interaction on this measure with the other Peripheries. The conclusion, therefore, is that despite the decrease in the Partner Concentration Index in 1970, the situation viewed from the composition of the most important customers group of nations appears to have remained the same; and from the dependence Ratio analyses, the situation seems to have even worsened.

The role of commodities in the foreign trade of African nations was seen in section 7.8 to be increasing and therefore we can say that the structural imbalance in African nations foreign trade did become worse during the decade, despite their retention of the base year CCI score in the terminal year.

The following summary compares the performance of the entire Periphery with the performance of the African Periphery on each indicator as discussed in this chapter.

<u>Indicator</u>	<u>Periphery Performance</u>	<u>African Performance</u>
Structure of Diplomatic Representation	Basically feudal. Increasing general entropy level. No significant feudal to class tendency.	Increasing general entropy level. Embraced rudimentary group awareness in the limited intra-African sense. Disregarded within - Centre feudal taboo.
Partner Concentration Index	Basically feudal with reduced feudal severity.	Basically feudal. Reduced feudal severity. Dependence ratio suggests increasing dependence on the Centre with diversification within Centre.
Commodity Concentration Index	Basically feudal with reduced feudal severity.	Equally feudal with worsening structural imbalance in African foreign trade as expressed by TCI.

7.10 African Nations' Interaction Performance: Conclusion

The African nations' orientation toward, and dependence upon, the Centre nations, especially toward their former colonial metropolises, have been accepted beliefs in the literature. Robert Good expressed them well when he said:

"The legacy faced...by virtually all the new African states relate to some of the more obvious legacies of colonialism, such as the paucity of contacts and lack of economic complementarity among the new statesAlmost every where the retreat of empire left behind neighboring countries which had yet to discover one another or to develop meaningful mutual interests."⁴

John Sigler, in his 1969 study, on the North African international subsystem validated the hypothesis that foreign news tends to flow from high-ranking countries to low-ranking countries, from the dominant international system to the subordinate systems. He concluded that the world as perceived by the Maghreb elite press was global in extension but markedly hierarchical in nature. Vertical ties with the former colonial power, France, took precedence over all in the news of the foreign relations of the Maghreb states. For these states, the West as a region remained the most important among the major regions.⁵

Patrick McGowan has studied among other things, the attempts made by African nations to normalize their international relation so that the predominant positions of the former metropole is reduced to

⁴Good, American Political Science Review, LVIII, No. 3, pp. 634-635.

⁵Sigler, International Studies Quarterly, XIII, No. 4, pp. 396-397.

a status roughly equal to other international contacts. He regarded these attempts as the decolonization of external relations under the rubric of "the struggle against neo-colonialism." McGowan concluded that most African nations had low levels of interaction within the international political system and that they had not gone far in decolonizing their foreign relations.⁶ That African nations had low levels of interaction in the system is not surprising. The explanation is simply that they did not have the high capabilities necessary to engage in high level interactions in the system.

What is interesting is that all the three studies discussed above come to the same conclusion as this study. Good summed up the expectation that African nations interaction pattern had to be feudal in early sixties. Sigler using 1965 data showed that the Maghreb elite press perceived the world as feudal and reacted to it as such. There is everything to suggest that Sigler's conclusion can be generalized to cover practically all African nations. McGowan using 1963-1964 data has shown that the decolonizing process, the process of leveling dependence upon and orientation toward the Centre, had not gone far. This study has shown that the extent of African nations dependence upon the Centre in early 1960's did not change much by 1970. The best that could be said as the summary in Section 7.9 shows is that in some senses the severity of feudal dependence was slightly less in 1970 than in the early sixties.

⁶ McGowan, Journal of Asian and African Studies, IV, p. 217.

CHAPTER VIII

CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

8.1 Introduction

David Singer has suggested that social scientists pursue the following goals in analysis:

we observe structural, cultural and physical properties of a system in order to describe it in being; we observe the rates and direction of change of such properties to describe or predict what is becoming; and we observe their properties to interact with one another and to respond to external impetus in order to predict, and partially explain, the system's modes of behaving.¹

The efforts in the preceding chapters of this study have been confined to a description of certain properties of the international system as well as the rate and direction of change in international development during the 1960-1970 decade; and the extent to which African nations, as a group, contributed to the international system's development experience. Adopting Johan Galtung's formulation, we pictured the international system as feudal in structure and posited the problem of international development as the existence of the inequality gap between the Centre nations and the Periphery nations; and defined the process of development in the dual senses of decreasing rank-concordance and decreasing the interaction-dependence of the Periphery on the Centre. In other words, our theoretical formulation conceived international development as the process whereby decreasing rank-concordance and decreasing interaction-dependence in the relations between the Centre and the Periphery will combine to alleviate the problem of international

¹Cited by Bruce Russett in his International Regions and International Systems; A Study in Political Ecology (Chicago, Illinois: Rand McNally, 1967), p. 222.

and Inactive-Dependent States. As the names suggest the Active-Independent group of nations have high decolonizing scores, followed by the Transitional, which have low scores and then by the Inactive-Dependent groups of nations, which have very low decolonizing scores. The three groups of nations are presented with their residual decolonization scores in table 28 below.

TABLE 29
McGOWAN'S GROUPS OF NATIONS¹⁰

<u>Active-Independent States</u>			<u>Transitional States</u>			<u>Inactive-Dependent States</u>		
<u>Rank</u>	<u>States</u>	<u>Score</u>	<u>Rank</u>	<u>States</u>	<u>Scores</u>	<u>Rank</u>	<u>States</u>	<u>Scores</u>
1	Sudan	9.9	1	Senegal	-14.4	1	Mauritania	-8.4
2	U.A.R.	-8.3	2	Uganda	9.9	2	Cent.Afr.R.	-8.0
3	Morocco	6.5	3	Guinea	7.9	3	Chad	-7.5
4	Ghana	-3.1	4.5	Zaire	7.6	4	Malagasy	-6.2
5	Algeria	0.8	4.5	Somalia	7.6	5	S. Leone	4.7
			6	Ethiopia	6.7	6	Niger	-4.6
			7	Tanzania	5.8	7.5	Congo,B.	-4.5
			8	Nigeria	-5.4	7.5	Dahomey	-4.5
			9	Mali	4.4	9	Ivory Coast	-4.2
			10	Libya	3.2	10	Liberia	-3.0
			11	Tunisia	0.8	11	Togo	2.9
						12	Gabon	2.6
						13	Upper Volta	2.1
						14	Cameroon	-0.3

When we calculate each African nation's intra-Periphery FS for the base year and for the terminal year and subtract the latter value from the former we get a statistic (Dp), which expresses the extent to which the African nation changed its diplomatic involvement within the Periphery during the decade. Positive values of this statistic suggest

¹⁰ McGowan, Journal of Asian and African Studies, IV, No. 3, p. 216.

intensified intra-Periphery involvement; and the larger the value the more intensified was such an involvement. Similarly, performing the same operations with the African nations' individual $P \longrightarrow C$ diplomatic relations provide us with a statistic (D_c), which expresses the extent to which the African nations changed their diplomatic dependence on the Centre nations. Negative values of D_c suggest reductions in the $P \longrightarrow C$ interactions, and the size of the values express the extent of the changes. Thus, if a nation did defeudalize its diplomatic interaction much it would have a large and positive D_p and a large and negative D_c .

Eighteen African nations had positive D_p . The values ranged from 0.21 for UAR to 0.00 for South Africa and Sierra Leone. Only three nations had negative D_c values (Tunisia, 0.05; South Africa -0.01 and Ethiopia -0.01). All the other African nations had positive D_c ranging between 0.01 for Morocco and Sudan to 0.23 for Algeria. Therefore, in the strict sense of defeudalizing diplomatic interactions, only Tunisia and Ethiopia could be said to have developed. All the other nations either increased their intra-Periphery interaction and their $P \longrightarrow C$ interactions or maintained the same level for the latter and increased the former.

The ratio between D_p and D_c will provide us with the relative defeudalization of the other nations. Where the ratio is less than one, the nation did increase its $P \longrightarrow C$ interactions more than its $P \longleftrightarrow P$ and so did not develop; and where the ratio is more than one, $P \longleftrightarrow P$ interactions increased more than $P \longrightarrow C$ interactions and so nations concerned developed in the relative sense. From this, we can

classify nations into three groups: (A) Defeudalizing Nations,
(B) Nations Relatively Defeudalizing, (C) Feudalizing Nations.

Defeudalizing Nations			Nations Relatively Defeudalizing			Feudalizing Nations		
Rank	Country	Dp/Dc	Rank	Country	Dp/Dc	Rank	Country	Dp/Dc
1	Ethiopia	-17.00	1	Sudan	11.00	1	Ivory Coast	0.90
2	Tunisia	-0.04	2	UAR	7.00	2.5	Ghana	0.70
			3	Morocco	6.00	4	Uganda	0.60
			4	Liberia	2.00			
			5	Nigeria	1.80			
			6.5	Kenya	1.50			
			6.5	Zambia	1.50			
			8	Malawi	1.30			
			9	Algeria	1.25			
			11	Somalia	1.10			
			11	Tanzania	1.10			
			12	Zaire	1.10			
			13	Libya	1.00			
			14	Sierra Leone	0.00			
			15	South Africa	0.00			

Group B has more nations than either Group A or C. This means that most of the African nations did defeudalize their diplomatic interaction mainly in the relative sense, thus contributing toward higher international interaction entropy rather than toward evening out $P \longleftrightarrow P$ and $P \longrightarrow C$ interaction patterns. Ethiopia tops the list in Group A. This is not surprising. Addis Ababa is the seat of the Organization of African Unity and this compels Ethiopia to establish more diplomatic relations within the Periphery, especially the African Periphery, than it would otherwise. South Africa's position can be explained in terms of its peculiar position in Africa and the Third World. Its position reflects the bad relation between itself and the other nations of the Periphery. Ghana's position in Group C could be explained by the fact that after the 1966 military coup her militant

stance in international matters was substantially reduced, so that by 1970 Ghana had raised its $P \longrightarrow C$ diplomatic missions from 7 to 15 and raised its $P \longleftrightarrow P$ missions from 9 to 15.

With these qualifications noted, Tunisia turns out to be the only nation that defeudalized in the true sense of the term. Following Tunisia are Sudan, UAR and Morocco which developed in the relative sense only but with high scores. These last three nations are also among those which ranked high on the McGowan's decolonization classifications. McGowan describes the common characteristics of his five active-independent nations as "(1) four are North African-Arab, (2) four are former members of the Casablanca group, (3) they are among the wealthiest in terms of size of their gross national products and with the exception of Algeria, among the longest established African states."¹¹ Even though our method of analysis is substantially different from McGowan's we come to much the same conclusion. The four top nations on our classification are all (1) Arab-African nations, (2) among the wealthiest and (3) the longest established African nations. Thus, it looks like wealth and age, of a nation, are among the key variables which encourage defeudalization of diplomatic relations. A variable such as the ideological bent of the regimes does not seem to affect defeudalization much. It seems to contribute toward increasing international interaction entropy. Increasing international interaction entropy is a lower level expression of protest diplomacy of the transformation variety than the formation of class consciousness.

¹¹ McGowan, Journal of Asian and African Studies, IV, No. 3, p. 217.

African nations are still young and poor nations. Perhaps with age and wealth we could see the class expression in their diplomatic activities.

In conclusion, let us note that there were data for six of the seven Dynamic Middle African nations. Of these six nations, three, Tunisia, UAR and Morocco were among the highest ranking nations on the Dp/Dc Score. A fourth nation, Kenya, did moderately well with a Dp/Dc score of 1.5. The other two Dynamic Middle nations, Uganda and Libya, did badly on the Dp/Dc score. This seems to suggest that nations which appear in the Dynamic Middle often also tend to be those nations which do defeudalize their diplomatic interaction appreciably.

CHAPTER VIII

CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

8.1 Introduction

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The efforts in the preceding chapters of this study have been confined to a description of certain properties of the international system as well as the rate and direction of change in international development during the 1960-1970 decade; and the extent to which African nations, as a group, contributed to the international system's development experience. Adopting Johan Galtung's formulation, we pictured the international system as feudal in structure and posited the problem of international development as the existence of the inequality gap between the Centre nations and the Periphery nations; and defined the process of development in the dual senses of decreasing rank-concordance and decreasing the interaction-dependence of the Periphery on the Centre. In other words, our theoretical formulation conceived international development as the process whereby decreasing rank-concordance and decreasing interaction-dependence in the relations between the Centre and the Periphery will combine to alleviate the problem of international

¹Cited by Bruce Russett in his International Regions and International Systems, A Study in Political Ecology (Chicago, Illinois: Rand McNally, 1967), p. 222.

inequality.

We began this study with the pessimistic impression that the international system was performing badly from the developmental point of view.² We sought to establish empirically how the system performed between 1960 and 1970. Our aims in this chapter are:

1. to re-state the main empirical findings of the study;
2. to speculate, within the combined contexts of our theoretical formulation and our empirical findings on why the system performed as it did; and
3. to suggest what ought to be done in terms of further research to identify more precisely the complex causal nexus involved in an adequate theory of international development.

8.2 Re-statement of Findings

The key and complex concept of equality of attributes was represented initially by the idea of rank-concordance. This idea was later measured in terms of rank-order correlation coefficient (RHO), the Systemic Inequality Measure, the Gini Index of Inequality, and the Ratio of Discrimination and Equal Share Coefficient in order to describe the different aspects of the concept of social equality. The values of these measures were used to show the extent to which attribute values were equally distributed between nations in the international system, especially as between the Centre and the Periphery groups of nations.³

²This pessimism was the main reason for casting the hypotheses in the negative. See sections 1.1 and 3.7.

³See sections 4.5 to 4.7.

The analysis of the attribute data at the total system level in chapter V (see Tables 8 and 10) showed clearly that the structures of attribute distribution between nations were grossly unequal on all indicators except on the indicator Calories per Day. We found also, in Tables 8 and 10 of the same chapter, that the structures of distribution on the individual indicators changed very little between 1960 and 1970. We therefore inferred that the structures of the 1970 distribution among nations were as basically unequal in 1970 as they were in 1960. And since the changes involved in the structures of distribution of the various value between 1960 and 1970 were found to be quite small, we described the overall trends characterizing the 1960-1970 changes as stagnant.

At the African subsystem level, we found in section 5.15 that the evidence suggested very clearly that African nations fell as much in the Periphery category in 1970 as they did in 1960. Despite the fact that African nations performed better than the total system on Adjusted School Enrolment, Industry as percentage of GDP, GNP per capita and Radio Receivers, the margins of gain were so small that the overall African performance was described as a subsystemic expression of the total system's stagnant performance.

In the case of interactions, the idea of inequality was represented by interaction-dependence, which was in turn expressed by such measures as the Partner Concentration Index, the Commodity Concentration Index, the Trade Composition Index, the Dependence Ratio and the Feudal Score. As reported in chapter VII, the values of these measures suggested that the international system was as highly interaction-dependent in 1960 as it was in 1970.

Even though there were some slight changes in the inequality levels of the various interaction indicators, the changes were too small to suggest any meaningful movement toward higher or lower levels of interaction-dependence. Thus, the trend characterizing the changes in the interaction patterns and intensities of nations was also described as stagnant.

In section 7.9, we found that African nations' interaction initiations followed very closely a feudal pattern. The interactions initiated by these nations showed patterns and intensities which were basically as unequal in 1970 as they were in the early sixties. There were slight changes in the severities of inequality of some of the African nations' interactions. However, in no case was there clear evidence to suggest that African nations succeeded in changing their interactions enough to indicate a movement from the feudal form of interaction to the class form. The discussion, comparing African nations' performance with that of the total system, in section 7.9 plainly suggested that African nations performance on the interaction axis was a subsystemic expression of the total system's stagnant interaction performance.

The combined meaning of the attributes and interaction findings at the total system level is that the system can be described as basically feudal in the dual senses of being characterized by high rank-concordance and high interaction-dependence in both 1960 and 1970. In other words, the changes in rank-concordance and interaction-dependence needed to move the international system away from the feudal pattern via the mixed or the class system toward the egalitarian system.

did not occur during the 1960-1970 decade. Little or no movement was detected as would be required by the dynamic motion of international development. African nations' development experience, that is African nations' contribution toward making the international system less rank-concordant and less interaction-dependent, reflected the general absence of development on the international plane.

In arriving at the above conclusions, we also encountered some rather interesting features of the international system. The isolation of the Dynamic Middle group of nations is perhaps the most prominent. These nations were defined as those whose rank-positions on the individual rank-orders make it possible for them to increase or decrease their average cumulative share of the absolute values more than the other nations. Put differently, the Dynamic Middle nations are considered as those whose rank-positions on the individual rank-orders are sensitive enough to enable them to show "exaggerated" changes in their average absolute values over the period of time under study.⁴ The whole idea of the Dynamic Middle, as pointed to here, is an idea which needs to be pursued and studied in much detail. It is an idea in its early stages of potential development.

Providing the geographic listing of the Dynamic Middle Group of nations in chapter V is not enough. We need more information on the profiles of these nations as a basis for studying both the international and internal conditions and behaviours of these nations so as to develop a sociology of change in the international system. Such a sociology is important, for if the Dynamic Middle nations are those which are prone to changes in the international system's "ups and downs" vis à vis

⁴See section 5.6

possession of the system's scarce values, then we have to know what fundamental variables define them as a group. We also have to know the extent to which other nations are or are not like the Dynamic Middle nations. Further, we have to make the vital distinction between upwardly mobile and downwardly mobile nations within the Dynamic Middle groups of nations.

Such a distinction is very important if we are to ask the relevant questions and through them understand the forces of social change in the international system. One of the important questions which could be asked is: Can the Dynamic Middle nations (both upwardly and downwardly mobile) be regarded as the international equivalent of the middle class in domestic society? To answer this question we have to compare not only the characteristics of the two entities but also the roles they play in their respective system levels. For example, we will like to know whether the interaction patterns of the Dynamic Middle nations bear any similarity with those of the domestic middle class.

At the international level, further comparisons ought to be done in order to find out whether the Dynamic Middle concept covers not only the attributes aspect of international development but also the interaction aspect. If this turn out to be the case then we will have isolated the particular group of nations which possess the properties to change the international system in the dual senses (or total sense) of reducing or reinforcing the level of international rank-concordance and interaction-dependence. Such information may help in understanding the international development phenomenon in very important ways. For example, it may help us to determine more carefully how the

transition from the feudal pattern to a more egalitarian pattern takes place. We shall attempt to do part of this comparison in section 8.4.

In concluding this section, let us note that what is most disturbing from the peace research point with regard to the substantive findings of this study is that the 1960-1970 decade happens to be the ten years during which nations made apparently strong efforts to reduce inequalities within the international system. In fact, it was during this decade that the United Nations (and many other international organizations) as well as scholars and individual nations took it upon themselves to advise and perform in various ways to bridge the attribute gap between the Centre and the Periphery groups of nations. We should note further that it was also during this decade that the Periphery nations, especially the African subsystem within it, most clearly embarked upon what Mazrui has called "protest diplomacy of the transformation variety." if, therefore, nothing seems to have come out of these ten years of unprecedented international activities toward international development, then, from the policy point of view, it is urgent to consider what can be done if the international system is to develop as rapidly as possible; and from the research point of view it is urgent that we map out what we need to know in order that we may understand more about the working of the international system with respect to international development. The remaining sections of this chapter will be devoted to a brief discussion of the policy implications of what might be done to develop the international system in the shortest possible time; and to a discussion of the need for further research. We shall do this through an assessment of the adequacy of Galtung's theory of development in the light of our findings and other considerations.

8.3 The Adequacy of Galtung's Theory

The initial appeal of Galtung's theory for this study was the theory's structural foundations. The theory, as it stands, takes the broad units whose actions bear directly on international development into account early in the formulation and uses the relationships between these units in ways that lend themselves to an explanation of international development. Galtung's theory does not treat the gap separating the Centre and Periphery as though it was the autonomous creation of the Periphery, and hence their sole responsibility to remove. He does not consider the Centre's responsibility toward the removal of the gap as limited to benevolence and the Centre's search for peace of mind. The model casts the process of international development in dialectic terms. It stresses the opposing interests of the major units in international development. Herein lies the political essence of the theory. It shows international development not as a technical problem but as a political problem.

The Political problem in international development, so far as this theory is concerned, is how to remove the structural deformities which keeps the system underdeveloped. In this regard, the conceptual richness of Galtung's theory lies as much in what it says explicitly as in what it only hints at.

The theory, as we used it for this study, revolved around the basic interpretation that the idea of international development can be cast in terms of the forms of the structure of international systems. Specifically, we interpreted the model to mean that international development is related to both the structure of distribution of attribute value and the structure of interaction patterns.

In short, we used the model to treat international development as the dependent variable and the structures of value distribution and pattern of interaction as the independent variables. We interpreted the relationship between the two sets of variables in this particular way that international development (E) is inversely related to the combined effects of rank-concordance (RC) and to interaction-dependence (ID). In mathematical terms, we mean:

$$E \propto \frac{1}{RC} + \frac{1}{ID}$$

i.e.

$$E = f \left(\frac{1}{RC} + \frac{1}{ID} \right)$$

This formulation suggests that to the extent that a system is not rank-concordant and interaction-dependent, to that extent the system is developed.

We interpreted the theory in the above manner because Galtung left the strong impression, as we found in chapter III, that equality between nations is dependent upon the reducing levels of rank-concordance and interaction-dependence. Galtung did not indicate whether in changing from the feudal form to the egalitarian form the system had to move initially along the rank-concordance axis or initially along the interaction-dependence axis. He posited the two parts of the model as possible alternatives and described the movement along the rank-concordance axis as evolutionary and that along the interaction-dependence axis as revolutionary.⁵ The main problem with the feudal system is that because of the reinforcing relationship between high rank-concordance and high interaction-dependence it is very durable. By Galtung's initial formulation, it does not matter

⁵Galtung, Transactions of the Sixth World Sociological Congress, I, 152-155.

which path is taken to break the "...pattern of circular causation between and within the two conditions which establish the feudal structure as not only a very stable structure, but also as in a sense a 'natural' structure."⁶

However, having demonstrated empirically that the international system of the sixties remained feudal in structure with little or no movement: we now have to ask why this was so. Galtung's theory would consign the failure of the system to develop to the fact that the structural fatigue necessary to move the system from the feudal to the egalitarian form was not in evidence. Following the theory, we can describe the highly feudal international system of the sixties as a "case of disharmony that has reached a state of equilibrium."⁷

The main question then is: how does one begin to change a highly feudal system in equilibrium. To suggest, as the theory does, that to change or dismantle a feudal system in equilibrium, we have to increase the structural fatigue in the system, is not enough. In any case, what does Galtung mean by the term structural fatigue? No where in his writings does Galtung explain this term. Undoubtedly, he uses this term with the same facility as marxists and other radical reformers, structuralists in general, use it when they refer, without precision and rigour, to "contradictions within and between systems" or when they refer to whatever they take to be "the change producing tensions within and between systems."

⁶Galtung, Transactions of the Sixth World Sociological Congress, I, 151.

⁷Galtung, Journal of Peace Research, VIII, No. 4, 82.

In strict reference to the theory, the structural fatigue needed to develop the system would effect reductions in the levels of rank-concordance and/or interaction-dependence. The point at issue here, however, is whether in seeking to move the contemporary international system from its present feudal state toward the egalitarian state, we are to regard reduction in interaction-dependence and reduction in rank-concordance as "equally viable alternatives." By this I mean are there any reasons why in seeking to defeudalize the international system, policies should be formulated first along one rather than the other of the two routes open to us? In this regard, Galtung's earlier formulation of his theory is imprecise. As we have just indicated above, he makes it look as though it does not matter which of the two paths is taken to break the circular causation between and within the two conditions which establish the system as feudal.

As imprecise as the theory may be, Galtung himself directly rejects the effectiveness of movement along the feudal-mixed axis (the revolutionary path) in the contemporary international system. He equivocates, however, when it comes to making a definite policy choice between the evolutionary and revolutionary paths of development. Despite such uncertainties Galtung states in relation to the initial effectiveness of the two paths that:

"from one point of view this gap poses a problem, the answer to which is in terms of redistribution [of GNP]. But from the structuralist point of view taken here the gap poses a problem that can only be answered in terms of structural change. It may be that redistribution can contribute to this change; but it may also be that it only serves to postpone the solution because symptoms rather than the disease itself is cured."

⁸ Galtung, Journal of Peace Research, VIII, No. 4, 101.

He further states a few pages in the same work that:

"Our point of departure is once more that the world is divided into have's and have-nots, in have and have-not nations. To decrease the gap, one aspect of the fight against structural violence, redistribution by taking from the have's and giving to the have-not's is not enough: The structure has to be changed."⁹

From these two quotations, Galtung reduces his own gross policy recommendations to what on the face of it looks a much more precise form. He suggests that what keeps the system underdeveloped, the "structural disease," is not inequality of attributes between nations but the dependence of the Periphery on the Centre. Implied in this view is the position that to develop the international system we first have to decrease the interaction dependence of the Periphery on the Centre.¹⁰

Galtung's reference to the evolutionary path as "Symptoms" and his reference to the revolutionary path as "the disease" is informative. This suggests that the relationships between rank-concordance, interaction-dependence and the phenomenon of development could be looked at in another way other than the way we interpreted it originally in this study. He refers to the evolutionary changes as "symptoms" and revolutionary changes as "the disease"; but since symptoms are caused by disease, and not vice versa, it is permissible to interpret Galtung as saying that to move a system from the feudal to the egalitarian state

⁹Galtung, Journal of Peace Research, VII, No. 4, 107

¹⁰See sections 6.1-6.2 for a discussion of the means and end relations in political action.

the initial step should be to decrease the dependence of the Periphery on the Centre.

This interpretation is plausible in that symptoms do diminish only after the disease has been cured to a point. It becomes clear then that we cannot relate the revolutionary route and evolutionary route as "equally viable alternatives" in policy formulation at the early stages of dismantling a highly feudal system. At these stages, this interpretation would suggest, no meaningful reduction in rank-concordance (redistribution) can occur, no matter how fair or well-intentioned it is; because the interaction-dependence (the structural inertia) which supports the exploitation of the Periphery by the Centre is still too high.

The significance of Galtung's descriptions of the two axes is that it suggests a strategic choice regarding which of the two axes to fashion policies along initially, in the attempt to defeudalize the contemporary international system. The theory, as we have argued here, implies that development of a highly feudal system means reduction of interaction-dependence.

There were strong indications in the discussion in section 3.3 that the two conditions could be linked causally, and therefore, the two conditions could not be regarded for policy formulation purposes as "equally viable alternatives." While I stated that the two conditions need not be considered as causally linked, I also explained the fact that they could be considered as such in the light of the trade union analogy. In particular, I postulated that the empirical findings of this study might help as the first steps in directing our minds to investigate the possibility of causal links between the two conditions.

The only justification for viewing the relation between the two variables this way is that in the final analysis the inequality gap is most meaningfully expressed in the uneven distribution of attributes between the Centre and the Periphery. From the earlier discussions in this section it becomes clear that interaction dependence is important only in so far as it creates and maintains a high feudal system. Even though reduction in the level of interaction dependence — increasing the Periphery's freedom of choice — can be considered an end-value in itself, when the concern is the dismantling of a highly feudal system the reduction in the level of interaction dependence is best seen as a means, a tactic, within the general strategy of reducing rank-concordance.

We shall take up the empirical evidence for this interpretation later in this chapter. But before then, let us for further clarity, relate this position to the discussion of Figure 11 in section 3.3, where we discussed the probable paths of feudal-egalitarian transition. According to the theory, as we have argued it here in this section, the feudal-egalitarian diagonal in Figure IV divides the two-dimensional figure into two sectors to contain the possible and the probable paths of transition. While the possible sector lies near the rank-concordance axis, the probable sector lies near the interaction-dependence axis. The difference between the possible and the probable paths of transition is that while the former could occur they cannot be made or expected to; and while the latter could they can be made to occur.

FIGURE IV

PROBABLE AND POSSIBLE PATHS OF FEUDAL-EGALITARIAN TRANSITION

The distinction between the two sets of paths can be further explained by reference to the discussion in sections 2.3 and 2.4. It was stated in section 2.3 that the moral school of thought tends to support redistribution as a means to international development through moral appeals to the conscience of the Centre nations. We noted in that section that appeals to the conscience of the Centre nations to redistribute international values is ineffective because the positive effects of such appeals while possible were highly remote and improbable. The related alternative of enlightened self-interest was found to be of very low credibility as a means to develop the international system because of the vast power differential between the Centre and the Periphery nations. The best redistribution could do for international development, perhaps, would be to keep the inequality gap from widening. That is,

the best redistribution could do will be to keep the trend of international development stagnant.

It was the dissatisfaction with redistribution as a means of international development which led us to explore the structuralist perspective to international development in section 2.4. In section 2.5 we suggested the posing of the Periphery's collective self-interest against the collective self-interest of the Centre nation (the trade union analogy) in addition to redistribution as a more comprehensive approach to international development. But now the causal implication of the theory, drawn above, suggests that redistribution is only a possible path to international development while trade union organization¹¹ of the Periphery is the probable path.

A further support for the view that Galtung believes initial international development to be coterminous with development along the interaction axis, is to be found in the policy options he offers for international development. He postulates the following alternative strategies for creating conditions conducive to international development.¹¹

I Reduced harmony between the Centres

1. Reduction of the harmony between the centre in the Centre and the centre in the Periphery.
2. Change the harmony between the two centres into disharmony.

II Reduced harmony in the Periphery

3. Violent revolution in the Periphery.
4. Non-violent revolution in the Periphery.
5. Co-operation between the two Peripheries.

¹¹Galtung, Journal of Peace Research, VIII, No. 4, 108.

III Changes in Centre

6. Increased disharmony in the Centre.
7. Changes in the goals of the Centre.

These individual options are meant to be adopted singly or in combinations. Not only it is clear that the options have different chances of success depending upon circumstances in the international system and within the different nations, it is also clear that they suggest more revolutionary path politics than the politics of the evolutionary path.

Perhaps, it is appropriate to pause, at this point, to remind ourselves as to what is entailed in the two types of approaches. By revolutionary politics, we mean confrontation politics between the Periphery and the Centre. This approach describes a situation where the Periphery nations see themselves as a group defined in terms of their low status and in terms of their common determination to increase their status at the expense of the Centre. This type of group formation is what Galtung describes by the term Associational integration.¹² The revolutionary approach to international development places the emphasis on Periphery initiative; it sees the politics of international development as a kind of variable sum game with greater pay-offs going to the Periphery as a result of the collective pressure they are able to put on the Centre, because of their status indispensability.¹³ It is for these reasons that I interpreted Galtung's ideas of revolutionary

¹²

Galtung, Journal of Peace Research, V, No. 4, 378-380.

¹³

Galtung, Journal of Peace Research, VI, No. 4, 374-375.

politics in connection with international development, as the "trade union analogy". Politics of redistribution does not see the problems of international politics primarily in terms of confrontation between Periphery and the Centre. It does not see initiatives in international development as necessarily belonging exclusively to the Periphery. This approach stresses, among other things, the importance of welfare policies of the Centre toward the Periphery -- the aid flow notion; changes in indigenous culture of the Periphery nations and improved policies -- the domestic growth notion; and better coordination of policies between the Centre and the Periphery nations -- the universal concern for international development notion.

It must be noted further that both the revolutionary and the redistribution schools accept the interdependent nature of the relations between nations. There is, however, a difference between the two schools with respect to their understanding of the interdependent nature of the international system. The revolutionary school, while it accepts that the world is "interdependent" stresses the point that the distinguishing feature of the contemporary international system is the excessive dependence of the Periphery nations on the Centre nations. This school does not see the partnership between the Centre and the Periphery nations in this interdependent system as one of equal partnership. It believes the Centre-Periphery relations to be of unequal partnership in which the Centre exploits the Periphery by accruing more of the international systems value-outputs through the excessive dependence of the Periphery on the Centre. And hence this school's recommendation that the partnership can be made equal only through the adoption of the trade union tactics by Periphery nations at the international level -- the formation of associational

integration by the Periphery.

The redistribution school while it does not reject the view that the Centre-Periphery relations may be unequal, sees no need for confrontation politics as the solution. This school believes that there is nothing fundamentally wrong with the Centre-Periphery relations that aid from the Centre to the Periphery, proper changes in the Periphery to encourage domestic growth and the fostering of international understanding cannot repair. In its extreme form, this approach rejects the notion and the implications of "exploitation".

There is nothing much empirically to support the views of either side of the argument above. We can clarify the issues involved only through further research into the contending claims.

As we have seen, Galtung's theory originally held the attribute and the interaction routes as equally viable policy alternatives to international development. But later development of the theory suggests that decreasing interaction-dependence of the Periphery is more viable a route to international development than decreasing rank-concordance through redistribution. This study did not intend to test this policy implication of the theory. But now such a validation becomes urgent because if we are to accept or reject the revolutionary perspective for the formulation of policy in international development we must have solid evidence for doing so.

We shall therefore now turn to examine the African nations within the Dynamic Middle nations to see how their rank and attribute mobilities relate to changes in their interaction-dependence. We already know from chapter VII that the African nations which appeared in the

Dynamic Middle often also tended to be those which defeudalized their diplomatic interaction appreciably. We shall take this finding up here in an attempt to show whether those African nations which tended to defeudalize their diplomatic interactions were also those nations which tended to be the unwardly mobile Dynamic Middle nations. Implied here, of course, is the intention of showing whether the downwardly mobile African nations in the Dynamic Middle group also feudalized their diplomatic interactions.

Even more in keeping with our rank-dimension framework, we shall attempt to use the African nations' experience again to show how those African nations which tended to defeudalize their diplomatic interactions performed with respect to their attribute rank-changes. If it turns out that those African nations which tended to defeudalize their diplomatic interaction were also those which tended to increase their attribute ranks, or that those which feudalize further their diplomatic interaction tended to be those which decreased their attribute ranks appreciably, then we would have the beginning, and only very limited beginnings at that, to speculate on a possible causal link between interaction-dependence and rank-concordance.

The African Dynamic Middle nations are: Malagasy (MAG), Tunisia (TUN), Uganda (UGA), Kenya (KEN), Morocco (MOR), Egypt (UAR) and Libya (LYB). Table 30 shows the total number of times these nations individually occurred in the Dynamic Middle (column 2); the number of times they were upwardly mobile (column 3); and the number of times they were downwardly so (column 4). The overall mobility effect is described in column 5 by either U (Upwardly mobile) or D (Downwardly mobile).

TABLE 30

AFRICAN NATIONS' MOBILITY WITHIN THE DYNAMIC MIDDLE*

Country	Total	Upward	Downward	
MAG	6	4	2	U
TUN	6	5	1	U
UGA	5	4	1	U
KEN	5	4	1	U
MOR	5	4	1	U
UAR	4	3	1	U
LYB	4	4	0	U

* The information in Table 30 is taken from information in Appendices 3a-3m.

It is clear from the table that all the African nations within the Dynamic Group were upwardly mobile.

We have diplomatic defeudalization scores (DDS) for all the nations mentioned here except for Malagasy. The DDS is the statistic which expresses the extent to which African nations defeudalized their diplomatic interactions, in the sense of increasing them within Periphery diplomatic interactions and reducing their diplomatic interactions with the Centre during the sixties.¹⁴ The top eight nations on the DDS listing are: Ethiopia, Tunisia, Sudan, UAR, Morocco, Liberia, Nigeria and Kenya. With Ethiopia excepted,¹⁵ we see that four of the six (excepting Malagasy

¹⁴See section 7.10 for the list of African nations diplomatic defeudalization score.

¹⁵See section 7.10 for the reasons for excepting Ethiopia.

for lack of data) Dynamic Middle African nations are among the top seven nations on the DDS listing. From this, we can say that from the African experience of the sixties, the Dynamic Middle nations tended to be upwardly mobile and at the same time they tended to defeudalize their diplomatic interactions much more than the other African nations.

The information in Table 31 compares the African Dynamic Middle nations' rank-changes to the African Periphery's average rank-changes on each indicator. The figures in the second row are the African Periphery's average rank-changes and those in the remaining column are the Dynamic Middle nations' rank-changes on the respective indicators. The figures with asterisk identify the indicators under which the African Dynamic Middle nations' rank-changes are higher than the African Periphery's average rank-changes. The last column of Table 31 shows the number of times, out of 13, that an African Dynamic Middle nation performed better than the entire African Periphery.

Therefore, in the case of comparing the African Dynamic Middle nations' individual rank-changes on the several indicators to the respective average rank-changes for the entire African Periphery, Table 31 shows, in the last column that: All the Dynamic Middle African nations, except Morocco, indicate that they tend to improve their 1970 rank-positions over 1960 position much better than the average changes for the entire African Periphery. The indication is stronger in the three cases of Tunisia, Kenya and Libya than in those of Malagasy, Uganda and the UAR.

TABLE 31

COMPARING AFRICAN DYNAMIC MIDDLE NATIONS' RANK-CHANGES
TO AFRICAN PERIPHERY'S ATTRIBUTES AVERAGE RANK-CHANGES*

Indicators	E1	E2	E3	E4	W1	W2	W3	W4	W5	H1	H2	H3	H4
Average	0.04	-1.0	-3.4	0.1	0.7	3.9	-0.4	0.3	-2.9	-7.8	-0.3	-1.7	1
Rank Change													Total
C MAG	-12.5	0.5	-5.5	1.4*	-1	0.5	-10	-8	1.5*	19.5*	0*	-5	15*
O TUN	7*	6*	0*	-1.5	9.5*	7*	-05	-20	-2*	34*	0*	-1*	-
U UGA	-16	-3	-2.5*	17*	-6.5	-4	-6	37.5*	6*	-6.5*	-1	6*	-
N KEN	-4.5	8*	-1.5*	14.5*	-6.5	0	8.5*	3.5*	-8.5*	39*	-6	1*	-10
T MOR	-2	-3	-14	-14.5	-4	-3.5	-9	-4	-2	-5.5*	3.5*	-11	-
R UAR	-5.5	-13	-2*	1.5*	-13.5	-	-	35*	-14	15.5*	-4	-1*	0*
Y LYB	11*	5*	16*	-30	-	-	-	-	4*	51*	5*	9.5*	-

* For reference to the identities of the indicators represented in the top row, by their code names see section 4.1. Information in the second row of the table is taken from Table 17. And the information in the remaining columns is taken from Appendices 5a-5m.

The above findings do not amount to a validation of Galtung's implied causal nexus between decreasing interaction-dependence and increasing rank-concordance. They do not validate the proposition that revolutionary politics lead to equality between nations in the distribution of the international system's attributes. To validate this proposition, we need a dynamic theory which explains the why and the how of international development. As we explained earlier in this section, the dynamic element in Galtung's model, the idea of structural fatigue and its location in the structure of society, are insufficiently developed to enable the model to do this. While these findings do not amount to a validation of the inferred causal nexus, they cannot be ignored completely. The findings suggest that increasing attributes and increasing attribute ranks may be associated with decreasing interaction-dependence in some way. We have to do more research to clarify the nature of the association. This association need not necessarily be causal. We have related here only the African Dynamic Middle nations' average attribute value mobility and their rank mobility for only two points in time (1960 and 1970) and along only one interaction indicator (diplomatic relation) to establish this association. To give the association the initial credence to the serious consideration it deserves, we need to relate attribute and rank mobilities of all the Dynamic Middle nations along many interaction indicators to more than two points in time.

All this can be done only through serious scholarly research into the problems in this area. I shall conclude

this study, therefore, with the next section, where I attempt to suggest the need for further research to clarify and strengthen Galtung's model and thereby hope to make it more useful for policy formulation in the important area of international development.

8.4 Suggestions for Further Research

Galtung's theory, as understood and presented in this study, helps a great deal in conceptualizing and empiricizing the idea of international development. It cannot, however, explain why the international system does or does not develop, neither can it explain how to develop the system. The theory cannot explain why the contemporary highly feudal international system does not develop and how to develop it beyond the tautological explanation that feudal systems do not develop because they tend to remain feudal and the insufficient prescription that in order to develop such systems we have to raise the level of the structural fatigue in the system. The reason for this, of course, is that the theory as it stands is a static theory and not a dynamic theory. Van Den Bergh, in a critical review of the theory, put it plainly when he says: "The most fundamental objection ... against Galtung's approach to theorizing is the static character of his models, which prevents him from developing explanatory theories. Though he is aware of the need to explain processes over time and though he introduces distinctions between stages and phases, the paradigm he implicitly accepts and the methodology he uses

prevent him from explaining why and how stages and phases succeed one another."¹⁶

There is clearly the urgent need for a causal explanation of the relationship between rank-concordance and interaction-dependence, if the theory is to be useful in policy formulation in international development. We need to adopt the "historical" or the "developmental" approach to apply Galtung's static model to a series of time points in order to come to some understanding about the explanatory implication of the theory. Only a dynamic model will tell us whether from historical experiences decreasing interaction-dependence leads to, that is precedes, increasing rank-concordance.

Therefore, when Galtung suggests that in order to develop the international system the initial efforts should be directed to decreasing interaction-dependence of the Periphery on the Centre with the expectation that decrease in rank-concordance will follow, this suggestion, Galtung's proposed developmental strategies notwithstanding, should be viewed more as a suggestion for future policy research. It is only through such research that we can pin down what Galtung and others mean by the dynamic element of structural fatigue. Through such research we might be able to locate where the fatigue sets in in the structure of the system. We might know, through such research endeavours, whether the

16.

Godfried Van Benthem Van Den Bergh, "Theory or Taxonomy? Some critical notes on Johan Galtung's 'A Structural Theory of Imperialism'," Journal of Peace Research, IX, (1972), 77-85

structural fatigue is located in the relations between nations or within nations. If the fatigue sets in within nations, we might, through identifying the nations which have experienced high structural fatigue, study the dynamics of high structural fatigue. The specific international conditions which encourage the development of structural fatigue could be known only through such research.

There are certain considerations which must enter further research based on Galtung's model. The imprecise categories of Centre and Periphery should be disaggregated into meaningful subcategories to make them more useful in the analysis of the developmental problem. For example, we should distinguish between nations in the Periphery which can grow at high rates on their own (for instance, the oil producing nations); those that can grow at moderate rates but only with the help of aid; and those whose growths are questionable even with a large infusion of aid (for instance, the UN designated sixteen poorest nations).¹⁷ The volume of aid flow, from both the Centre and the rich Periphery nations, presumably relates to how much attributes will be distributed and this in turn relates to which nations control the scarcest of the attribute values.

The concept growth also will have to be looked at again. The crucial question is: how much growth is tolerable, all things considered, principally among them environmental

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See section 5.15 for a listing of these nations.

desecration? With reference to growth, we have to face this old question anew: is it true that some, or all, of the Periphery nations suffer from "blemishes" and inefficiency in their indigenous cultures and so cannot grow or is it that these nations cannot grow because of exploitation. Or in fact, is it that where such blemishes and inefficiencies may exist exploitation operates at the maximum thus making difficult situations more difficult? The "exploitation connection" which Galtung establishes between the Centre in the Periphery and the centre in the Centre, as plausible as it may seem, deserves a thorough investigation.

There is the other side of the coin as well to be considered. Are we justified in believing that revolutionary politics at the international level is a viable policy for all Periphery nations? The contrasting cases of Japan on the one hand and Cuba and China on the other should alert us to the fact that revolutionary politics even if a viable policy, need not be necessary or suitable for all nations. We must do some more research in terms of distinguishing the domestic and the international factors which make revolutionary politics viable for some nations and not for others. Another important question which must be considered in future research in international development is: What specific international conditions make for effective isolation of the Periphery? For example, in what ways are effective and rational isolation of the Periphery related to the amount and the scarcity of attribute value? Also, assuming for a moment that isolation of the

Periphery as a consequence of revolutionary politics is a viable policy, how do we make the Periphery nations realize this? This question relates very much to the internal conditions in Periphery nations conducive to these nations embracing revolutionary politics.

Further research to study the important questions raised here could be done, as data for both past and future systems become available. We should not, however, wait on the compilation of past and future data. Some of the issues raised above can be studied with the aid of existing data. Until this is done, no matter how skeptical one may be about the evolutionary or revolutionary approach to international development, all one can honestly say at this stage is that we do not know enough to make a confident policy choice. Our knowledge about possible paths of transition and, in fact, about the very notion of international development, will remain, I repeat, uncertain until further research is done.

Galtung's theory, as it stands now, could benefit from further elaborations and refinements to make it more directly relatable to the general idea of the development of human societies. The egalitarian idea of development must be enlarged to cover global, international as well as domestic societies; the indicators normally suggested by the theory must be revised to reflect more the idea of higher quality of life as opposed to infinite growth; and the methods of analysis employed here in this study must be worked on further to make them less crude.

I have defined international development as the process of making the nations of the world equal in their attributes and interactions relations, and I have kept the empirical analysis in this study to the international level. It is clear that we can have a highly developed international system with its constituent nations displaying high domestic inequalities.¹⁸ This would then give us a highly underdeveloped global system. I have kept the study at the international level mainly because we hear a lot about international development and not enough about domestic development and also because the data base needed for a study of this kind is more readily available for inter-nation than for intra-nation comparisons. These limitations do not make domestic development any less important than international development. In fact, the full implications of Galtung's theory cover both domestic and international equality. The theory deals with the opportunities which govern the realization of full human potential and therefore considers both the domestic and the international factors which make up those opportunities. As the data become available, the approach and the methods I use here lend themselves equally well to including the important domestic measurements for a full testing of the theory.

The justifications for the indicators selected for the study were discussed in section 1.2. I did express some doubts about the appropriateness of some of the indicators. I discussed in particular the problems of confidence in the usage of GNP per capita as an appropriate indicator. I

¹⁸ This point was discussed earlier in section 4.5.

selected it mainly because it was generally believed that there was no better indicator of a nation's capacity to bestow comfort and well-being on its citizens. However, since the 1972 Stockholm Environmental Conference,¹⁹ the publications of Jay Forrester World Dynamics,²⁰ Dennis Meadows et al. Limits to Growth²¹ and William Nordhaus and James Tobin, "Is Growth Obsolete?"²² our conceptions of growth in economic life are undergoing some radical changes. Nordhaus and Tobin have suggested the revision of GNP to include the side effects of economic activity so that in its revised form GNP will consider both the "goods" and the "bads" of economic growth. They call this new measure a Measure of Economic Welfare (MEW). Paul Samuelson had adopted this idea in his latest edition of Economics and has called the revised GNP, Net Economic Welfare or NEW. Any future research in international development must consider including the MEW or the NEW as appropriate indicators.

The indicator Steel Consumption per capita needs to be looked at again. It is essentially a good indicator but the recent concerns about environmental sanctity, depletion of

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For some of the views expressed at the Environmental Conference, see Development Digest X, No. 2 (April, 1972), 3-44.

20

Jay Forrester, World Dynamics (Cambridge, Mass.: Wright-Allen, 1971).

21

Dennis Meadows et al., Limits to Growth (New York: Universe Books, 1973).

22

William Nordhaus and James Tobin, "Is Growth Obsolete?" in National Bureau of Economic Research, Fiftieth Anniversary Colloquium V (New York: Columbia University Press, 1972).

irreplaceable minerals and the growing concern about life-devaluing effects of unrestrained economic growth should alert us to considering its usefulness in studying international development. With respect to the Periphery nations, steel consumption may be a misleading indicator of development (except perhaps in the study of domestic development) in that a large part of the steel consumed is imported from the Centre nations, and so creating balance of payments deficits which make the Periphery nations even more dependent on the Centre nations. Therefore, perhaps, steel consumption as a measure of wealth should be replaced by steel production.

The recent Saharan famine should make us pause in using as a measure of wealth the smallness of a nation's agricultural production in its Gross Domestic Product. Agriculture continues to be important in all nations. It is "less important" in Centre nations only in comparison to these nations' industrial production; that is, the value of agricultural production is unimportant only in the accounting sense but not in the sense of human welfare. This indicator poses a problem. It is true that its size inversely relates to wealth and true also that its size is important in the poor nations in a more fundamental human welfare sense. More thought should be given to this indicator in the study of international development. Until the uncertainties are cleared up, perhaps, the percentage of GDP originating in agriculture indicator is better dropped from future studies in international development.

The Energy Consumption per capita indicator is perhaps the best wealth indicator, since it genuinely represents human welfare in a basic sense.²³ However, even Energy production and consumption have their ill-effects on society and on the environment. Therefore, we must make some adjustments even in this indicator to cater for the ill-effects of its contribution to human economic welfare.

Do we need five economic indicators to express the idea of economic welfare, or will a single properly constructed indicator do? The NEW indicator suggested by Samuelson properly constructed could take into account the good and bad effects of all the five wealth indicators used in this study. Therefore, instead of using five or more indicators some research effort should be devoted to constructing the NEW to represent, in a universal sense, a single indicator of net economic welfare.

The Education and Health indicators look acceptable as they stand. But, perhaps some efforts should be invested to combine the Education as well as the Health indicators into two single indicators, similar to the NEW indicator. Thus, we can have a universal education indicator, net awareness welfare, NAW, expressing the net effects of the education indicators. The equivalent for Health indicators could be the net health welfare, NHW.

The NEW, NAW and NHW could be looked upon as expressing collectively a set of three developmental indicators of human

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There is no doubt about that fact that the survival of all human beings and all societies depend and have depended on their ability to transform natural resources into energy.

welfare, DIHW. These composite dimensions of human welfare could be constructed with reference to domestic distribution in each country, so that when we come to rank nations for comparison we have not only the absolute values corrected for good and bad effects but also corrected for the extent to which these values are equally distributed in the individual nations being compared.

Similar consideration ought to be given to the interaction indicators. Perhaps we can combine the Trade Composition Index and the Partner Concentration Index into a single Economic Dependence Indicator, EDI. Also, we can consider the Structure of Diplomatic Representation indicator together with others such as heads of states and/or high ministerial visits and possibly combine them into a single Political Dependence Indicator, PDI.

For reasons of parsimony in the analysis of the equality gap, the more or less independent combined indicator suggested above will enable us to study different attributes and interaction indicators instead of studying several symptoms of the same problem. If we can combine the indicators as suggested above, it will help a long way toward making the egalitarian interpretation of human development come into its own.

This brings us now to the consideration of the analytical methods used in this study. My intention was to study the changes of the nations with respect to their "relative positions" and for this purpose I used ranks in some instances, such as in the computation of RHO, instead of absolute values. Through using the rank-positions of nations I neglect the intervals

between the nations' absolute values for 1960 and 1970. Too much information is lost this way. It will be advisable, in future extensions of this study, to use both absolute values of the nations as well as their rank-positions in order to compare the two results to see which of the two provides better information on international development.

The Spearman's RHO was used instead of the Kendall's W. This was done principally because of the many empty cells for the Periphery nations. As more and more of these empty cells are filled, future research should shift from the use of Spearman's RHO to the use of Kendall's W in order to get a better empirical representation of the data of rank-concordance.

The SIM inequality measure is basically a good measure but perhaps, we should in future research, consider the use of the Z score as well. The Z score is easy to interpret and it can throw more light on the SIM values.²⁴ We can also construct Z scores for the various interaction indicators. This will help very much in interpreting the changes in the interaction intensities.

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Perhaps we can substitute the average Z scores for the average absolute values in the SIM formula. So that instead of

$$SIM = \frac{V_c - V_p}{\bar{V}}$$

we have,

$$SIM = \frac{\bar{Z}_c - \bar{Z}_p}{\bar{Z}}$$

From what has been said in this chapter, I conclude by suggesting the following as the Agenda for future research in this field.

1. Constructing better and fewer indicators of development to reflect much more accurately the idea of higher equality of life.
2. Refining the analytic techniques for studying the inequality gap to make them more precise in determining the size and the changes in the gap.
3. Extending the methods used here to study global, regional and domestic systems in order to give the idea of development a coherent and unifying interpretation.
4. Developing the "historical" or the "developmental" perspective of the study of international development so that we can inform policy in this field much more confidently.

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Appendix 1

Geographic Listing of Nations

AFRICA

<u>Country Name</u>	<u>Country Code</u>
1. Mali	MLI
2. Senegal	SEN
3. Dahomey	DAH
4. Mauritania	MAU
5. Niger	NIR
6. Ivory Coast	IVC
7. Guinea	GUI
8. Upper Volta	UPP
9. Liberia	LBR
10. Sierra Leone	SIE
11. Ghana	GHA
12. Togoland	TOG
13. Cameroon	CAO
14. Nigeria	NIG
15. Central Africa Republic	CEN
16. Chad	CHA
17. Zaire	COP
18. Uganda	UGA
19. Kenya	KEN
20. Tanzania	TAZ
21. Burundi	BNJ
22. Rwanda	RWA
23. Somalia	SOM
24. Ethiopia	ETH
25. Zambia	ZAM
26. Malawi	MAW
27. South Africa	SAF
28. Malagasy	MAG
29. Morocco	MOR
30. Algeria	ALG
31. Tunisia	TUN
32. Libya	LYB
33. Sudan	SUD
34. United Arab Republic	UAR

ASIA

35. Iraq	IRQ
36. Iran	IRN
37. Syria	SYR

Appendix 1 cont'd

	<u>Country Name</u>	<u>Country Code</u>
38.	Lebanon	LEB
39.	Jordan	JOR
40.	Israel	ISR
41.	Saudi Arabia	SAU
42.	Yemen	YEM
43.	Demo. Rep. of Yemen	SYE
44.	Afghanistan	AFG
45.	China	CHN
46.	Mongolia	MON
47.	Taiwan	CHT
48.	North Korea	KON
49.	South Korea	KOS
50.	India	IND
51.	Pakistan (including Bangladesh)	PAK
52.	Burma	BUR
53.	Ceylon	CEY
54.	Nepal	NEP
55.	Thailand	TAI
56.	Combodia	CAM
57.	Laos	LAO
58.	North Vietnam	VTN
59.	South Vietnam	VTS
60.	Malaysia	MAL
61.	Singapore	SIN
62.	Philippines	PHI
63.	Indonesia	INS

SOUTH AMERICA AND CARIBBEAN

64.	Cuba	CUB
65.	Haiti	HAI
66.	Dominican Republic	DOM
67.	Jamaca	JAM
68.	Trinidad and Tabago	TRI
69.	Mexico	MEX
70.	Guatemala	GUA
71.	Honduras	HON
72.	El Salador	ELS
73.	Nicaragua	NIC
74.	Costa Rica	COS
75.	Panama	PAN
76.	Colombia	COL
77.	Venezuala	VEN
78.	Ecuador	ECU
79.	Peru	PER
80.	Brazil	BRA

Appendix 1 cont'd

	<u>Country Name</u>	<u>Country Code</u>
81.	Bolivia	BOL
82.	Paraguay	PAR
83.	Chile	CHL
84.	Argentina	ARG
85.	Uruguay	URU

EUROPE

86.	United Kingdom	UNK
87.	Ireland	IRE
88.	Netherlands	NTH
89.	Belgium	BEL
90.	France	FRN
91.	Switzerland	SWZ
92.	Spain	SPN
93.	Portugal	POR
94.	West Germany	GMW
95.	East Germany	GME
96.	Poland	POL
97.	Austria	AUS
98.	Hungary	HUN
99.	Czechoslovakia	CZE
100.	Italy	ITA
101.	Albania	ALB
102.	Yugoslavia	YUG
103.	Greece	GRC
104.	Bulgaria	BUL
105.	Rumania	RUM
106.	Soviet Union	USR
107.	Finland	FIN
108.	Sweden	SWD
109.	Norway	NOR
110.	Denmark	DEN
111.	Turkey	TUR

OTHERS

112.	United States	USA
113.	Canada	CAN
114.	Japan	JAP
115.	Australia	AUL
116.	New Zealand	NEW

APPENDIX 2

Cosmetic Data*

*The first letters W, H or E stand for Wealth, Health or Education indicators respectively. The next three letters, e.g. AFG, are the code names of nations (see Appendix 1). The second and third columns contain the base and terminal values for the Wealth, Health or Education indicators; the fourth and fifth, the sixth and seventh, and eighth and ninth columns represent the second, third and fourth Wealth, Health and Education indicator' base and terminal values respectively. The figure 5 after the country name codes indicates that the base and terminal values of the fifth Wealth indicator are listed in the second and third columns, after the figure 5. Blank spaces represent missing data.

Appendix 2

HEALTH HEALTH EDUCATION COSMETIC DATA

WAFG1	1.0	1.02	5	4	42.9	89.7
WAFG5	15.0	27.0				
WAFG1	2050.0	2066.72	6680.73	38966.8	18634.84	
EAFG1	5.0	13.87	12.0	38.23	5.0	6.04
WALB1	2.1	35.02	5			19.6
WALB5	505.0	623.0				
HALB1						
EALB1	64.0	96.52	2	158.43	5500.0	1382.24
WALG1	52.0	53.02		834.63	46.4	52.04
WALG5	257.0	462.0				4
HALG1	2350.0	1576.62	358.93	6305.6	6401.64	
EALG1	27.0	44.62		87.03	23.1	11.84
WARG1	76.0	135.02		31.0	15.0	10.64
WARG5	1048.0	1608.0				
HARG1	2820.0	3320.02	142.03	660.0	348.04	56.8
EARG1	71.0	78.66	875.0	1185.03	157.5	182.04
WAUL1	346.0	449.02	30.0	31.83	12.0	1434.0
WAUL5	3918.0	5425.0				2496.0
WCQS1			18.0	21.33	24.0	25.14
WCQS5	215.0	344.0				347.0
HCOS1	2450.0	2096.72	204.5	3249.03	2600.0	1807.04
ECOS1	71.0	82.22	402.7	770.83	93.8	101.04
WCUR1	32.0	46.02	5			4
WCUR5	847.0	1059.0				
HCUB1	2730.0	2354.82	330.0	185.63	1000.0	1168.94
ECUB1	64.0	81.82	292.0	395.83		4
WCZ1	476.0	611.02	63.0	61.03	16.0	11.04
WCZ5	4755.0	6310.0				1246.0
HCZE1	3086.0	2999.72	100.0	96.73	620.0	466.74
ECZE1	74.0	76.72	649.0	1022.23	270.7	252.04
WDAN1			5.0	6803	40.0	440.04
WDAN5	40.0	32.0				
HUAN1			710.0	20.03	47000.0	32024.04
EDAN1	14.0	23.72	5	2.1		1.04
WDEN1	259.0	459.02	31.7	24.03	14.0	8.04
WDEN5	2829.0	5924.0				
HDEN1	3370.0	3140.02	110.9	107.63	612.4	636.24
EDEN1	42.5	43.62	618.0	1628.03	342.9	304.04
WDON1	18.7	22.02	20.0	27.03	27.0	20.74
WDON5	158.0	224.0				
HDOA1	2060.0	2080.02	400.0	301.13		4
EDOA1	742.0	71.62	114.0	460.23	27.0	32.64

WECU1	0.7	29.02			3		4	200.0	247.0
WECU5	186.0	293.0							
HECU1	1850.0	1850.02	488.3		471.33	2600.0	2785.64	100.0	90.0
HAUL1	3140.0	5228.92	90.0		32.23	460.0	845.64	20.2	17.9
EAUL1	86.0	96.02	875.0		1513.65	582.1	321.04	222.0	211.0
KAUS1	268.0	390.02	41.0		57.75	11.0	6.64	797.0	1728.0
KAUS5	2155.0	3419.0							
HAUS1	2970.0	2950.02	100.0		92.03	695.0	540.04	37.5	25.9
EAUS1	78.0	84.72	547.0		760.5	268.4	274.74	279.0	273.0
WHEL1	275.0	477.02	55.0		55.93	6.0	4.94	1126.0	2406.0
WHEL5	3956.0	5929.0							
HDEL1	3040.0	3153.32	129.4		124.03	800.6	607.24	31.2	20.5
EDL1			565.0		699.33	281.4	252.84	289.0	373.0
WBOL1	14.0	14.02	25.0		29.43	29.0	18.94	90.0	194.0
WBOL5	152.0	211.0							
HDEL1	1830.0	2641.42	280.0		522.03	3531.0	2301.04	83.6	71.3
EBOL1	40.0	62.52	314.0		512.83	35.1	42.04	32.3	349.4
WBRA1	41.0	64.02	19.0		21.03	18.0	13.04	196.0	353.8
WBRA5	337.0	472.0							
HBR1	2780.0	2480.02	299.2		291.63	2067.8	1904.74		
EBRA1	47.0	95.02	155.0		560.33	54.0	34.04	66.0	60.0
WBUI1	0.0	2.02			3			36.9	55.7
WBUI5	11.0	9.0							
HBU1	2807.6	1704.82			3	54545.5	6000.04		
EBUI1	11.1	19.92	1.0		15.03				
WBUI1	110.0	275.02	46.0		49.03	32.0	23.04	599.0	1059.0
WBUL5	1298.0	4020.0							
HBU1	2930.0	3163.22	184.5		129.03	729.4	622.84	45.1	27.3
EBUI1	589.0	101.62	777.0		1150.83	200.8	193.94	182.0	270.0
WBUI1	6.3	3.02	11.4		9.45	29.8	35.84	62.0	75.3
WBUI5	53.0	65.0							
HBU1	2170.0	1970.02	1400.0		1101.33	15000.0	6809.14		
EBUI1			77.7		170.63	12.0	6.74	6.0	15.0
WCAU1			15.5		18.03	42.5	40.04	120.02	110.6
WCAU5	35.0	60.0							
HCAU1			1800.0		903.03	95000.0	13760.04		
ECAU1	30.5	55.52	15.0		192.13	6.0	26.04	6.0	189.8
WCAU1	308.0	524.02	50.0		20.73	6.0	4.94	1670.0	3214.0
WCAU5	5663.0	9072.0							
HCAU1	3020.0	3164.42	90.9		99.83	900.0	675.04	27.3	18.4
ECAU1	88.0	88.02	921.0		2790.63	231.0	200.04	452.0	742.0
WCAU1			20.0		20.03	39.5	54.54	105.0	155.0
WCAU5	63.0	92.0							

HCAU1	2470.0	2070.02		5	59595.6	25551.64		5.0	40.8
ECAU1	31.0	51.22		3	1.9	5.04		81.5	146.5
WCEAS	31.0	61.0		3					
HCEAT				4					
ECEN1	18.0	40.52		3	0.4	0.74		10.0	30.0
WCEY1	9.0	8.02		3	45.0	35.04		134.0	165.1
WCEYS	110.0	156.0							
HCEY1	2080.0	2224.42		3	332.25	4500.0	5608.94	56.8	45.8
ECEN1	76.0	71.22		3	189.85	37.0	49.04	37.0	14.6
WCHAI				4				52.9	69.7
WCHAS	10.0	23.0							
HCHAI				3	706.15	89000.0	63968.04		
ECEN1	8.0	19.22		3	0.3	0.24		2.0	16.0
WCHL1	70.0	81.02		3	40.03	11.0	1.04	245.0	613.0
WCHLS	839.0	1208.0							
HCHL1	2410.0	2600.02		3	288.75	1700.0	2525.64	125.1	83.2
ECEN1	69.0	86.62		3	624.85	127.1	62.24	98.4	143.0
WCHV1	27.0	28.02		4					
WCHRS									
HCHV1	1790.0	2143.22		3					
ECEN1				4				11.6	20.0
WCHT1	27.0	103.02		3	24.05	28.0	16.04	138.0	384.0
WCHTS	513.0	925.0							
HCHT1	2350.0	2650.02		3	2051.43	1500.0	5540.04	50.5	16.1
ECEN1	73.0	79.82		4	1315.03		4	43.0	109.7
WCOL1	27.0	32.02		3	21.93	32.0	27.64	225.0	358.0
WCOLS	516.0	578.0							
HCOL1	2170.0	2243.22		3	458.25	2400.0	2195.44	99.8	66.0
ECEN1	45.0	63.72		3	371.15	56.8	51.04	139.0	105.0
WCOPI	5.0	9.02		3	21.05	16.0	21.04	57.5	102.5
WCOPS	84.0	73.0							
HCOPI	2460.0	1760.02		3	287.25	6500.0	50458.94		
ECEN1	46.0	68.92		3	61.55	1.9	0.94	2.6	4.0
WELSI				3	416.45	57.7	41.04	41.0	279.0
WELBS	128.0	79.0		3	21.65	32.0	25.34	219.0	271.0
HELSI	2030.0	1780.02		3	477.85	5400.0	5754.44	76.3	68.9
ELLSI	44.0	54.02		3	217.25	45.0	105.04	89.0	115.0
WETH1	1.3	3.02		3	10.55	65.5	50.74	35.5	68.5
WETHS	8.0	32.0							
HETH1	2110.0	2176.72		3	2131.45	90918.8	55715.84		
ELTH1	4.0	9.82		3	10.15	2.0	1.04	4.2	6.0

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EH001	38.0	56.82	85.0	157.23	24.0	14.04	68.0	57.0
EH001	209.0	298.02	59.0	45.63	25.0	16.04	697.5	1500.6
EH005	2080.0	3147.0						
EH001	3020.0	3197.82	190.0	120.03	647.1	518.14	44.6	35.8
EH001	78.0	75.42	294.0	561.63	145.1	210.04	272.0	245.0
EH001	11.0	12.02	15.0	15.03	47.0	44.04	70.0	91.1
EH005	140.0	191.0						
EH001	2020.0	1931.12	2111.9	1230.53	4937.8	4282.04	145.9	139.0
EH001	31.0	51.02	150.0	204.03	11.0	14.34	5.0	22.0
EH001	3.0	4.02	10.0	16.03	54.0	46.04	70.0	107.0
EH005	134.0	111.0						
EH001	1980.0	1596.82	1503.0	1506.03	4800.0	2490.14		
EH001	37.0	47.02	48.0	229.33	10.3	3.54	7.0	144.0
EH001	56.0	124.02	26.0	30.53	22.0	14.24	616.0	1248.0
EH005	1844.0	2993.0						
EH001	3490.0	3440.02	70.7	77.83	912.1	940.64	29.3	19.2
EH001	70.0	85.32	439.0	990.03	224.3	235.04	174.0	214.0
EH001	25.0	43.02	26.0	34.93	27.0	18.14	179.0	341.0
EH005	304.0	959.0						
EH001	2050.0	2018.72	1100.0	744.23	5800.0	3241.14		
EH001	27.0	47.02	92.0	243.03	15.8	8.04	45.0	105.0
EH001	53.0	48.02	47.0	42.63	17.0	19.24	192.0	305.3
EH005	531.0	597.9						
EH001	2100.0	1990.02	741.0	521.03	5600.0	5267.84	27.2	41.8
EH001	44.0	50.22	177.0	592.03		4	13.0	180.0
EH001	127.0	227.02	19.0	52.03	9.0	5.04	859.0	1636.0
EH005	1243.0	2278.0						
EH001	2810.0	2945.32	150.0	171.03	400.0	400.04	31.0	22.9
EH001	77.5	82.52	730.0	1854.83	209.4	200.04	194.0	237.8
EH001	170.0	393.02	54.0	55.03	15.0	9.04	644.0	1587.0
EH005	1135.0	2688.0						
EH001	2730.0	2952.22	116.4	94.23	706.0	470.24	43.9	29.2
EH001	66.0	78.52	580.0	894.43	96.3	154.44	162.0	218.0
EH001					4.0	29.24	167.0	309.0
EH005	69.0	227.0						
EH001	2610.0	2310.02	545.0	454.63	2830.4	15006.04		
EH001	26.0	45.02	40.0	67.03	2.2	10.04	17.0	17.0
EH001			22.0	25.33	11.0	7.74	563.0	545.0
EH005	521.4	1155.0						
EH001	2257.6	2295.22	240.0	261.03	4165.2	2817.04	50.6	32.2
EH001	62.0	70.02	82.0	147.03	62.8	66.04	48.0	242.5
EH001	209.0	276.02	36.0	55.53	13.0	7.04	421.0	1658.0
EH005	1166.0	3210.0						

EMH01	38.0	56.82	80.0	157.23	24.0	14.04	68.0	57.0
EMH01	209.0	298.02	59.0	45.03	25.0	18.04	697.5	1500.6
EMH05	2080.0	3147.0						
EMH01	3020.0	3197.82	150.0	120.03	647.1	518.14	47.6	35.8
EMH01	78.0	75.52	294.0	561.63	195.1	214.04	222.0	245.0
WIND1	11.0	12.02	15.0	15.03	47.0	44.84	70.0	91.1
WIND5	140.0	191.0						
HEM01	2020.0	1931.12	2111.9	1230.53	4937.4	4282.04	145.9	139.0
EIAD1	31.0	51.02	150.0	284.03	11.0	14.34	5.0	22.0
WINS1	3.0	0.02	10.0	16.03	54.0	46.04	76.0	107.0
WIFS5	134.0	111.0						
WIRS1	1940.0	1596.02	1500.0	1507.03	48009.0	24906.14		
EINS1	37.0	47.02	4.0	229.33	10.3	3.54	7.0	144.0
WIRE1	56.0	124.02	26.0	30.53	22.0	10.24	616.0	1248.0
WIR5	1844.0	2993.0						
HIRE1	3499.0	3440.02	70.7	77.83	912.1	940.64	29.3	19.2
EIRE1	74.0	85.32	439.0	990.83	224.3	233.04	174.0	214.0
WIRN1	25.0	43.02	26.0	34.93	27.0	18.14	179.0	341.0
WIRN5	344.0	939.0						
HIRN1	2050.0	2016.72	1100.0	744.23	3800.0	3241.14		
EIRN1	27.0	47.02	92.0	245.63	15.8	8.04	45.0	105.0
WIRN1	33.0	48.02	47.0	42.63	17.0	19.24	192.0	305.3
WIRN5	531.0	597.0						
HIRG1	2140.0	1970.02	711.0	521.03	5600.0	5267.84	27.2	11.8
EIRG1	44.0	50.22	177.0	552.03		4	13.0	180.0
WIRG1	127.0	227.02	19.0	32.03	9.0	5.04	859.0	1636.0
WIRN5	1243.0	2278.0						
HISR1	2818.0	2943.32	150.0	171.03	400.0	400.04	31.0	22.9
EISR1	77.5	82.52	738.0	1854.83	209.4	200.04	194.0	237.8
WITAI	170.0	393.02	34.0	35.03	13.0	9.04	644.0	1587.0
WITAS	1155.0	2681.0						
HITAI	2730.0	2952.22	118.4	91.23	746.0	470.24	43.9	29.2
EITAI	66.0	78.52	380.0	899.43	96.3	134.44	162.0	218.0
WIVC1								
WIVC5	69.0	227.0						
HIVC1	2610.0	2310.02	595.9	454.63	28534.4	1006.64		
EIVC1	26.0	46.02	10.0	87.63	2.2	10.04	17.0	17.0
WJAM1			22.0	25.33	11.0	7.74	353.0	545.0
WJAM5	521.0	1135.0						
HJAM1	2257.6	2295.22	240.0	261.03	4165.2	2817.04	50.6	32.2
EJAM1	62.0	70.02	82.0	147.63	62.8	66.44	88.0	242.5
WJAP1	209.0	276.02	35.0	35.53	13.0	7.64	421.0	1658.0
WJAP5	1166.0	3210.0						

HJAP1	2230.0	2474.42	116.3	79.03	927.1	898.04	50.7	13.1
EJAP1	91.0	92.32	162.0	1097.03	405.4	511.04	133.0	248.0
WJOK1			0.0	15.03	45.0	8.04	168.0	269.1
WJON5	191.0	295.0						
HJORT	2250.0	2513.22	570.0	560.03	5800.0	2483.84	53.5	24.7
EJORT	53.0	32.02	162.0	202.03	18.0	24.04	38.0	65.0
WKEH1	74.0	9.02	11.5	14.03	42.7	31.04	76.0	130.0
WKEN5	140.0	153.0						
HKEH1	1850.0	2500.02	741.5	753.93	9839.7	8237.14	52.6	55.3
EXEH1	30.0	41.22	4.0	60.23	14.0	14.04	9.0	64.7
WKEH1	82.0	112.02					106.5	294.6
WKEH5								
HKEH1								
EK H1								
WKUS1	8.7	53.02	37.0	28.03	37.0	28.04	146.0	241.0
WKUS5	261.0	796.0						
HKUS1								
EKUS1	65.0	77.52	2261.0	1875.43	3133.6	962.84		
WLAU1			304.6	621.45	62.4	65.64	32.0	126.0
WLAU5	22.0	62.0					60.0	74.4
HLAU1								
ELA01	13.0	28.02	2300.0	1414.43	99949.0	7262.44		
WEH01	13.5	50.02	11.0	21.03	1.2	3.64	10.4	17.0
WEH05	81.0	295.0	24.0	34.03	28.0	18.04	114.5	267.5
HLEH1	2430.0	2146.82	940.0	314.23	17127.2	5855.44		
ELH01	21.0	51.02	72.0	123.23	0.2	6.04		
WLEH1	107.0	99.02	15.0	15.03	14.0	9.04	77.0	132.0
WLEH5	520.0	719.0					551.0	551.0
HLEH1	2440.0	2306.82	260.0	231.63	1100.0	1516.84		
ELEH1	49.0	76.62	506.0	1567.23			621.0	215.0
WLYH1	188.0	138.02	14.7	88.73	11.0	1.04		
WLYH5	261.0	646.0						
HLYH1	1850.0	2700.02	320.0	256.03	5800.0	2654.04		
ELYH1	37.0	68.32	55.0	180.83	7.0	25.54	60.4	44.0
WMAG1	6.7	10.02	10.5	13.03	31.0	31.04	95.0	124.0
WMAG5	37.0	67.0						
HMAG1	2210.0	2510.02	394.5	339.53	8707.4	10110.24	73.8	120.8
EMAG1	38.0	45.62	21.0	64.83	9.1	8.04	15.0	80.0
WMAL1	28.0	56.02	14.0	20.83	54.0	20.74	251.0	362.1
WMAL5	241.0	467.0						
HMAL1			290.0	275.03	6400.0	3857.04	68.9	39.3
EMAL1	57.0	62.02	37.0	177.03	67.0	74.84	37.0	42.0
WMAL1							76.4	158.2

WMAUS	18.0	149.0	2	5600.0	5247.05	32555.4	25909.04			
HMAUI								4	16.0	47.0
EMAUI									46.1	63.3
WMAWI	0.0	2.02		6.0	9.83	55.0	27.54			
HMAWS	22.7	46.0	2							
HMAWI								4		
EMAWI	24.0	22.82								
WMEX1	50.0	82.02		30.0	24.03	19.0	11.04		315.0	632.0
WMEX5	915.0	1205.0								
HMEXI	2610.0	2626.62		1900.0	211.23	1700.0	1880.04		74.2	68.5
EREXI	69.0	71.52	2	214.0	455.23	74.7	157.54	4	95.0	276.0
WMLI1									63.0	93.0
WMLI5	15.0	21.0								
HMLI1			2	1100.0	1790.03	7877.8	56555.64			
EMLI1	6.0	18.32	3			1.0	0.54		2.0	12.0
WMONI			2					4	415.0	495.0
WMONS										
HMONI			2	116.4	108.03	2400.0	594.04			
EMONI	47.0	77.02				103.0	103.04		20.0	129.0
WMORI	14.0	22.02		22.0	22.03	32.0	52.04		135.0	215.0
WMORS	139.0	194.0								
HMONI	2210.0	2076.72		680.0	680.03	9400.0	13573.84			
EMONI	25.0	53.82	2	40.0	83.83	22.0	8.84		46.0	60.0
WNEPI				14.0	9.03	65.5	67.04		38.4	86.2
WNEPS	4.0	14.0								
HNEPI			2	8100.0	6602.23	72000.0	46550.04			
ENEPI	15.5	20.52		50.0	133.23	0.8	3.04		1.0	5.0
WNEAI	203.0	326.02	3					4	1429.0	2004.0
WNEAS	2029.0	2649.0								
HNEAI	3500.0	5300.02		90.7	98.03	700.0	633.04		22.6	16.7
ENEAI	86.0	86.02		837.0	1982.03	343.8	376.04		245.0	241.0
WNICI			2	12.0	18.33	31.0	27.34		254.0	387.0
WNICS	189.0	374.0								
HNICI	2420.0	2136.82		570.0	417.63	2800.0	1546.94		70.2	45.4
ENICI	44.0	54.02		102.0	580.23	64.1	45.34		53.0	55.0
WNIGI	5.0	12.02		6.0	12.73	60.0	46.74		61.1	93.3
WNIGS	29.0	45.0								
HNIGI	2450.0	2111.72		2100.0	1808.63	32000.0	22340.04			
ENIGI	21.0	20.22	2	5.0	18.63	8.2	6.24		4.0	23.0
WNIMI			2	6.0	6.03	59.0	59.04		72.0	92.0
WNIMS	5.0	27.0								
HNIMI			2	2200.0	1870.03	103000.0	51518.94			
ENIMI	3.0	9.22	3			0.4	0.54		0.9	25.0

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WNOK1	272.0	497.02	29.0	30.03	9.0	6.04	1092.0	2550.0
WNOK5	2740.0	4814.0						
HNOK1	2930.0	2896.72	109.1	108.93	924.1	705.14	18.5	13.3
ENOK1	83.0	88.62	258.0	1503.03	384.1	383.04	285.0	307.0
WNTH1	278.0	435.06		3	7.0	7.31	890.0	2150.0
WNTH5	2691.0	5073.0						
HNTH1	2950.0	5038.92	134.4	206.43	892.4	816.84	16.5	12.4
ENTH1	40.0	79.32	923.0	1668.83	271.4	316.24	272.0	320.9
WPAK1	5.0	6.02	10.0	11.43	50.0	41.44	78.0	134.7
WPAK5	68.0	98.0						
HPAK1	2090.0	2378.96	7000.0	1462.43	8670.0	4520.04	150.0	134.0
EPAK1	28.0	34.72	161.0	350.13	7.0	5.94	3.0	14.0
WPAK1	0.0	49.02	14.0	117.83	23.0	23.04	349.0	629.0
WPAK5	616.0	1434.02						
HPAK1	2310.0	2605.52	250.0	314.43	3200.0	1634.54	57.0	38.1
EPAK1	66.0	76.02	379.0	821.53	104.4	108.04	159.0	157.0
WPAK1	7.0	2.02	10.0	19.03	36.0	32.0	149.0	230.0
WPAK5	87.4	145.0						
HPAK1	2560.0	2843.22	430.0	476.83	1800.0	1561.24		
EPAK1			196.0	350.53	37.4	41.04	83.9	71.0
WPEK1	17.0	34.02		3		4	191.0	363.0
WPEK5	494.0	609.0						
HPER1	2230.0	2287.12	470.0	400.23	2100.0	1894.14	92.1	64.1
EPER1	59.0	89.02	509.0	850.43	86.2	122.04	101.0	134.0
WPHI1	16.0	35.02	18.0	19.03	27.0	30.04	226.0	342.0
WPHI5	143.0	279.0						
HPHI1	1840.0	2006.62	810.0	823.33	6334.2	10229.64	84.6	67.2
EPHI1	66.0	95.12	992.0	2218.03	18.0	33.04	22.0	50.8
WPOL1	211.0	356.02	47.0	52.03	26.0	17.04	860.5	1095.5
WPOL5	3997.0	4223.0						
HPOL1	3350.0	5000.02	150.0	131.03	1100.0	659.04	56.6	33.2
EPOL1	92.0	93.22	440.0	1072.53	143.4	209.04	117.0	173.0
WPOR1	43.0	93.02	31.0	55.03	23.0	15.04	270.0	610.0
WPOR5	379.0	687.0						
HPOR1	2550.0	2750.02	180.0	177.03	1374.6	1181.04	77.5	58.0
EPOR1	67.0	74.12	275.0	479.23	82.7	65.94	95.0	147.0
WRUM1	129.0	317.02	44.0	58.43	33.0	23.04	152.5	805.3
WRUM5	1404.0	2868.0						
HRUM1	3040.0	2990.02	140.0	120.03	788.0	709.04	75.7	49.4
ERUM1	72.0	88.22	391.0	830.63	160.1	169.04	109.0	152.0
WRWA1	0.0	2.02		3		4	17.3	82.2
WRWA5	11.0	10.0						
HRWA1	2837.6	1524.82		3	54545.5	5793.04		

HSPR1	2810.0	2750.02	299.8	197.43	1000.0	693.84	42.2	27.9
ESPR1	44.9	96.32	280.0	576.73	70.0	104.04	90.0	228.1
WSUP1	8.7	7.02	10.0	11.03	36.0	36.04	91.0	117.4
WSUB5	51.0	115.0						
HSUP1	2030.0	2130.02	1000.0	1080.03	35120.4	15119.34		
FSUP1	11.0	18.12	34.0	85.53	4.4	8.04	0.9	14.8
WSUP1	545.0	735.02	51.0	20.03	7.0	4.04	1682.0	3695.0
WSUP5	3091.0	6311.0						
HSUP1	2990.0	2750.02	60.7	65.73	1056.9	736.34	16.6	11.2
ESUP1	88.5	95.42	500.0	1700.03	3470.7	534.04		
WSUP1	290.0	474.02					1429.0	2895.0
WSUP5	1938.0	3353.0						
HSUP1	5220.0	2939.02	82.4	88.763	765.0	613.94	21.1	15.1
ESUP1	162.5	77.52	390.0	676.83	373.9	375.04	270.0	295.0
WSUP1							193.9	100.7
WSUP5								
HSUP1			1364.1	1041.23	11172.3	10895.84		
ESUP1	12.0	26.22						
WSUP1	23.0	44.02	19.0	18.15	21.0	26.04	167.9	284.7
WSUP5	261.0	483.0						
HSUP1	2340.0	2523.22	927.7	1005.03	4531.9	3851.04	31.3	24.5
ESUP1	40.0	65.22	515.0	681.83			57.0	224.0
WTAP1	8.0	21.02	14.0	18.73	40.0	50.04	94.0	190.7
WTAP5	62.0	245.0						
WTAP1	2120.0	2286.72	1200.0	946.73	7500.0	8506.74	48.9	25.9
ETAP1	54.5	57.72	179.0	100.23	14.0	21.84	6.0	78.0
WTAP1	7.0	9.02	6.0	11.03	61.0	36.04	52.0	91.0
WTAP5	49.0	71.0						
WTAP1	2240.0	2073.82	600.7	707.73	10000.0	23747.84		
ETAP1	15.0	26.32			4.0	5.04	2.0	10.9
WTOP1	8.0	9.02	0.4	32.33	63.0	39.74	56.5	131.5
WTOP5	23.0	65.0						
WTOP1	2570.0	1970.02	550.0	702.93	54003.6	14039.84	127.3	124.7
ETOP1	24.0	39.22			5.7	7.04	4.0	24.0
WTOP1			44.0	44.03	11.0	7.34		
WTOP5	1935.0	4683.0						
WTOP1	2470.0	2500.02	210.0	213.83	2300.0	2316.24	45.4	136.6
ETOP1	69.0	80.32	161.0	134.83	81.9	123.14	85.0	302.7
WTOP1	13.0	34.02	15.0	20.63	21.0	14.34	204.0	233.0
WTOP5	166.0	247.0						

WVTS5	52.0	302.0	2	680.0	470.03	29000.0	12256.04			
WVTS1				85.0	265.63	34.6	67.04	9.0	90.1	
EVTS1	21.0	09.82	2					35.0	85.0	
WYEB1										
WYEB5	6.0	13.0	2	3097.2	2488.83					
WYEB1										
EYEB1	5.0	5.02	3							
WYUG1	92.0	167.02		49.0	35.73	26.0	20.44	255.5	642.3	
WYUG5	875.0	1452.0								
WYUG1	3030.0	3155.02		225.2	171.03	1647.0	1000.04	87.7	55.2	
EYUG1	75.5	78.52		767.0	1243.23	63.9	65.74	84.0	104.0	
WZAU1	0.0	14.02		49.2	01.23	16.8	4.64	150.0	427.7	
WZAU5	651.0	540.0								
HZAU1	2310.0	2226.02								
EZAU1	30.0	54.22		9.0	31.03	8.5	13.04	1.8	18.0	
ECU										
ENNA1	34.0	42.72								
WSAF1	123.0	209.02		37.0	50.13	12.0	8.74	587.0	728.0	
WSAF5	2338.0	2769.0								
HSAF1	2420.0	2670.02		183.0	213.03	2000.0	1209.74			
ESAF1	41.0	75.02		364.0	384.03	58.4	52.84	63.0	178.6	
WSAU1	16.0	30.02		56.3	55.53	11.4	4.64	105.9	419.7	
WSAU5	233.0	965.0								
HSAU1				1400.0	1102.43	13000.0	10551.24			
ESAU1	7.0	23.22		21.0	88.53	4.0	10.04	11.9	11.0	
WSEN1								180.0	185.6	
WSEN5	96.0	149.0								
HSFN1				1244.0	684.03	43794.3	11737.34			
ESFN1	15.0	23.02		45.0	130.63	6.0	5.04	47.0	69.0	
WSFE1				24.8	10.83	32.0	52.04	95.4	177.2	
WSFE5	47.0	104.0								
HSFE1	2410.0	2450.02		1274.6	1021.03					
ESFE1	13.0	20.62		17.0	42.03	7.0	17.04	4.0	68.1	
WSFE1				11.0	23.03	6.0	3.04	417.0	921.0	
WSFE5	604.0	614.0								
HSFE1				510.0	269.03	2319.9	1519.04	34.9	20.8	
ESFE1	78.0	85.82		511.7	654.63	133.2	201.04			
WSOH1								65.5	63.8	
WSOH5	22.0	38.0								
HSOH1	1780.0	1763.42		665.2	417.23					
ESOH1	4.0	4.02		2.6	13.23			12.0	18.0	
WSPH1	60.0	200.02		29.0	27.93	22.0	13.14	317.0	889.0	
WSPH5	823.0	1495.0								

HTUN1	1900.0	4400.02	454.5	399.53	6114.6	7262.84			
ETUN1	44.0	70.22	66.0	196.05	14.0	16.28	41.0	77.0	
WTUR1	22.0	27.02	14.0	17.35	38.0	26.94	197.0	400.3	
WTUR5	246.0	487.0							
HTUR1	3110.0	2526.82	550.0	484.03	2600.0	2222.04	169.0	185.8	
ETUR1	37.0	59.52	235.0	475.03	45.5	40.54	49.0	87.0	
WUAK1	30.0	26.02		3			127.0	247.0	
WUAK5	290.0	266.0							
HUAK1	2690.0	2980.02	480.0	471.15	2600.0	1937.84	109.3	119.0	
FUAK1	143.0	54.22	415.0	608.03	26.6	23.64	56.0	132.0	
WUGA1	7.0	9.02	9.4	10.03	53.6	55.04	38.9	227.7	
WUGA5	32.0	72.0							
HUGA1	2240.0	2106.82	690.0	605.03	14569.0	8059.04			
EUGA1	32.0	35.02	14.0	50.23	8.0	8.04	14.0	85.4	
WUNK1	425.0	458.02	37.0	35.73	4.0	2.94	1277.0	1993.0	
WUNK5	4907.0	4552.0							
HURK1	2380.0	3170.92	110.0	105.03	935.0	863.94	21.8	18.3	
EUNK1	86.0	193.12	526.5	883.13	509.6	473.64	289.0	327.9	
WUPP1		2	5.0	5.03	40.0	50.04	44.0	47.3	
WUPP5	7.0	13.0							
HUPP1		2		3	99999.0	91954.54			
EUPP1	4.0	82.02	0.0	5.03		4	0.8	16.0	
WURU1	44.0	13.02	21.0	24.33	18.0	10.28	539.0	773.0	
WURU5	851.0	900.0							
HURU1	2970.0	3053.22	190.2	158.23	912.9	1056.34	47.4	48.8	
EURU1		2	609.0	675.23	260.0	156.74	285.0	374.0	
WUSA1	501.0	620.02	33.0	30.03	4.0	3.04	2559.0	4274.0	
WUSA5	8047.0	11144.0							
HUSA1	5100.0	3311.12	113.3	124.33	793.9	855.74	26.0	19.8	
EUSA1	98.0	109.22	1985.0	4175.03	326.0	302.04	941.0	1412.0	
WUSK1	296.0	450.02	52.0	51.03	20.0	22.04	729.5	1986.4	
WUSK5	2832.0	4485.0							
HUSR1	3040.0	5273.22	126.4	90.43	563.5	418.54	35.0	24.4	
EUSR1	75.0	104.32	1118.0	2070.53	172.0	356.04	205.0	390.0	
WVEN1	76.0	155.02	27.0	46.03	6.0	8.04	859.0	837.0	
WVEN5	2623.0	2498.0							
HVEN1	2510.0	2610.02	270.0	516.03	1300.0	1098.04	52.9	43.9	
EVEN1	70.0	71.32	560.0	835.03	96.0	71.04	186.0	164.0	
WVTN1	2.0	6.02		5		4	87.0	127.0	
WVTN5									
WVTMI		2		3		4			
WVTMI		2		3		4			
WVTMI		2		3		4			
WVTMI	6.0	15.02		5		4	102.0	262.0	

Appendix 3a

Rank-Order of Nations' Attributes: Combined Adjusted
Primary and Secondary Enrollment Ratio

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
1	USA	98	1	USA	109.2
2	POL	92	2	USA	104.3
3	JAP	91	3	GME	102.5
4	FRN	90	4	BUL	101.6
5	BUL	89	5	ALB	96.5
6	SWD	88.5	6	AUL	96
7	CAN	88	7	SWD	95.4
8	GMW	87	8	PHI	95.1
10	UNK	86	9	BRA	95
10	AUL	86	10	POL	93.2
10	NEW	86	11	UNK	93.1
12	NOR	83	12	JAP	92.3
13	DEN	83.5	13	GMW	91.2
14	DOM	82	14	FRN	90
15	NTH	80	15	GRC	89.8
17.5	CZE	78	16	PER	89
17.5	AUS	78	17	NOR	88.6
17.5	GME	78	18	RUM	88.2
17.5	SIN	78	19	CAN	88
20	ISR	77.5	20	AUS	86.7
21	CEY	76	21	CHL	86.6
22	YUG	75.5	22	NEW	86
23.5	GRC	74	23	SIN	85.6
23.5	IRE	74	24	IRE	85.3
25.5	USR	73	25	FIN	85
25.5	CHT	73	26	DEN	83.6
27	RUM	72	27	ISR	82.5
28.5	ARG	71	28	COS	82.2
28.5	COS	71	29	JOR	82
30	VEN	70	30	CUB	81.8
32	TRI	69	31	TRI	80.3
32	CHL	69	32	CHT	79.8
33	PHI	68	33	NTH	79.3
34	POR	67	34	ARG	78.6
35.5	PAN	66	35.5	ITA	78.5
35.5	ITA	66	35.5	YUG	78.5
37.5	FIN	65	37.5	KOS	77.5
37.5	KOS	65	37.5	SWZ	77.5
39.5	CUB	64	39	CEY	77.2
39.5	ALB	64	40	MON	77
41	SWZ	62.5	41	CZE	76.7

Appendix 3 a cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
42	JAM	62	42	LEB	76.6
43	SAF	61	43	PAN	76
44	PER	59	44	SAF	75
45	MAL	57	45	POR	74.1
46	TAI	54.5	46	DOM	71.6
47	JOR	52	47	MEX	71.5
48	LEB	49	48	VEN	71.3
48	MEX	49	49	TUN	70.2
49.5	BRA	47	50	JAM	70
49.5	MON	47	51	VTS	69.8
52	ECU	46	52	ECU	68.9
53	COL	45	53	LYB	68.3
56	TUN	44	54	SYR	65.2
56	IRQ	44	55	COL	63.7
56	SYR	44	56	BOL	62.5
56	ELS	44	57	MAL	62
56	NIC	44	58	GHA	61.3
59	UAR	43	59	TUR	59.5
60	BOL	40	60	TAI	57.7
61.5	HON	38	61	CAO	57.2
61.5	MAG	38	62	HON	56.8
64	LYB	37	63	CAM	55.5
64	TUR	37	64.5	ZAM	54.2
64	INS	37	64.5	UAR	54.2
66	RWA	34	66.5	ELS	54
67	UGA	32	66.5	NIC	54
68.5	CAO	31	68.5	IND	51
68.5	IND	31	68.5	LBR	51
70	CAM	30.5	70	IRQ	50.2
72.5	GHA	30	71.5	INS	47
72.5	KEN	30	71.5	IRN	47
72.5	ZAM	30	73	IVC	46
72.5	GUA	30	74	MAG	45.6
75.5	ALG	27	75	ALG	44.6
75.5	IRN	27	76	RWA	42.7
77.5	IVC	26	77	KEN	41.2
77.5	PAK	26	78	CEN	40.5
79	MOR	25	79	GUA	40
80.5	MAW	24	80	TOG	39.2
80.5	TOG	24	81	PAK	34.7
83.5	HAI	21	82	MOR	33.8
83.5	VTS	21	83	UGA	33
83.5	LBR	21	84	LAO	28
83.5	NIG	21	85	TAZ	26.3

Appendix 3 a cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
86	CEN	18	86	SYE	26.2
87	NEP	15.5	87.5	GUI	25
38.5	TAZ	15	87.5	SEN	25
88.5	SEN	15	89	DAH	23.7
90	DAH	14	90	SAU	23.2
91.5	SIE	13	91.5	HAI	22.8
91.5	LAO	13	91.5	MAW	22.8
93	SYE	12	93	SIE	20.6
94	BUI	11.1	94	NEP	20.5
95.5	GUI	11	95	NIG	20.2
95.5	SUD	11	96	BUI	19.9
97	CHA	8	97	CHA	19.2
98	SAU	7	98	MLI	18.3
99	MLI	6	99	SUD	18.1
100.5	YEM	5	100	AFG	13.8
100.5	AFG	5	101	ETH	9.8
103	UPP	4	102	NIR	9.2
103	SOM	4	103	UPP	8.2
103	ETH	4	104	YEM	5
105	NIR	3	105	SOM	4

Appendix 3 b

Rank-Order of Nations' Attributes: Number of Students
in Third Level Education per 100,000 Population

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
1	USA	1983	1	USA	4173
2	USR	1118	2	CAN	2798.6
3	PHI	992	3	PHI	2218
4	NTH	923	4	USR	2070.5
5	CAN	921	5	NEW	1982
6.5	AUL	875	6	ISR	1854.2
6.5	ARG	875	7	SWD	1700
8	NEW	837	8	JAP	1697
9	BUL	777	9	NTH	1668.8
10	YUG	767	10	DEN	1628
11	JAP	762	11	LEB	1567.2
12	ISR	738	12	AUL	1613.6
13	CZE	689	13	FIN	1330.8
14	GRC	678	14	CHT	1315
15	DEN	618	15	FRN	1310
16	URU	609	16	NOR	1303
17	FRN	595	17	YUG	1243.2
18	BEL	568	18	ARG	1185
19	AUS	547	19	BUL	1150.8
20	FIN	532	20	POL	1072.5
21	SIN	511.7	21	CZE	1022.2
22	LEB	506	22	IRE	990.8
23	SWD	500	23	GRC	915.1
24	GMW	499	24	ITA	899.4
25	POL	440	25	UNK	883.1
26	IRE	439	26	RUM	838.6
27	ALB	417	27	ALB	834.6
28	UAR	413	28	VEN	833.8
29	COS	402	29	PER	830.4
30	GME	401	30	PAN	821.5
31	SWZ	398	31	AUS	780.8
32	RUM	391	32	COS	770.8
33	ITA	386	33	GMW	770.2
34	PAN	379	34	BEL	699.3
35	SAF	364	35	SYR	688.8
36	VEN	360	36	SWZ	676.8
37	KOS	344.6	37	URU	675.2
38	CHL	331	38	SIN	654.6
39	CHT	330	39	CHL	642.8
40	UNK	326.3	40	KOS	621.4
41	SYR	315	41	UAR	608

Appendix 3 b cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
42	BOL	314	42	SPN	576.7
43	PER	309	43	IRQ	552
44	CUB	292	44	BOL	512.8
45	SPN	288	45	POR	479.2
46	POR	275	46	TUR	475
47	NOR	258	47	GME	462.2
48	TUR	235	48	DOM	460.2
49	ECU	215	49	MEX	455.2
50	MEX	214	50	ECU	416.4
51	PAR	196	51	CUB	395.8
52	TAI	179	52	SAF	384
53	IRQ	177	53	NIC	380.2
54	JOR	162	54	COL	371.1
55	PAK	161	55	BRA	366.3
56	IND	150	56	PAR	358.5
57	COL	147	57	PAK	358.1
58	HON	137	58	IND	248
59	BRA	135	59	GUA	272
60	DOM	114	60	VTG	263.6
61	NIC	102	61	IRN	245.6
62	ELS	96	62	INS	229.3
63	IRN	92	63	ELS	217.2
64	HON	86	64	JOR	202
65	VTG	85	65	TUN	196
66	JAM	82	66	CAM	192.1
67	BUR	77.7	67	CEY	189.8
68	LBR	72	68	LYB	180.8
69	CEY	68	69	MAL	177
70	ALG	67	70	BUR	170.6
71	TUN	65	71	HON	157.2
72	TRI	61	72	JAM	147
73	LYB	55	73	TRI	139.8
74	NEP	50	74	SEN	138.8
75	INS	48	75	NEP	133.2
76	SEN	45	76	LBR	123.2
77	GHA	44	77	TAI	100.2
78	HAI	43	78	SAU	88.5
79	MOR	40	79	IVC	87.6
80	MAL	37	80	ALG	87
81	SUD	34	81	SUD	85.3
82	COP	31.1	82	MOR	83.8
83.5	MAG	21	83	MAG	64.8
83.5	SAU	21	84	GHA	62
85	SIE	17	85	COP	61.3

5

OF/DE

5

Appendix 3b cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
86	CAM	15	86	KEN	60.2
87	UGA	14	87	SIE	42
88	AFG	12	88	AFG	38.2
89	LAO	11	89	ZAM	37
90	IVC	10	90	UGA	30.2
91	ZAM	9	91	HAI	28
92.5	ETH	5	92	LAO	21
92.5	NIG	5	93.5	ETH	18.8
94	KEN	4	93.5	NIG	18.8
95	SOM	2	95	BUI	13.6
96	BUI	1	96	SOM	13.2
97	UPP	0	97	UPP	3

Appendix 3c

Rank-Order of Nations' Attributes: Circulations of
Daily and Non-Daily Newspaper per 1,000 Population

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
1	UNK	509.6	1	SWD	534
2	SWD	470.7	2	JAP	511
3	GME	454.4	3	UNK	473.6
4	JAP	405.4	4	GME	441.8
5	NOR	384.1	5	NOR	383
6	NEW	383.8	6	NEW	376
7	AUL	382.1	7	SWZ	375
8	SWZ	373.9	8	DEN	364
9	DEN	342.9	9	USR	336
10	USA	326	10	AUL	321
11	GMW	307	11	GMW	319
12	BEL	281.4	12	NTH	316.2
13	NTH	271.4	13	USA	302
14	CZE	270.7	14	AUS	274.7
15	URU	260	15	BEL	252.8
16	FRN	252	16	CZE	252
17	CAN	231	17	FRN	236.5
18	IRE	224.3	18	IRE	233
19	ISR	209.4	19	HUN	214
20	AUS	208	20	POL	209
21	BUL	200.8	21	ISR	208
22	USR	172	22	SIN	201
23	RUM	160.1	23	CAN	200
24	ARG	157.5	24	BUL	193
25	HUN	145.1	25	ARG	182
26	POL	143.4	26	ROM	169
27	SIN	133.2	27	MEX	157.5
28	CHL	127.1	28	URU	136.7
29	GRC	116.6	29	ITA	134.4
30	PAN	104.4	30	TRI	123.1
31	MON	103	31	PER	122
32	ITA	96.3	32	PAN	108
33	VEN	96	33	SPN	104
34	COS	93	34.5	ELS	103
35	PER	86.2	34.5	MON	103
36	POR	82.7	36	COS	101
37	TRI	81.9	37	YUG	85
38	MEX	74.7	38	GRC	79
39	SPN	70	39	MAL	74.8
40	KOS	69.4	40	VEN	71

Appendix 3c cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
41	MAL	67	41	VTS	67
42	NIC	64.1	42	JAM	66.4
43	YUG	63.9	43	POR	65.9
44	JAM	62.8	44	KOS	65.6
45	SAF	58.4	45	CHL	62.2
46	ECU	57.7	48	ALB	52
47	COL	56.8	47	COL	51
48	BRA	54	48	CEY	49
49	ALB	46.4	49	GHA	46
50	TUR	45.5	50	NIC	45.3
51	ELS	45	51	HAI	43
52	PAR	37.4	52	BOL	42
53	CEY	37	53.5	ECU	41
54	BOL	35.1	53.5	PAR	41
55	VTS	34.6	55	TUR	40.5
56	GHA	30.4	56	BRA	34
57	DOM	27	57	PHI	33
58	HON	24	58	SAF	32.8
59	ALG	23.1	59	DOM	32.6
60	GUA	22.3	60	GUA	29.1
61	MOR	22	61	CAM	26
62	UAR	20.6	62	LYB	25.5
63.5	JOR	18	63	JOR	24
63.5	PHI	18	64	UAR	23.6
65	IRN	15.8	65	TAI	21.8
67	TAI	14	66	SIE	17
67	KEN	14	67	TUN	16.2
67	TUN	14	68	IND	14.3
69	BUR	12	69.5	HON	14
70.5	HAI	11	69.5	KEN	14
70.5	IND	11	71	ZAM	13
72	INS	10.3	72	ALG	11.8
73	MAG	9.1	73.5	SAU	10
74	ZAM	8.5	73.5	IVC	10
75	NIG	8.2	75	MOR	8.8
76	UGA	8	76	BUR	8.7
78	SIE	7	77.5	SUD	8
78	LYB	7	77.5	IRN	8
78	PAK	7	77.5	MAG	8
79.5	SEN	6	77.5	UGA	8
79.5	CAM	6	81	TOG	7
82	AFG	5	82	NIG	6.2
83	SUD	4.4	83.5	LBR	6
84.5	SAU	4	83.5	AFG	6
84.5	TAZ	4	85	PAK	5.9

Appendix 3c cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
86	TOG	3.7	86.5	TAZ	5
87	IVC	2.2	86.5	SEN	5
88	DAH	2.1	88	LAO	3.6
89	ETH	2	89	INS	3.5
90.5	COP	1.9	90.5	CAO	3
90.5	CAO	1.9	90.5	NEP	3
92	LAO	1.2	93	DAH	1
93	MLI	1	93	GUI	1
94	NEP	0.8	93	ETH	1
95.5	NIR	0.4	95	COP	0.9
95.5	CEN	0.4	96	CEN	0.7
97.5	CHA	0.3	97.5	NIR	0.5
97.5	GUI	0.3	97.5	MLI	0.5
99	LBR	0.2	99	CHA	0.2

Appendix 3d

Rank-Order of Nations' Attributes: Radio Receivers
per 1,000 Population

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
1	USA	941	1	USA	1412
2	CAN	452	2	CAN	742
3	DEN	332	3	USR	390
4	GME	323	4	FIN	375
5.7	BEL	289	5	URU	374
5.7	UNK	289	6	BEL	373
7	GMW	287	7.5	GME	370
8.5	URU	285	7.5	ARG	370
8.5	NOR	285	9	BOL	349.4
10	AUS	279	10	UNK	327.9
11	FIN	276	11	DEN	325
12	NTH	272	12	FRN	322.1
13	SWZ	270	13	NTH	320.9
14	CZE	259	14	GMW	318
15	NEW	245	15	NOR	307
16	FRN	241	16	TEI	302.7
17.5	AUL	222	17	SWZ	295
17.5	HUN	222	18	ECU	279
19	USR	205	19	MEX	276
20	ISR	194	20	AUS	273
21	VEN	186	21	BUL	270
22	BUL	182	22	CZE	267
23	IRE	174	23	JAP	248
24	ARG	167	24	HUN	245
25	ITA	162	25	JAM	242.5
26	CUB	161	26	NEW	241
27	PAN	159	27	ISR	237.8
28	COL	139	28	SPN	228.1
29	JAP	133	29	SYR	224
30	POL	117	30	ITA	218
31	RUM	109	31	LEB	215
32	PER	101	32	IRE	214
33	CHL	98.4	33	AUL	211
34.5	POR	95	34	CAM	189.8
34.5	MEX	95	35	IRQ	180
36	SPN	90	36	SAF	178.6
37	ELS	89	37	POL	173
38	JAM	88	38.5	VEN	164
39	TRI	86	38.5	YUG	164
40	YUG	84	40	CUB	159
41	PAR	83.9	41	PAN	157

Appendix 3d cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
42	GRC	80.3	42	RUM	152
43	LBR	77	43	POR	147
44	HON	68	44	INS	144
45.5	COS	66	45	CHL	143
45.5	BRA	66	46	PER	134
47	SAF	63	47.5	UAR	132
48	LEB	61	47.5	LBR	132
49	LYB	60.4	49	GUA	130
50	UAR	58	50	MON	129
51	SYR	57	51	GRC	127.8
52	GUA	55	52	KOS	126
53	ALG	54	53	ELS	115
54	NIC	53	54	CHT	109.7
55	TUR	49	55.5	IRN	105
56	SEN	47	55.5	COL	105
57	MOR	46	57	TUR	87
58	IRN	45	58	UGA	85.4
59	CHT	43	59	VTS	80.1
60	BOL	42.3	60	MAG	80
61.5	ECU	41	61.5	GHA	78
61.5	TUN	41	61.5	TAI	78
63	JOR	38	63	TUN	77
64.5	CEY	37	64	ALB	74
64.5	MAL	37	65.5	COS	71
66	DOM	34	65.5	PAR	71
67	ALB	33	67	SEN	69
68	KOS	32	68	SIE	68.1
69	PHI	22	69	JOR	65
70	MON	20	70	KEN	64.7
71.5	IVC	17	71.5	BRA	60
71.5	GHA	17	71.5	MOR	60
73	MAU	16	73	HON	57
74	MAG	15	74	NIC	55
75	UGA	14	75	ALG	51.8
76	DAH	13	76	PHI	50.8
76	GUI	13	77	MAU	47
76	IRQ	13	78	LYB	44
79	SOM	12	79	MAL	42
80	SAU	11.9	80	CEY	41.6
81	CHN	11.8	81	CAO	40.8
82	LAO	10.4	82	DOM	38
83	CEN	10	83	DAH	32
84.5	KEN	9	84	CEN	30
84.5	VTS	9	85	NIR	25
86	INS	7	86	TOG	24

Appendix 3d cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
87	CAM	6	87.5	GUI	23
87	TAI	6	87.5	NIG	23
87	BUR	6	89	IND	22
90.5	HAI	5	90	CHN	20
90.5	IND	5	91	AFG	19.6
92	ETH	4.2	92.5	SOM	18
94	SIE	4	92.5	ZAM	18
94	TOG	4	95	LAO	17
94	NIG	4	95	IVC	17
96.5	PAK	3	95	HAI	17
96.5	CAO	3	97.5	UPP	16
98	COP	2.6	97.5	CHA	16
100.5	MLI	2	99	BUR	15
100.5	CHA	2	100	SUD	14.8
100.5	TAZ	2	101	PAK	14
100.5	AFG	2	102	MLI	12
103	ZAM	1.8	103	SAU	11
104	NEP	1	104	TAZ	10.9
105.5	SUD	0.9	105	ETH	6
105.5	NIR	0.9	106	NEP	5
107	UPP	0.8	107	COP	4

Appendix 3e

Rank-Order of Nations' Attributes: Steel Consumption
per capita, in Kilograms

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
1	SWD	545	1	SWD	733
2	GMW	527	2	JAP	767
3	USA	501	3	GMW	658
4	CZE	476	4	USA	620
5	UNK	425	5	CZE	611
6	AUL	396	6	CAN	524
7	GME	347	7	GME	518
8.5	CAN	308	8	NOR	497
8.5	FRN	308	9	AUL	489
10	USR	296	10	BEL	477
11	SWZ	290	11	SWZ	474
12	NTH	278	12	UNK	458
13	BEL	275	13	FRN	457
14	NOR	272	14	USR	454
15	AUS	268	15	DEN	439
16	DEN	259	16	NTH	435
17	FIN	244	17	FIN	401
18	POL	211	18	AUS	396
19.5	HUN	209	19	ITA	393
19.5	JAP	209	20	POL	356
21	NEW	203	21	NEW	326
22	ITA	170	22	RUM	317
23	RUM	129	23	HUN	298
24	ISR	127	24	SPN	280
25	SAF	123	25	BUL	273
26	BUL	110	26	ISR	227
27	LEB	107	27	SAF	209
28	YUG	92	28	YUG	167
29	KON	82	29	VEN	155
30.5	VEN	76	30	ARG	135
30.5	ARG	76	31	IRE	124
32	CHL	70	32	KON	112
33	SPN	60	33	CHT	103
34	IRE	56	34	LEB	99
35	ALG	52	35	POR	93
36	MEX	50	36	MEX	82
37	GRC	49	37	CHL	81
38	URU	44	38	GRC	72
39	POR	43	39	BRA	64
40	BRA	41	40	ALG	53
41	IRQ	33	41	PAN	49

Appendix 3e cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
42	CUB	32	42	IRQ	48
43	UAR	30	43	CUB	46
44	MAL	28	44	SYR	44
46	COL	27	45	IRN	43
46	CHT	27	46	MAL	36
46	CHN	27	47.5	PHI	35
48	IRN	25	47.5	ALB	35
49	SYR	23	49.5	TUN	34
50	TUR	22	49.5	PER	34
51	DOM	18.7	51	KOS	33
52	PER	17	52	COL	32
53.5	SAU	16	53.5	LBR	30
53.5	PHI	16	53.5	SAU	30
55.5	BOL	14	55	ECU	29
55.5	MOR	14	56.5	UAR	28
57.5	GUA	13.3	56.5	CHN	28
57.5	LBR	13.3	58	TUR	27
59	TUN	13	59.5	DOM	22
60	IND	11	59.5	MOR	22
61	CEY	9	61	TAI	21
62.5	KOS	8.7	62	GUA	17
62.5	SUD	8.7	64	HON	15
64.5	TAI	8	64	GUI	15
64.5	GHA	8	64	VTA	15
67.5	UGA	7	66.5	BOL	14
67.5	KEN	7	66.5	ZAM	14
67.5	TAZ	7	68	URU	13
67.5	PAR	7	69.5	IND	12
70	MAG	6.7	69.5	NIG	12
71	BUR	6.3	71	MAG	10
72	VTS	6	74	TOG	9
74	PAK	5	74	COP	9
74	HON	5	74	UGA	9
74	NIG	5	74	KEN	9
76.5	COP	3	74	TAZ	9
76.5	INS	3	77	CEY	8
78	ALB	2.1	78.5	GHA	7
79	VTN	2	78.5	SUD	7
80	ETH	1.3	80.5	PAK	6
81	AFG	1	80.5	VTN	6
82	ECU	0.7	82	HAI	5
83	PAN	0	83	INS	4
87.5	GUI	0	85	ETH	3
87.5	TOG	0	85	BUR	3
87.5	BUI	0	85	LAO	3

Appendix 3e cont'd.

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
87.5	RWA	0	88.5	BUI	2
87.5	ZAM	0	88.5	RWA	2
87.5	MAW	0	88.5	MAW	2
87.5	LAO	0	88.5	PAR	2
87.5	HAI	0	91	AFG	1

Appendix 3f

Rank-Order of Nations' Attributes: Percentage of
Gross Domestic Product Originating in Industry

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
1	CZE	63	1	GME	72.3
2	HUN	59	2	CZE	61
3	GME	58	3	RUM	58.4
4	USR	52	4	POL	52
5	YUG	49	5	USR	51
6.5	GMW	47	6	BUL	49
6.5	POL	47	7	GMW	47
8	BUL	46	8	HUN	43
9	RUM	44	9	VEN	40
10	AUS	41	10	SAF	38.1
11	FRN	40	11	FRN	38
12	JAP	38	12	AUS	37.7
14	SAF	37	13	YUG	35.7
14	KOS	37	14	JAP	35.5
14	UNK	37	15.5	ITA	35
16	CEY	36.4	15.5	POR	35
17	BEL	35	17	BEL	33.9
18	ITA	34	18	UNK	33.7
19	USA	33	19	CEY	32.8
22	DEN	31	20	TOG	32.3
22	SWD	31	21	ISR	32
22	POR	31	22	AUL	31.8
22	ARG	31	23	ARG	31
25	AUL	30	24	IRE	30.5
25	MEX	30	25.5	NOR	30
25	CAN	30	25.5	USA	30
28.5	NOR	29	27	BOL	29.4
28.5	SPN	29	28.5	DEN	29
28.5	FIN	29	28.5	MEX	29
28.5	VEN	29	30	FIN	28.1
31	IRE	26	31.5	KOS	28
32	BOL	25	31.5	SWD	28
33	SIE	24.8	33	SPN	27.9
34	COL	23	34	CAN	26.7
35.5	MOR	22	35	JAM	25.3
35.5	JAM	22	36	URU	24.3
37	URU	21	37	CHT	24
38.5	CAO	20	38	SIN	23
38.5	DOM	20	39	MOR	22
41.5	SYR	19	40	COL	21.9

Appendix 3f cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
41.4	ISR	19	41.5	BRA	21.6
41.5	CHT	19	41.5	ELS	21.6
41.5	BRA	19	43	COS	21.3
45	PAR	18	44	MAL	20.7
45	COS	18	45	TUN	20.6
45	PHI	18	46.5	CAO	20
47	GRC	17	46.5	DOM	20
48.5	ELS	16	48	PHI	19
48.5	SUD	16	49	SIE	18.8
50	CAM	15.5	50	TAI	18.4
52	TUN	15	51	NIC	18.3
52	LEB	15	52	SYR	18.1
52	IND	15	54	CAM	18
56.5	TUR	14	54	PAR	18
56.5	NEP	14	54	GUA	18
56.5	TAI	14	56	PAN	17.8
56.5	MAL	14	57	TUR	17.3
56.5	GUA	14	58	GRC	17
56.5	PAN	14	59	HON	16.3
60	HON	13	60	INS	16
61	NIC	12	61.5	LEB	15
62	BUR	11.4	61.5	IND	15
63	KEN	11.3	63	KEN	14
64	SIN	11	64.5	MAG	13
65	MAG	10.5	64.5	JOR	13
66.5	INS	10	66	NIG	12.7
66.5	PAK	10	67	PAK	11.4
68	UGA	9.4	68.5	TAZ	11
69	JOR	8	68.5	SUD	11
71.5	NIR	6	70	ETH	10.5
71.5	NIG	6	71	UGA	10
71.5	TAZ	6	72	MAW	9.8
71.5	MAW	6	73	BUR	9.4
74	ETH	5.5	74	NEP	9
75	UPP	5	75	DAH	8
76	DAH	3	76	NIR	6
77	TOG	0	77	UPP	5

Appendix 3g

Rank-Order of Nations' Attributes: Percentage of
Gross Domestic Product Originating in Agriculture

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
1.5	UNK	4	1	UNK	2.9
1.5	USA	4	3	USA	3
5	CAN	6	3	GMW	3
5	GMW	6	3	SIN	3
5	BEL	6	5	SWD	4
5	VEN	6	6.5	CAN	4.9
5	SIN	6	6.5	BEL	4.9
8.5	NTH	7	8	ISR	5
8.5	SWD	7	9.5	FRN	6
11	NOR	9	9.5	NOR	6
11	FRN	9	11	AUS	6.6
11	ISR	9	12.5	NTH	7
13	AUS	11	12.5	JAP	7
14.5	SAF	12	14.5	DEN	8
14.5	AUL	12	14.5	VEN	8
16.5	JAP	13	16	AUL	8.2
16.5	ITA	13	17	SAF	8.7
18.5	DEN	14	18.5	LEB	9
18.5	LEB	14	18.5	ITA	9
20	ARG	15	20	URU	10.2
21	CZE	16	21	ARG	10.6
22	GME	17	22.5	CZE	11
24	BRA	18	22.5	MEX	11
24	URU	18	24	GME	12
24	FIN	18	25	FIN	12.4
26	MEX	19	26	BRA	13
27	USR	20	27	SPN	13.1
28.5	SYR	21	28	IRE	14.2
28.5	TUN	21	29	TUN	14.3
31	GRC	22	30	POR	15
31	SPN	22	31	CHT	16
31	IRE	22	32	GRC	16.4
34	HUN	23	33	POL	17
34	POR	23	34	HUN	18
34	PAN	23	35	IRN	18.1
36	COS	24	36	BOL	18.9
37.5	POL	26	37	YUG	20.4
37.5	YUG	26	38.5	DOM	20.7
40	DOM	27	38.5	MAL	20.7
40	PHI	27	40	USR	22

Appendix 3R cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
40	IRN	27	42	PAN	23
42.5	GUA	28	42	BUL	23
42.5	CNT	28	42	RUM	23
44	BOL	29	44	COS	25.1
45	BUR	29.8	45	ELS	25.3
46.5	NIC	31	46	SYR	26.6
46.5	MAG	31	47	TUR	29.9
50	BUL	32	48	GUA	27
50	COL	32	49	NIC	27.3
50	ELS	32	50	MAW	27.5
50	MOR	32	51	COL	27.6
50	SIE	32	52	KOS	28
53	RUM	33	53	IVC	29.2
54	MAL	34	54.5	PHI	30
55.5	SUD	36	54.5	TAI	30
55.5	PAR	36	56.5	KEN	31
57	KOS	37	56.5	MAG	31
58	TUR	38	59	PAR	32
59	CAO	39.5	59	MOR	32
61	TAI	40	59	SIE	32
61	UPP	40	61	HON	32.1
61	DAH	40	62	CEY	33
63	HON	41	63	BUR	35.8
64	CAM	42.5	64.5	SUD	36
65	KEN	42.7	64.5	TAZ	36
66.5	CEY	43	66	TOG	39.7
66.5	IVC	43	67.5	CAM	40
68	IND	47	67.5	DAH	40
69.5	HAI	50	69	PAK	41.4
69.5	PAK	50	70	IND	44.8
71	UGA	53.6	71	HAI	45
72	INS	54	72	NIG	46.7
73	MAW	55	73	INS	48
74	NIR	59	74	UPP	50
75	NIG	60	75	ETH	50.7
76	TAZ	61	76	CAO	54.4
77	TOG	63	77	UGA	55
78	ETH	63.3	78	NIR	59
79	NEP	65.5	79	NEP	67

Appendix 3h

Rank-Order of Nations' Attributes: Gross National
Product per capita in Current \$US

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
1	USA	2559	1	USA	4274
2	CAN	1870	2	SWD	3695
3	SWD	1682	3	CAN	3214
4	GME	1476	4	SWZ	2895
5	AUL	1434	5	DEN	3875
6.5	NEW	1429	6	AUL	2796
6.5	SWZ	1429	7	GMW	2698
8	UNK	1277	8	FRN	2606
9	CZE	1246	9	NOR	2550
10	FRN	1202	10	BEL	2406
11	DEN	1201	11	NTH	2156
12	GMW	1188	12	NEW	2004
13	BEL	1126	13	UNK	1993
14	NOR	1092	14	USR	1986.4
15	FIN	1001	15	FIN	1939
16	NTH	890	16	CZE	1866
17	POL	860.5	17	AUS	1802
18.5	VEN	859	18	JAP	1728
18.5	ISR	859	19	GME	1658
20	AUS	797	20	ISR	1653.8
21	RUM	752	21	ITA	1636
22	USR	729	22	HUN	1587
23	HUN	697	23	IRE	1500.6
24	ITA	644	24	POL	1095.6
25	IRE	616	25	BUL	1059
26	BUL	599	26	GRC	1011.2
27	URU	539	27	SIN	921
28	JAP	421	28	SPN	889
29	SIN	417	29	ARG	877.5
30	MON	415	30	VEN	837
31	GRC	399	31	RUM	805.3
32	SAF	387	32	URU	773
33	ARG	382.5	33	SAF	728
34	JAM	363	34	YUG	642.3
35	LEB	351	35	MEX	632
36	PAN	349	36	PAN	629
37	COS	347	37	CHL	613
38	SPN	317	38	POR	610
39	MEX	315	39	LEB	551
40	POR	270	40	JAM	545

Appendix 3h cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
41	GUA	259	41	COS	541
42	YUG	255.5	42	MON	495
43	NIC	254	43	ZAM	427.7
44	MAL	251	44	SAU	419.7
45	CHL	245	45	TUR	400.3
46	PHI	226	46	NIC	387
47	COL	225	47	CHT	364
48	DOM	221	48	PER	363
49	ELS	219	49	MAL	362.1
50	TUN	204	50	COL	358
51	ALG	203	51	BRA	353.8
52	ECU	200	52	PHI	342
53.5	TUR	197	53	IRN	341
53.5	HON	197	54	GUA	335.7
55	BRA	196	55	DOM	314.3
56	SYE	193.9	56	IVC	309
57	IRQ	192	57	IRQ	305.3
58	PER	191	58	KON	299.6
59	GHA	182	59	SYR	284.7
60	SEN	180	60	ALG	283
61	IRN	179	61	ELS	271
62	JOR	168	62	JOR	269.1
63	SYR	167.9	63	LBR	267.5
64	IVC	167	64	HON	265.9
65	ZAM	159	65	GHA	264.2
66	PAR	149	66	VTS	262
67	KOS	146	67.5	UAR	247
68	CHT	138	67.5	ECU	247
69	MOR	135	69	KOS	241
70	CEY	134	70	TUN	233
71	UAR	127	71	PAR	230
72	CAM	120	72	UGA	227.7
73	LBR	114.5	73	MOR	215
74	KON	106.5	74	BOL	199
75	SAU	105.9	75	TAI	190.7
76	CAO	105	76	SEN	185.6
77	VTS	102	77	SIE	177.2
78	SIE	95.4	78	CEY	165.1
79	MAG	95	79	MAU	158.2
80	TAI	94	80	CAO	155
81	GUI	92.6	81	CEN	146.5
82	SUD	91	82	PAK	134.7
83	BOL	90	83	TOG	131.5

Appendix 3h cont'd.

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
84	VTN	87	84	KEN	130
85	CEN	81.5	85	VTN	127
86	PAK	78	86	MAG	124
87	MAU	76.4	87	SUD	117.4
88.5	INS	76	88	CAM	110
88.5	KEN	76	89	GUI	100.8
90	NIR	72	90	INS	107
91	IND	70	91	SYE	100.7
92	HAI	68.8	92	COP	102.5
93	SOM	65.5	93	NIG	93.3
94	MLI	63	94	MLI	93
95	BUR	62	95	NIR	92
96	NIG	61.1	96	IND	91.1
97	LAO	60	97	TAZ	91
98	COP	57.5	98	AFG	89.7
99	TOG	56.5	99	HAI	86.8
100	CHA	52.9	100	NEP	86.2
101	TAZ	52	101	YEM	85
102	DAH	46.5	102	RWA	82.2
103	MAW	46.1	103	DAH	81.1
104	UPP	44	104	BUR	75.3
105	AFG	42.9	105	LAO	74.4
106.5	UGA	38.9	106	CHA	69.7
106.5	BUI	38.9	107	ETH	68.5
108	NEP	38.4	108	SOM	63.8
109	YEM	35	109	MAW	63.3
110	ETH	33.5	110	BUI	55.7
111	RWA	17.3	111	UPP	47.3

Appendix 3i

Rank-Order of Nations' Attributes: Energy Consumption
per capita in Kilograms of Coal Equivalent

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
1	USA	8047	1	USA	11144
2	CAN	5663	2	CAN	9072
3	UNK	4907	3	SWD	6311
4	CZE	4755	4	CZE	6310
5	GME	4660	5	BEL	5929
6	BEL	3956	6	DEN	5924
7	AUL	3918	7	GME	5882
8	GMW	3673	8	AUL	5425
9	SWD	3491	9	UNK	5362
10	POL	3097	10	GMW	5112
11	USR	2832	11	NTH	5073
12	DEN	2829	12	NOR	4814
13	NOR	2740	13	TRI	4683
14	NTH	2691	14	USR	4445
15	VEN	2623	15	POL	4223
16	FRN	2419	16	FIN	4150
17	SAF	2338	17	BUL	4020
18	AUS	2155	18	FRN	3794
19	HUN	2080	19	AUS	3419
20	NEW	2029	20	SWZ	3353
21	SWZ	1938	21	JAP	3210
22	TRI	1935	22	HUN	3147
23	IRE	1844	23	IRE	2993
24	FIN	1650	24	RUM	2808
25	RUM	1404	25	SAF	2769
26	BUL	1298	26	ITA	2681
27	ISR	1243	27	NEW	2649
28	JAP	1166	28	VEN	2498
29	ITA	1135	29	ISR	2278
30	ARG	1088	30	ARG	1688
31	MEX	915	31	SPN	1495
32	YUG	875	32	PAN	1434
33	URU	851	33	YUG	1432
34	CUB	847	34	GRC	1259
35	CHL	839	35	CHL	1208
36	SPN	823	36	MEX	1205
37	PAN	616	37	JAM	1135
38	SIN	604	38	CUB	1039
39	IRQ	531	39	SAU	965
40	JAM	521	40	IRN	939

Appendix 3i cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
41	LEB	520	41	CHT	925
42	COL	516	42	URU	900
43	CHT	513	43	SIN	818
44	PER	494	44	KOS	796
45	GRC	443	45	LEB	719
46	POR	379	46	POR	687
47	IRN	344	47	LYB	646
48	BRA	337	48	ALB	623
49	ALB	305	49	PER	609
50	UAR	290	50	IRQ	597
51	LYB	281	51	COL	578
52.5	KOS	261	52	TUR	487
52.5	SYR	261	53	SYR	483
54	ALG	257	54	BRA	472
55	TUR	246	55	MAL	467
56	MAL	241	56	ALG	462
57	SAU	233	57	NIC	374
58	COS	215	58	COS	344
59	JOR	191	59	VTS	302
60	NIC	189	60.5	LBR	295
61	ECU	186	60.5	JOR	295
62	GUA	170	62	ECU	293
63	TUN	166	63	PHI	288
64	HON	160	64	UAR	268
65	DOM	158	65	TUN	247
66	BOL	152	66	TAI	245
67	PHI	143	67	HON	243
68.5	IND	140	68	GUA	232
68.5	KEN	140	69	IVC	227
70	MOR	139	70	DOM	224
71	INS	134	71	BOL	211
72	ELS	128	72	MOR	194
73	CEY	110	73	IND	191
74	GHA	99	74	GHA	164
75	SEN	96	75	CEY	156
76	PAR	87	76	KEN	153
77	COP	84	77	SEN	149
78	LBR	81	77	MAU	149
79	IVC	69	79	PAR	145
80	PAK	68	80	SUD	115
81	GUI	66	81	INS	111
82	CAO	63	82	SIE	104
83	TAI	62	83	PAK	98

Appendix 31 cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
84	BUR	53	84	GUI	97
85	VTG	52	85	CAO	92
86	SUD	51	86	ELS	79
87	TAZ	49	87	COP	73
88	SIE	47	88	UGA	72
89	DAH	40	89	TAZ	71
90	HAI	38	90	MAG	67
91.5	CEN	37	91	CAM	66
91.5	MAG	37	92.5	TOG	65
93	CAM	35	92.5	BUR	65
94	UGA	32	94	LAO	62
95	NIG	29	95	CEN	61
96	TOG	23	96	MAW	46
97	MAW	22.7	97	NIG	45
98.5	SOM	22	98	HAI	43
98.5	LAO	22	99	SOM	38
100	MAU	18	100.5	ETH	32
101.5	MLI	15	100.5	DAH	32
101.5	AFG	15	102.5	AFG	27
103.5	BUI	11	102.5	NIR	27
103.5	RWA	11	104	CHA	23
105	CHA	10	105	MLI	21
106	ETH	8	106	NEP	14
107	UPP	7	107.5	UPP	13
108	YEM	6	107.5	YEM	13
109	NIR	5	109	RWA	10
110	NEP	4	110	BUI	9

Appendix 3j

Rank-Order of Nations' Attributes: Calories per Day per Inhabitant

1960			1970		
Rank	Name Code *	Value	Rank	Name Code	Value
1	NEW	3500	1	IRE	3440
2	IRE	3490	2	ARG	3320
3	DEN	3370	3	USA	3311.1
4	POL	3350	4	NEW	3300
5	UNK	3280	5	USR	3273.2
6	SWZ	3220	6	FRN	3270
7	AUL	3140	7	AUL	3228.9
8.5	TUR	3110	8	HUN	3197.8
8.5	FIN	3110	9	UNK	3170.9
10	USA	3100	10	CAN	3164.4
11	CZE	3080	11	BEL	3163.2
12	FRN	3050	12	BUL	3163.2
14	BEL	3040	13	YUG	3155
14	RUM	3040	14	DEN	3140
14	USR	3040	15	GME	3060
16	YUG	3030	16	URU	3053.2
17.5	HUN	3020	17	NTH	3038.9
17.5	CAN	3020	18	POL	3000
19	GME	3010	19	CZE	2996.7
20	SWD	2990	20	RUM	2990
21.5	AUS	2870	21.5	FIN	2960
21.5	URU	2970	21.5	UAR	2960
23	GMW	2960	23	ISR	2952.2
24	NTH	2950	24	AUS	2950
25	GRC	2940	25	ISR	2943.3
26.5	BUL	2930	26	GMW	2940
26.5	NOR	2930	27	SWZ	2939
28	RWA	2837.6	28	NOR	2896.7
29.5	ARG	2820	29	GRC	2882.9
29.5	SAF	2820	30	PAR	2843.3
31	ISR	2818	32	SWD	2750
32	SPN	2810	32	POR	2750
33	BUI	2807.6	32	SPN	2750
34	BRA	2780	34	CHN	2743.2
35.5	CUB	2730	35	LYB	2700
35.5	ITA	2730	36	SAF	2670
37	UAR	2690	37	CHT	2650
38.5	IVC	2610	38	BOL	2641.4
38.5	MEX	2610	39	MEX	2626.6
40	TOG	2570	40	VEN	2610

Appendix 3j cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
41	PAR	2560	41	PAN	2605.5
42	POR	2550	42	CHL	2600
43.5	CAO	2470	43	TUR	2526.8
43.5	TRI	2470	44	SYR	2523.2
45	COP	2460	45	JOR	2513.2
46	NIG	2450	46	MAG	2510
47	LEB	2440	47	KEN	2500
48.5	COS	2430	48	BRA	2480
48.5	LBR	2430	49	SIE	2450
50	NIC	2420	50	TUN	2400
51.5	SIE	2410	51	PAK	2378.9
51.5	CHL	2410	52	CUB	2354.8
53	GUI	2400	53	IVC	2310
54.5	ALG	2350	54	LEB	2306.8
54.5	CHT	2350	55	TRI	2300
56	SYR	2340	56	JAM	2295.2
58	VEN	2310	57	PER	2287.1
58	PAN	2310	58	TAI	2286.7
58	ZAM	2310	59	COL	2243.2
60	JAM	2257.6	60	ZAM	2226
61.5	UGA	2240	61	CEY	2224.4
61.5	TAZ	2240	62	ETH	2176.7
63.5	PER	2230	63	LBR	2146.8
63.5	JOR	2230	64	NIC	2136.8
65.5	MAG	2210	65	SUD	2130
65.5	MOR	2210	66	NIG	2111.7
67.5	BUR	2170	67	UGA	2106.8
67.5	COL	2170	68	COS	2096.7
69	IRQ	2140	69.5	DOM	2080
70	TAI	2120	69.5	GHA	2080
71	ETH	2110	71	MOR	2076.7
72	PAK	2090	72	TAZ	2073.8
74	CEY	2080	73	CAO	2070
74	DOM	2080	74	AFG	2066.7
74	HON	2080	75	IRN	2016.7
76.5	AFG	2050	76	PHI	2006.6
76.5	IRN	2050	77	HAI	1994.2
78	GUA	2040	78	IRQ	1990
79	GHA	2032	79.5	BUR	1970
80.5	ELS	2030	79.5	TOG	1970
80.5	SUD	2030	81	IND	1931.1
82	IND	2020	82	GUA	1890
83	INS	1980	83	HON	1870

Appendix 3i cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
84	TUN	1900	84	ECU	1850
86	LYB	1850	85	GUI	1835.2
86	KEN	1850	86	ELS	1780
86	ECU	1850	87	SOM	1763.4
88	PHI	1840	88	COP	1760
89	BOL	1830	89	BUI	1704.8
90	CHN	1790	90	INS	1596.8
91.5	SOM	1780	91	ALG	1576.8
91.5	HAI	1780	92	RWA	1524.8

Appendix 3kRank-Order of Nations' Attributes: Population per
Hospital Bed

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
1	IRE	70.7	1	AUL	32.2
2	SWZ	82.4	2	SWD	65.7
3	SWD	88.7	3	FRN	67.2
4	GME	89.5	4	IRE	77.8
5	AUL	90	5	JAP	79
6	NEW	90.7	6	GME	85
7	CAN	90.9	7	GMW	85.7
8	GMW	98.7	8	FIN	87.8
9.5	AUS	100	9	SWZ	88.6
9.5	CZE	100	10	USR	90.4
11	NOR	109.1	11	ITA	91.2
12.5	UNK	110	12	AUS	92
12.5	FIN	110	13	CZE	96.7
14	USA	113.3	14	NEW	98
15	FRN	115.2	15	CAN	99.8
16	JAP	116.3	16	UNK	105.6
17	MON	116.4	17	DEN	107.6
18	ITA	118.4	18	MON	108
19	DEN	118.9	19	NOR	108.9
20	USR	126.4	20.5	RUM	120
21	BEL	129.4	20.5	HUN	120
22	NTH	134.4	22	BEL	124
23	RUM	140	23	USA	124.3
25	ISR	150	24	BUL	129
25	HUN	150	25	POL	131
25	POL	150	26	ARG	142
27	ARG	160	27	URU	158.2
28	POR	180.5	28	ALB	158.4
29	COP	180	29	GRC	161.4
30	SAF	183	30	ISR	171
31	BUL	184.5	31.5	POR	177
32	GRC	187.4	31.5	YUG	177
33	URU	196.2	33	CUB	185.6
34	COS	204.5	34	SPN	197.6
35	TRI	210	35	NTH	206.4
36	ALB	214.4	36	MEX	211.2
37	YUG	225.2	37	SAF	213
38	JAM	240	38	TRI	213.8
39	PAN	250	39	LEB	231.6
40.5	LEB	260	40	HOK	245
40.5	CHL	260	41	COS	249

Appendix 3k cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
42	VEN	270	42	LYB	256
43	MAL	290	43	JAM	261
44	BRA	299.2	44	SIN	269
45	SON	299.8	45	MAL	273
46	SIN	310	46	CHL	286.7
47	LYB	320	47	COP	287.2
49.5	ALG	330	48	BRA	291.6
49.5	CEY	330	49	GUA	302.1
49.5	COL	330	50	LBR	314.2
49.5	CUB	330	51	PAN	314.4
52	GUA	354.7	52	VEN	316
53	HOK	390	53	CEY	332.2
54	MAG	394.5	54	MAG	339.5
55	DOM	400	55	ALG	358.9
56	PAR	430	56	DOM	361.1
57	TUN	454.5	57	TUN	399.5
58	ELS	460	58	PER	406.2
59	PER	470	59	SOM	417.2
60	UAR	480	60	NIC	417.8
61	ECU	488.3	61	COL	454.2
62.5	TOG	550	62	IVC	454.6
62.5	TUR	550	63	CEN	471
64	HON	560	64	UAR	471.1
65.5	NIC	570	65	ECU	471.3
65.5	JOR	570	66	VTS	476
67	IVC	595.5	67	PAR	476.8
68	TAZ	600.7	68	ELS	477.8
69	CEN	660	69	TUR	489
70	SOM	655.2	70	IRQ	521
71.5	VTS	680	71	BOL	522
71.5	MOR	680	72	JOR	560
73	UGA	690	73	HON	593.3
74	DAH	710	74	UGA	605.6
75	IRQ	711	75	MOR	680
76	KEN	741.3	76	GUI	682.4
77	PHI	810	77	SEN	684
78	BOL	850	78	CHA	700
79	SYR	927.7	79	TOG	702.9
80	LBR	940	80	TAZ	707.7
81	SUD	1000	81	IRN	744.2
82.5	MLI	1100	82	KEN	753.9
82.5	IRN	1100	83	GHA	793

Appendix 3k cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
84	CHA	1154.5	84	PHI	823.3
85	TAI	1200	85	CAM	903
86	SEN	1244	86	DAH	920
87	SIE	1274.6	87	TAI	946.7
88.5	GUI	1300	88	SYR	1005
88.5	INS	1300	89	SIE	1021
90	SYE	1364.1	90	SYE	1041.2
91.5	SAU	1400	91	SUD	1080
91.5	BUR	1400	92	BUR	1101.3
93	GHA	1600	93	SAU	1102.4
94	HAI	1616.7	94	IND	1230.5
95	CAM	1800	95	LAO	1414.4
96	MEX	1900	96	HAI	1416.3
97	IND	2111.9	97	PAK	1462.2
98	NIG	2100	98	INS	1507
99	NIR	2200	99	MLI	1796
100	KOS	2261	100	NIG	1808.8
101	LAO	2300	101	NIR	1870
102	ETH	3000	102	KOS	1875.4
103	YEM	3097.2	103	CHT	2051.4
104	MAU	3600	104	ETH	2131.4
105	CHT	3900	105	YEM	2488.8
106	PAK	7000	106	MAU	5247
107.5	NEP	8100	107	NEP	6602.2
107.5	AFG	8100	108	AFG	6606.7

Appendix 31Rank-Order of Nations' Attributes: Population per
Physician

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
1	ISR	400	1	ARG	348
2	USR	563.5	2	ISR	400
3	CZE	620	3	USR	418.5
4	HUN	647.1	4	ITA	470
5	ARG	660	5	CZE	486.7
6	AUS	695	6	HUN	518.1
7	NEW	700	7	AUS	540
8	BUL	729.4	8	GMW	545
9	ITA	746	9	MON	594
10	SWZ	765	10	BEL	607.2
11	GMW	775	11	SWZ	613.9
12	RUM	788	12	BUL	622.8
13	USA	793.9	13	GRC	626.7
14	GRC	800	14	NEW	633
15	BEL	800.6	15	DEN	636.2
16	DEN	812.4	16	USA	655.1
17	AUL	860	17	POL	659
18	NTH	892.4	18	CAN	675.0
19	CAN	900	19	SPN	693.8
20	URU	912.9	20	NOR	705.1
21	NOR	924.1	21	RUM	709
22	JAP	927.1	22	FRN	726.5
23	FRN	932	23	SWD	736.9
24	UNK	935	24	NTH	816.9
25	IRE	972.1	25	AUL	845.6
26.5	CUB	1000	26	UNK	863.9
26.5	SPN	1000	27	JAP	898
27.5	LEB	1100	28	FIN	915.8
27.5	POL	1100	29	IRE	940
30	SWD	1056.9	30	KOS	962.8
31	VEN	1300	31	YUG	1000
32	POR	1374.6	32	URU	1056.3
33	CHT	1500	33	VEN	1098
34	FIN	1537.8	34	CUB	1168.9
35	YUG	1637	35	POR	1181
36.5	MEX	1700	36	SAF	1289.7
36.5	CHL	1700	37	ALB	1382.2
38	PAR	1800	38	LEB	1516.6
39	SAF	2000	39	SIN	1519
40	BRA	2067.8	40	NIC	1548.9

Appendix 31 cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
41	PER	2100	41	PAR	1561.2
42	TRI	2300	42	PAN	1634.5
43	SIN	2319.9	43	COS	1807
44.5	COL	2400	44	MEX	1880
44.5	MON	2400	45	PER	1894.1
47	UAR	2600	46	BRA	1904.7
47	COS	2600	47	UAR	1937.8
49.5	NIC	2800	48	COL	2195.4
49.5	TUR	2800	49	TUR	2222
51	KOS	3153.6	50	BOL	2301
52	PAN	3200	51	TRI	2316.2
53	ALB	3500	52	JOR	2483
54	BOL	3531	53	CHL	2525.6
55	IRN	3800	54	LYB	2654
56	JAM	4165.2	55	ECU	2785.6
57	CEY	4500	56	JAM	2817
58	SYR	4531.9	57	IRN	3241.1
59	HON	4539.9	58	CHT	3340
60	IND	4937.4	59	CEY	3608.9
61	ELS	5400	60	HON	3673.3
62	JOR	5600	61	ELS	3754.4
63.5	IRQ	5800	62	SYR	3851
63.5	LYB	5800	63	MAL	3857
65	ALG	6305.6	64	GUA	3960
66	GUA	6329	65	IND	4282
67	PHI	6334.2	66	PAK	4520
68	MAL	6400	67	IRQ	5267.8
69	TAI	7500	68	RWA	5793
70	TUN	8114.8	69	LBR	5855.4
71	PAK	8670	70	LAO	7262.4
72	MAG	8707.4	71	TUN	7262.8
73	MOR	9400	72	UGA	8059
74	KEN	9839.7	73	KEN	8237.1
75	HAI	10714	74	ALG	8401.6
76	SYE	11172.3	75	TAI	8506.7
77	SAU	13000	76	BUR	8809.1
78	UGA	14369	77	MAG	10110.2
79	BUR	15000	78	PHI	10229.6
80	LBR	17127.2	79	SAU	10551.2
81	TAZ	18000	80	SYE	10895.6
82	GHA	21000	81	SEN	11737.3
83	IVC	28334.4	82	VTS	12236
84	VTS	29000	83	HAI	13570

Appendix 31 cont'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
85	CAO	29595.6	84	MOR	13573.8
86	NIG	32000	85	CAM	13786
87	MAU	32355.4	86	TOG	14039.8
88	SUD	36124.4	87	IVC	15006.8
89	CEN	37000	88	SUD	15119.4
90	AFG	38966.8	89	GHA	15200
91	SEN	43794.3	90	AFG	18634.8
92	DAH	47000	91	NIG	22340
93.5	INS	48000	92	TAZ	23747.8
93.5	GUI	48000	93	INS	24906.1
95	TOG	54003.6	94	CAO	25551.6
96.5	RWA	54545.5	95	MAU	25909
96.5	BUI	54545.5	96	COP	30458.9
98	COP	63000	97	DAH	32024
99	CHA	69000	98	CEN	38333
100	NEP	72000	99	NEP	46550
101	MLI	78777.8	100	GUI	50575
102	CAM	95000	101	NIR	51518.9
103	ETH	98918.8	102	ETH	53715.8
104	LAO	100000	103	MLI	56555.6
105	UPP	100000	104	BUI	60000
106	NIR	103000	105	CHA	63966
			106	UPP	91954.5

Appendix 3m

Rank-Order of Nations' Attributes: Infant
Mortality Rates

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
1	NTH	16.5	1	SWD	11.2
2	SWD	16.6	2	IRQ	11.8
3	NOR	18.5	3	NTH	12.4
4	AUL	20.2	4	FIN	12.5
5	FIN	21	5	JAP	13.1
6	SWZ	21.1	6	NOR	13.3
7	DEN	21.5	7	DEN	14
8	UNK	21.8	8.5	SWZ	15.1
9	NEW	22.6	8.5	FRN	15.1
10	FRN	23.2	10	CHT	16.1
11	CZE	23.5	11	NEW	16.7
12	USA	26	12	AUL	17.9
13	IRQ	27.2	13	UNK	18.3
14	CAN	27.3	14	CAN	18.4
15	IRE	29.3	15	GME	18.8
16	CHT	30.5	16.5	IRE	19.2
17	JAP	30.7	17	USA	19.8
18	ISR	31	18	BEL	20.5
19	BEL	31.2	19	SIN	20.8
20	SYR	31.3	20	CZE	22.1
21	GMW	31.7	21	ISR	22.9
22	SIN	34.9	22	GMW	23.6
23	USR	25	23	USR	24.4
24	CUB	35.4	24	SYR	24.5
25	AUS	37.5	25	JOR	24.7
26	GME	38.8	26.5	TAI	25.9
27	GRC	40.1	26.5	AUS	25.9
28	SPN	42.2	28	BUL	27.3
29	ITA	43.9	29	SPN	27.9
30	BUL	45.1	30	ITA	29.2
31	TRI	45.4	31	GRC	29.3
32	URU	47.4	32.5	JAM	32.2
33	HUN	47.6	32.5	POL	32.2
34	TAI	48.9	34	HUN	35.8
35	JAM	50.6	35	TRI	36.6
36	HON	52	36	CUB	37.9
37	KEN	52.6	37	PAN	38.1
38	VEN	52.9	38	MAL	39.3
39	JOR	53.5	39	HON	39.5
40.5	CEY	56.8	40	CEY	42.8
40.5	POL	56.8	41	VEN	43.9

Appendix 3m coht'd

1960			1970		
Rank	Name Code	Value	Rank	Name Code	Value
42	PAN	57	42	NIC	45.4
43.5	COS	62.4	43	URU	48.8
43.5	ARG	62.4	44	RUM	49.4
45	MAL	68.9	45	DOM	50.9
46	NIC	70.2	46	YUG	55.2
47	MAG	73.8	47	KEN	55.3
48	MEX	74.2	48	ARG	56.8
49	RUM	75.7	49	POR	58
50	ELS	76.3	50	PER	64.1
51	POR	77.5	51	COL	66
52	ALB	83	52	ELS	66.9
53	BOL	83.6	53.5	COS	67.2
54	PHI	84.6	53.5	PHI	67.2
55	YUG	87.7	55	MEX	68.5
56	GUA	91.9	56	BOL	71.3
57	PER	92.1	57	CHL	83.2
58	COL	99.8	58	ECU	90
59	ECU	100	59	ALB	90.8
60	DOM	100.6	60	GUA	92
61	UAR	109.3	61	UAR	119.0
62	CHL	125.1	62	MAG	120.8
63	TOG	127.3	63	TOG	124.7
64	IND	145.9	64	PAK	134
65	PAK	150	65	IND	139.0
66	TUR	169.8	66	TUR	145.8

Appendix 4a

Lorenz Curve: Combined Adjusted School Enrolment

Appendix 4b

Lorenz Curve: Number of Students in Third Level
Education

Appendix 4c

Lorenz Curve: Circulation of Daily and Non-Daily Newspapers

Appendix 4dLorenz Curve: Radio Receivers per 1,000 Population

Appendix 4eLorenz Curve: Steel Consumption per capita

Appendix 4f

Lorenz Curve: % of GDP Originating in Industry

Appendix 4g

Lorenz Curve: Agriculture as % of GDP

Appendix 4hLorenz Curve: GNP per capita

Appendix 4iLorenz Curve: Energy Consumption per capita

Appendix 4iLorenz Curve: Calories per Day

Appendix 4kLorenz Curve: Population per Hospital Bed

Appendix 41Lorenz Curve: Population per Physician

Appendix 4m

Lorenz Curve: Infant Mortality Rates

APPENDIX 5

African Nations' Rank-Change Experiences*

- * Figure in bracket is 1960-1970 rank-change
- ++ Signifies upward real rank-change
- + Signifies downward real rank-change

Appendix 5a

African Nations' Rank-Position Experiences 1960 and 1970,
Combined Adjusted School Enrollment

1960				1970			
CC	PC	CP	PP	CC	PC	CP	PP
43	SAF	56	TUN	79	MOR	58	GHA(14.5)
		59	UAR	80.5	MAW	61	CAO(7.5)
		61.5	NAG	80.5	TOG	64.5	ZAM(8)
		64	LYB	83.5	LBR	64.5	UAR(5.5)
		66	RWA	83.5	NIG	68.5	LBR(15)
		67	UGA	86	CEN	73	IVC(4.5)
		68.5	CAO	83.5	TAZ	74	MAG(-12.5)
		72.5	GHA	88.5	SEN	75	ALG(0.5)
		72.5	KEN	90	DAH	76	RWA(-10)
		72.5	ZAM	91.5	SIE	77	KEN(-4.5)
		75.5	ALG	94	BUI	78	CEN(8)
		77.5	IVC	95.1	GUI	80	TOG(0.5)
				95.5	SUD		
				97	CHA		
				99	MLI		
				103	UPP		
				103	SOM		
				103	ETH		
				105	NIR		
					</		

Appendix 5b

African Nations' Rank-Position Experiences 1960 and 1970,
Number in Third Level Education

1960			1970				
CC	PC	CC	PP	CC	PP	CP	PP
	28 UAR	68	LBR		41 UAR (-13)	65	TUN (6
	35 SAF	70	ALG		53 SAF (-18)	68	LYB (5
		71	TUN			74	SEN (2
		73	LYB			76	LBR (- 8
		76	SEN			79	IVC (11
		77	GHA			80	ALG (-10
		79	MOR			81	SUD (0
		81	SUD			82	MOR (- 3
		82	COP			83	MAG (0.5
		83.5	MAG			84	GHA (- 7
		85	SIE			85	COP (- 3
		87	UGA			86	KEN (8
		90	IVC			87	SIE (- 2
		91	ZAM			89	ZAM (2
		92.5	ETH			90	UGA (- 3
		92.5	NIG			93.5	ETH (- 1
		94	KEN			93.5	NIG (- 1
		95	SOM			95	BUI (1
		96	BUI			96	SOM (- 1
		97	UPP			99	UPP (0

Appendix 5c

African Nations' Rank-Position Experiences, 1960 and 1970, Circulation of Daily Newspapers

1960				1970			
CP	PC	CC	PP	CP	PC	CC	PP
45 SAF			59	ALG	49 GHA (7)		62 LYB (16)
56 GHA			61	MOR	58 SAF (-13)		64 UAR (-2)
			62	UAR			66 SIE (12)
			67	KEN			67 TUN (0)
			67	TUN			68.5 KEN (-1.5)
			73	MAG			71 ZAN (3)
			74	ZAM			72 ALG (-13)
			75	MIG			73.5 IVC (13.5)
			76	UGA			75 MOR (-14)
			78	SIE			78.5 SUD (4.5)
			78	LYB			78.5 NAG (-5.5)
			80.5	SEN			78.5 UGA (-2.5)
			83	SUD			81 TOG (-5)
			84.5	TAZ			82 NIG (-7)
			86	TOG			82.5 LBR (-15.5)
			87	IVC			86.5 TAZ (-2)
			88	DAH			86.5 SEN (-6)
			89	ETH			90.5 CAO (0)
			90.5	CAO			93 DAH (-5)
			90.5	COP			93 GUI (4.5)
			93	MLI			93 ETH (-4)
			95.5	NIR			95 COP (-4.5)
			95.5	CEN			96 CEN (-0.5)
			97.5	CHA			97.5 NIR (2)
			97.5	GUI			97.5 MLI (-4.5)
			99	LBR			99 CHA (-1.5)

Appendix 5d

African Nations' Rank-Position Experiences, 1960 and
1970, Radio Receivers

1960		1970	
CC	PC	CC	PC
CP	PP	CP	PP
43 LBR	71.5 IVC	47.5 UAR(1.5)	71.5 MOR(-14.5)
47 SAF	71.5 CHA	47.5 LBR(- 4.5)	75. ALG(-22)
49 LYB	73 MAU	58 UGA(+ 17)	77 MAU(- 4)
50 UAR	74 MAG	60 MAG(+ 14)	78 LYB(-30)
53 ALG	75 UGA	61.5 GHA(+ 10)	81 CAO(-15.5)
56 SEN	77 DAH	63 TUN(- 1.5)	83 DAH(6)
57 MOR	77 GUI	67 SEN(-11)	84 CEN(- 1)
61.5 TUN	79 SOM	68 SIE(+ 26)	85 NIR(20.5)
	83 CEN	70 KEN(+14.5)	86 TOG(8)
	84.5 KEN		87.5 GUI(-10.5)
	92 ETH		87.5 NIG(- 6.5)
	94 SIE		92.5 SOM(-13.5)
	94 TOG		92.5 ZAM(10.5)
	94 NIG		95 IVC(-23.5)
	96.5 CAO		97.5 UPR(+ 9.5)
	98 COP		97.5 CHA(3)
	100.5 MLI		100 SUD(5.5)
	100.5 CHA		102 MLI(- 1.5)
	100.5 TAZ		104 TAZ(- 3.5)
	103 ZAM		105 ETH(-13)
	105.5 SUD		107 COP(- 9)
	105.5 NIR		
	107 UPP		

Appendix 5a

African Nations' Rank-Position Experiences, 1960 and 1970, Steel Consumption

CC	1960			1970		
	PC	CP	PP	CC	PC	CP
	25 SAF	45 UAR	55.5 NOR		27 SAF(-2)	49.5 TUN(9.5)
			57.5 LBR			53.5 LBR(4)
			59 TUN			56.5 UAR(-13.5)
			64.5 SUD			59.5 MOR(-4)
			64.5 GHA			66 GUI(23.5)
			67.5 UGA			66.5 ZAM(21)
			67.5 KEN			69.5 NIG(4.5)
			67.5 TAZ			71 MAG(-1)
			70 MAG			74 TOG(13.5)
			74 NIG			74 COP(2.5)
			76.5 COP			74 UGA(-6.5)
			80 ETH			74 KEN(-6.5)
			85.5 GUI			74 TAZ(-6.5)
			87.5 TOG			78.5 GHA(-14)
			87.5 BUI			78.5 SUD(-16)
			87.5 RWA			85 ETH(-5)
			87.5 ZAM			88.5 BUI(-1)
			87.5 MAW			88.5 RWA(-1)
						88.5 MAW(-1)

Appendix 5g

African Nations' Rank-Position Experiences, 1960 and
1970, Agriculture as % GDP

1960			1970		
CC	PC	CP	CC	PC	CP
14.5 SAF	28.5 TUN	46.5 MAG	65 KEN	17 SAF(-2.5)	29 TUN(-0.5)
	50 MOR	66.5 IVC	50 MAG(+2.3)		53 IVC(+13.5)
	50 SIE	73 MAW	56.5 MAG(-10)		66.5 TOG(11)
	55.5 SUD	74 NIR	56.5 KEN(8.5)		67.5 DAH(-6.5)
	59 CAO	75 NIG	59 MOR(-9)		72 NIG(3)
	61 UPP	76 TAZ	59 SIE(-9)		74 UPP(-13)
	61 DAH	77 TOG			75 ETH(3)
		78 ETH			76 CAO(-17)
		71 UGA			77 UGA(-6)
					78 NIR(-4)

Appendix 5i

African Nations' Rank-Position Experiences, 1960 and 1970, Energy Consumption

1960			1970		
CC	PC	CP	PP	CC	PC
17	SAF	50 UAR	63 TUN	25	SAF(-8)
		51 LYB	67.5 KEN		47 LYB(4)
		55 ALG	70 MOR		56 ALG(- 1)
			74 GHA		
			75 SEN		
			77 COP		
			78 LBR		
			79 IVC		
			81 GUI		
			82 CAO		
			86 SUD		
			87 TAZ		
			88 SIE		
			89 DAH		
			91.5 CEN		
			91.5 MAG		
			94 UGA		
			95 NIG		
			96 TOG		
			97 MAW		
			98.5 SOM		
			100 MAU		
			101.5 NLI		
			103.5 BUI		
			103.5 RWA		
			105 CHA		
			106 ETH		
			107 UPP		
			109 NIR		
			60.5 LBR(17.5)		
			64 UAR(-14)		
			65 TUN(- 2)		
			69 IVC(10)		
			72 MOR(- 2)		
			74 GHA(0)		
			76 KEN(- 8.5)		
			77.5 SEN(- 2.5)		
			79.5 MAU(-22.5)		
			80 SUD(- 6)		
			82 SIE(6)		
			84 GUI(- 3)		
			85 CAO(- 3)		
			87 COP(-10)		
			88 UGA(6)		
			89 TAZ(- 2)		
			90 MAG(1.5)		
			92.5 TOG(3.5)		
			95 CEN(- 3.5)		
			96 MAW(1)		
			97 NIG(- 2)		
			99 SON(- 0.5)		
			100.5 ETH(5.5)		
			100.5 DAH(-11.5)		
			102.5 NIR(6.5)		
			104 CHA(- 1)		
			105 MLI(- 3.5)		
			107.5 UPP(- 0.5)		
			109 RWA(- 0.5)		
			110 BUI(- 6.5)		

Appendix 51

African Nations' Rank-Position Experiences, 1960
and 1970, Population per Physician

1960				1970			
CC	PC	CP	PP	CC	PC	CP	PP
39 SAF	63.5 LYB	80 LBR	98 COP	36 SAF(3)	54 LYB(9.5)	77 MAG(- 5)	96 COP(2)
40 UAR	65 ALG	81 TAZ	99 CHA	47 UAR(-1)	68 RWA(+28.5)	81 SEN(10)	97 DAH(-5)
	70 TUN	82 GHA	101 MLI		69 LBR(11)	84 MOR(-11)	98 CEN(-9)
	72 MAG	83 IVC	103 ETH		71 TUN(- 1)	86 TOG(9)	100 GUI(-6.5)
	73 MOR	85 CAO	104.5UPP		72 UGA(6)	87 IVC(- 4)	101 NIR(5)
	74 KEN	86 NIG	106 NIR		73 KEN(1)	88 SUD(0)	102 ETH(1)
	78 UGA	87 NAU			74 ALG(- 9)	89 CHA(- 7)	103 MLI(-2)
		88 SUD				91 NIG(- 5)	104 BUI(-7.5)
		89 CEN				92 TAZ(-11)	105 CHA(-6)
		91 SEN				94 CAO(- 9)	106 UPP(-1.5)
		92 DAH				95 NAU(- 8)	
	93.5 GUI						
	95 TOG						
	96.5 RWA						
	96.5 BUI						

Appendix 5mAfrican Nations' Rank-Position Experiences,
1960 and 1970, Infant Mortality Rates

There were 67 nations in all on this indicator, but data were available for only 4 African nations: KEN (37, 47), MAG (47, 62), UAR (61, 61) and TOG (63, 64). As is immediately clear, two of these 4 African nations, UAR and TOG, did not change ranks between the base and the terminal years. The other two KEN and MAG lost ranks by -10 and -15 respectively. KEN slipped from PC to CP and MAG from CP to PP. UAR and TOG remained in the PP category.

APPENDIX 6

Trade Composition Index*

$$* \quad TCI = \frac{(A + D) - (B + C)}{(A + B) + (C + D)}$$

Column 1 contains the nation number and code.
Columns 4 and 7 contain the base and terminal TCI values respectively. Missing data are indicated.

APPENDIX 6 TRACE COMPOSITION INDEX

BASE

TEMP

CODE	(H+C)	(H+C+H)	TCI	(A+D)=(C+D)	(A+D+C+D)	TCI
01ALG	-005277	001945	-0.06	-00/670	010496	-0.75
02BHI	MISSING	DATA				
03CAG	-020579	040563	-0.55	-095317	128511	-0.12
04CAG	-006524	000510	-0.70	-000551	018219	-0.34
05CAG	-000576	000576	-0.65	-005573	019395	-0.70
06CAG	-010511	010511	-0.50	002597	401109	0.00
07CAG	-007936	010796	-0.15	-015769	021059	-0.55
08CAG	-039752	040679	-0.50	-573481	370641	-0.85
09CAG	-246070	011930	-0.18	-014707	000055	-0.62
10CAG	-000228	000000	-0.65	DATA		
11CAG	-053691	095933	-0.65	121977	165610	-0.75
12CAG	000000	070100	0.00	-130930	175112	-0.75
13CAG	-021758	150458	-0.00	-109555	302595	-0.62
14CAG	-001008	000788	-0.07	-036668	101400	-0.92
15CAG	-053335	000227	-0.15	-055001	075471	-0.71
16CAG	-000729	000127	-0.02	-050205	055017	-0.84
17CAG	MISSING	DATA				
18CAG	-007844	012252	-0.64	019646	026884	-0.68
19CAG	-002172	005770	-0.57	-005257	005279	-0.61
20CAG	-010116	295200	-0.15	-135142	000600	-0.28
21CAG	005164	007718	-0.65	-020600	024350	-0.80
22CAG	MISSING	DATA				
23CAG	-001056	001098	-0.55	-001154	003120	-0.38
24CAG	-052798	081558	-0.64	-033338	080804	-0.41
25CAG	-004413	050267	-0.08	-015212	179022	-0.8
26CAG	0165635	270257	-0.01	-315558	580725	-0.54
27CAG	-0135285	167061	-0.82	-075044	108088	-0.72
28CAG	-063791	000017	-0.74	-116051	142274	-0.81
29CAG	-003782	000751	-0.38	-015677	026051	-0.60
30CAG	-034875	100597	-0.21	-049325	225209	-0.21
31CAG	-000081	000415	-0.19	-000270	000530	-0.51
32CAG	-021089	060653	-0.53	124266	174380	-0.86
33CAG	-003937	000045	-0.40	-011103	018169	-0.60
34CAG	MISSING	DATA				

END

1901

FIN