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COMPARATIVE ANALYSIS OF SOCIAL CHANGE IN THE MUSLIM NATIONS

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ABSTRACT

COMPARATIVE ANALYSIS OF SOCIAL CHANGE IN THE MUSLIM NATIONS

By

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The main purpose of this research was to study aspects of social change in education, housing, health, labor force composition, and political participation in Muslim nations in two periods: 1975 and 1985. Further, the researcher compared the extent of change among Muslim countries in these aspects, and tested hypotheses concerning relationships between infant mortality (as the endogenous variable) and adult literacy, women's participation in the labor force, access to piped water, population density, and GNP per capita (as exogenous variables).

Thirty-six nations constituted the study sample. Using secondary data, t-test, multiple regression, analysis of variance, path analysis, and correlations were used as statistical techniques in analyzing the data.

Results of the t-test showed that a significant change had occurred between 1985 and 1975 in the education, health, housing, labor force composition, and political participation areas, whereas no significant difference was observed in female enrollment in schools and citizen participation indicators.

Results of the analysis of variance showed that both significant and nonsignificant differences were found in geographic location, ethnic background, political type, and oil production. Significant differences were found between Asian and African nations in women's participation in the labor force and adult literacy. Between Arab and non-Arab Muslim nations, the null hypotheses concerning infant mortality, women's participation in the labor force, and GNP per capita were rejected.

The null hypotheses concerning republican and nonrepublican nations in infant mortality, access to piped water, and GNP per capita were rejected. The null hypothesis concerning oil and nonoil-producing nations was rejected only on GNP per capita.

Path-analysis results showed that 9 out of 11 hypotheses were in congruity with expectations. However, hypotheses concerning the relationships between woman's participation in the labor force, and between adult literacy and population density, were opposite to expectations, having a negative rather than positive sign.

The findings suggest that change had occurred in certain areas but not others in these countries' transition from the traditional to the modern. The implications of social change theory are a highly desirable area for further research, especially using historical comparative analysis and path-analysis techniques.

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CHAPTER I

INTRODUCTION TO THE STUDY

Introduction

The measurement of political, economic, and social change is a perpetual need in the social sciences. Several measurement studies concerning socioeconomic and political development have been conducted by social scientists in areas of educational achievement, political and economic development, overall modernity, levels of living, and socio-cultural change (Adelman & Morris, 1969; Allen & Bent, 1965; Inkeles & Smith, 1973; MacGranahan, 1972; McClelland, 1962; Morris, 1979, 1986; United Nations, 1954).

Purpose of the Study

The writer's main purpose in this research was to study aspects of social change in education, housing, health, labor force composition, and political participation in Muslim nations in two time periods, 1975 and 1985, and to compare the extent of change in the above-mentioned areas within these countries. The secondary purpose was to test expected relationships between infant mortality and five predictor variables in the change process. The variables represent various aspects of social life believed by a number of researchers to be interrelated (Adelman & Morris, 1969; Davis, 1959; Goldscheider, 1971; Havighurst & Neugarten, 1968; Lerner, 1958;

Levy, 1962; Shin, 1977). These variables are gross national product (GNP) per capita and participation of women in the labor force (economic), population density (demographic), percentage of households with access to piped water (housing), and adult literacy (education).

Statement of the Problem

Economists commonly have used GNP per capita as the sole measure of economic growth. Sociologists, however, have concerned themselves with the distribution of social services including GNP per capita. Although it is a widely known and accepted notion that social change is a multidimensional concept, few sound theoretical studies have been conducted to measure social change in the areas of quality of life and well-being (Boulding, 1967; Bunge, 1973; Drewnowski, 1971; Horowitz, 1969; Land, 1971; Mukhotis, 1986; Olson, 1968).

Unfortunately, the problem of selecting indicators has not been considered for the universal level of analysis because of difficulties concerning the availability, comparability, and limitations of the selected indicators. In addition, problems arise in the definition of indicators and validation of measurement instruments.

Many researchers believe that social change can be measured by indicators of basic needs, quality of life, social accounts, or social concerns (Andrews, 1986; Campbell, 1973; Moore, 1973; Streeten, 1973). Others have used an array of indicators

covering broad sociocultural areas including population, politics, communication, education, health, social welfare, crime, and family (Allen & Bent, 1965). Such measurements were introduced primarily to understand social change in order to increase the policy-making power of governmental agencies in solving social problems and raising the level of all segments of the population.

The search for a supplement or substitute for GNP has continued for the past 30 years. Several other measurements and theoretical frameworks have been suggested and new indicators have been introduced to enhance the accuracy of measures of social change. But problems remain concerning conceptualization and the validity and reliability of the measurements.

Being aware of these difficulties, the present writer attempted to study change in certain social aspects in a group of nations. Similar research on these aspects has not been undertaken with all Muslim nations included in one study.

Objectives of the Study

The writer had the following objectives: (a) to study social change in Muslim countries in five areas: health, education, housing, labor force composition, and political participation from 1975 to 1985; (b) to describe and compare similarities and differences among the Muslim nations in the selected aspects of change; and (c) to test hypotheses concerning relationships between infant mortality (as the endogenous variable) and literacy,

participation of women in the labor force, access to piped water, GNP per capita, and population density (as the exogenous variables).

Importance and Contribution of the Study

For a long time, most policy makers (politicians, economists, and sociologists) preferred to use GNP per capita as the sole indicator of socioeconomic development. However, social scientists increasingly view GNP as inaccurate for measuring social change or improvement in levels of living (Campbell, 1973), even though it is considered the most accurate indicator of economic growth and has sometimes correlated strongly with development indicators as well (Adelman & Morris, 1974; Bunge, 1973; United Nations, 1954).

The present study is important because of the need to investigate social change among nations in transition from a traditional to a modern social type. The study is timely and should help fill the gap in comparative research in this area. The findings concern changes in various social areas that should be helpful to policy makers in the sample nations in the fields of health, housing, education, labor force, and citizen participation, as well as other demographic areas.

Comparative Conceptual Framework

Change is a multidimensional concept that can be applied to all aspects of social and cultural life including growth and structure, earning methods and distribution, political systems, and values and culture. In the simplest terms, change is merely a new situation that differs from the previous one. The task for

sociologists is to arrive at general patterns of change itself. To what extent does change occur? How does it occur? What factors are related to such occurrences?

This writer attempted to answer the first and third questions using a historical-comparative design. The extent of change in the five selected social areas was studied, and certain relationships were tested.

In the present study, assuming that the Muslim countries share many economic, cultural, and political characteristics, those nations were considered to constitute the "optimal sample" to serve the purpose of the research. Further, the sample set is optimal to test certain modernization assumptions in terms of fundamentalism and religiosity, where nations vary in their religiosity and GNP per capita when oil production is taken into consideration.

Overview

The remainder of the dissertation is organized as follows: Chapter II is a review of the literature on social change. The relevance of change theories to the study and to Islamic culture and change is discussed. Chapter III, the conceptual framework, covers the aspects and indicators of social change. In Chapter IV, the Muslim world is described in terms of economic and socio-demographic variables. In Chapter V, the design and methodology of the study are explained. Chapter VI contains the results of the data analyses, and Chapter VII contains a summary of the study,

conclusions based on the research findings, and recommendations for further research.

CHAPTER II

REVIEW OF THE LITERATURE

To understand socio-cultural change in general and change in the proposed social aspects, it is important to discuss briefly the concept of "social change" by reviewing classical and contemporary theories of change and to explain the context of Islam as a religion and Muslim modern culture in light of these theories.

Definition of Social Change

Social change has assumed a significance today that is unparalleled in the history of mankind. It is more rapid and thoroughgoing than ever before (Black, 1966). The phenomenal growth of knowledge in the past 150 years has been largely responsible for increasing gains in scientific and technological control, which are, in turn, associated with certain forms of social structure, values, and attitudes.

Social change may be defined as "the transformation of culture and social institutions over time that is reflected in the life patterns of individuals" (Macionis, 1989, p. 612). It is simply the process of becoming different. When changes grow in an order connected to earlier phases of change, the process is called evolution. The term "development," which involves change in the

sense of gradually evolving possibilities, is also frequently applied to social phenomena. It is sometimes used to mean movement or transition from "traditional, agricultural" social types into "rational, modern, industrial" social types. Such transitions can be observed in educational institutions, health, housing, political participation, and size and skill of the labor force. Before delving into a discussion of these areas, theories concerning social change are examined in both classical and modern social thought.

Social Change in Classical Theory

Social scientists in the last two centuries have been puzzled by questions concerning causes and directions of change in general and in specific aspects of economic, political, and social change. Long before pioneers of social thought in Europe, and before the term "sociology" took its familiar name from Comte, Ibn Khaldun (1332-1406) in his Muqaddimah explored the manifold factors involved in social change. His theory included two contrasting forms of social organization--the nomadic (bedouin) and sedentary. Lauer (1973) pointed out that Ibn Khaldun "as a pioneer of sociological thought . . . not only made bold new advances in trying to ascertain causal factors in change; he also recognized that those factors would be numerous and diverse" (p. 25).

Ibn Khaldun contrasted the life of empires (nations) like an individual, and history as an ongoing cycle of growth and

decay, passing five stages. Comte (1798-1857) thought he had discovered in social change a relationship between intellectual and social development. He stated this in his well-known theory that human thought passed through three historical stages: the theological, the metaphysical, and the positive.

Durkheim (1855-1917) saw in social change a transformation from a primitive, mechanical, segmentary society to an organic one marked by the division of labor. Tonnies (1855-1936) believed that social change showed a development from a Gemeinschaft (community), a spontaneous natural unity, to Gesellschaft (society) a type of unity characterized by complex associations formed for various interests and purposes. Among Marx's (1818-1883) areas of concern were the causes of social change. He postulated that change lies in technological development and the conflict between classes for its control. Pareto (1948-1923) saw social change as rising from an alteration in the types of elite who control society.

Spencer (1820-1903) compared society and its institutions with the human organism as a system, which he described in terms of the sustaining, distributing, and regulating systems. Finally, Spengler, Toynbee, and Sorokin followed Ibn Khaldun's cyclical theory, in their studies of social change. For example, Spengler saw social change as the natural process of birth, growth, maturity, and decay. Toynbee, in his monumental historical survey, explained social change in terms of the rise and fall of civilizations. And Sorokin, (1889-1968) formulated a cyclical

theory of social change called "cultural super-systems," in which each system succeeds the other.

Growth, Development, and Change

Although the debate regarding modernization concepts such as growth, development, and change has not ended; the present writer does support the argument that differences may exist in the conceptualization of growth and development. Several writers have given this issue more attention. For example, Flammang (1979), in his article "Economic Growth and Economic Development: Counterparts or Competitors?" aimed at dispelling some of the confusion surrounding the terms "growth" and "development." Flammang argued that the two terms are different but related processes that are both counterparts and competitors, depending on the situation. He distinguished between the two as follows: Economic growth is a process of simple increase, implying more of the same, while economic development is a process of structural change, implying something different if not something more" (p. 50).

Whereas the term "growth" means an "increase" and the term "development" means "different--if not something more," both terms indicate a positive direction of change where change has both positive and negative directions. The purpose of the present study was to study change, not to assess growth or development alone, which only measures one direction of change. It is argued, for this reason, that the concept of "change" is broader than the two terms. Change, therefore, was selected in the present study, measured

quantitatively, and compared in terms of certain areas, to avoid arguing over terminology. Taking into consideration the differences among the nations studied, it was expected that the findings would show both positive and negative directions of social aspects of change.

Relevance of the Literature to the Study

Literature on social change has been developed from a broad discussion of civilizations (Ibn Khaldun, Spengler, Sorokin, and Toynbee) to specific discussion of small organizations and institutions (the subsystems in Parsons' theory, for example). While the relevance of these theories to social change is obvious, the factor of time and the specific selected areas prevent their application.

In the remaining pages of this chapter, the writer discusses how Islamic culture perceives change and modernization.

Islamic Culture and Change

The key problem of modernization in Muslim nations is the need to mesh Islam, which is a faith, a way of life, and a community, with the thought processes and techniques of the modern world as developed by the West (Dean, 1957, p. 48). These nations have the natural and passionate desire to achieve or maintain national goals. The fear has been that the adoption of Western techniques will destroy the ancient faith by which people have lived for centuries. To understand this fear, we must see how Islam perceives change in general and modernization in particular.

The Islamic society is based on a positive recognition of the sacred; religion is incontrovertibly of highest value in almost all Muslim populations. This often creates difficulties in adjusting to the secular ends-means criteria. From sociological point of view, the Muslim social organization has always placed great emphasis on the particularism which acts as a barrier in modernization. Further, Islam, in common with other religions, inherently rejects change. The word for "innovation" in the religious sense is Bid'ah, considered as heresy and something inherently bad. It is the opposite of Sunnah, the path of the Prophet and the way of life in the Islamic community. Innovation in this case may contradict the Qur'an and Sunnah, and therefore is unacceptable. Only in the case where innovation does not contradict Sunnah is it acceptable. But many innovators and policy makers in the Muslim World have attempted to relegate religion to a place apart, in order to enhance modernization. Religion is no longer the source of social energy or the model of the future among many Muslim leaders. These characteristics, in fact, constitute the hallmark of secularism and modernization.

These broad changes are far too vast to comprehend in one research project; thus, only the extent of change in the five selected areas is covered here. In order for social systems to survive, economic, social, and political institutions must be created and managed to direct the nations' resources and people's skills toward national goals in the nations' building process. Such

goals may not be realized in an ill-educated and ill-fed population with a high mortality rate, low GNP per capita, high population growth and density, and low participation in the nation's social and political institutions. Change in these areas is necessary for the process of social transition postulated by modernization and secularization theories.

Becker (1932), building on the writings of Tonnies, Durkheim, and Redfield, analyzed secularization by contrasting the sacred and the secular in their extreme manifestations. He used essentially rural situations as being typical examples of sacred societies and the urban as usually being more secular. He characterized rural society as one in which primary social attitudes are the main force of social control, where economic self-sufficiency is common, and isolation and primary-group relations are dominant. For urban people, in contrast, primary controls tend to be less effective and social relationships tend to be treated as a means to an end. Individualization, rationality, and critical abilities are highly valued.

Theoretically, secularization, as a process, describes what happens to the religious structure of people when their culture increases in complexity and specialization (Wash, 1937). From this point of view, Christianity has given a more comprehensive teaching on the ethics of work, profession, and occupation than any other religion. This tendency was furthered as a result of the teachings of Calvin and other Protestant thinkers who emphasized work and success as signs of salvation, a doctrine that easily led to

secularization. This has been the object of study of Max Weber and others (Wash, 1937). Therefore, in the interrelationship between religious thought and modern culture, Protestant values embrace modern culture.

Weber (1940) attributed the rise of Western capitalism largely to Protestantism. He wrote: "It is the fate of our time, characterized as it is by rationalism and intellectualization, and above all by tendencies to secularize the world, that precisely the most ultimate and sublime values have been withdrawn from the common life" (p. 483).

The contemporary Muslim world has many secular characteristics in its social, political, and economic life. General patterns of change that indicate such phenomena are, for example, expanding urban areas and factory labor; increases in communication, education, and literacy; and the advent of national states backed by rationalist feeling that spreads from the educated elite to the masses. Until recently those masses had remained largely outside the political society. Furtherm there is a growing equality of women and the loosening of parental authority, as well as an application of Western, secular legal codes and an increasing use of science and technology in agriculture, industry, and medical care (Berger, 1964).

Such contemporary social structures do not, however, seem to include the entire Muslim nations. Two competing attitudes permeate these structures: opposition to change for whatever

reason, and a desire to stimulate revival through change. Such attitudes are reflected in two sharply opposing divisions: "secularism" and "fundamentalism," or "modernism" and "traditionalism," which may be more applicable to the Muslim culture, both of which exist in almost all societies and interpret change differently.

The modernists, on one side, have simply ignored religion and have gone ahead with their plans to modernize their nations without concern for religious tradition except to use Islamic loyalty as part of their nationalist appeal. In contrast, "traditionalists" have continued to insist upon the maintenance of Islamic tradition. Traditionalism has in its favor the weight of doctrinal purity and the conservatism of the mass of religious Muslims. Further, "social change" is perceived among traditionalists to mean movement toward the Western pattern of "modernization," where the character and motives of the Prophet were vilified, and the beliefs of Muslims were ridiculed. Traditionalism, in fact, refuses to see any need for change or any good in it because it is perceived as a Western phenomenon (Berger, 1964).

Despite the reluctance of the traditionalists, change in the basic institutions of the Muslim countries is observable if we consider change as described by sociologists. MacIver (1937), for example, described "the broad pattern of social change" as an increasing specialization of institutions and associations, a decline in ritual, an advance of utilitarian and secular approaches to nature, a separation of cultural life from biophysical

limitations through science and technology, and an increase in the "scale of community," or human interaction and interdependence (pp. 479-84). These changes can be observed in many Muslim countries, especially those that have large urban areas, high population density, and, to a lesser extent, high GNP per capita.

In the economic sphere, many of these countries are faced with problems of production, manufacturing, and distribution, especially when large illiterate populations constitute the majority of the nation's citizens. Problems are also created when there is an influx of peasants into the cities, a lack of communication and modern management, an inequality of women in the society, and a persistence of traditional resistance to change. All these problems were open for modernization models characterized by transitions of the nations' institutions and structures from their traditional situation into the Western secular legal model, including a complex division of labor, a relatively open social structure in which cast barriers are absent and class barriers not insurmountable, in which social roles and gains from economic activity are largely distributed on the basis of achievement, and in which, therefore, innovation, the search for and exploitation of profitable market situations, and self-interest without regard to the welfare of others are fully sanctioned.

From the comparative analysis of the above theories, it appears that no theory of social change has yet been accepted as satisfactorily and accurately applicable for all situations. Each theory

emphasizes some important factors of change, either in causes, in directions, or in rates. The existence of these factors also emphasizes that social change has a multiplicity of causes and follows various directions. This conclusion may suggest further research which constitutes a dominant interest for many contemporary sociologists. This research was limited to the study of change in education, health, housing conditions, labor force composition, and political participation. The researcher studied what has happened in those social aspects that seemed to have interdependent relationships in the modernization process in Muslim countries in 1985 compared with 1975. These aspects are discussed in the following chapter.

CHAPTER III

CONCEPTUAL FRAMEWORK

The main purpose of the present research was to study aspects of social change among Muslim nations in the education, health, housing, labor force composition, and political participation areas between two time periods, 1975 and 1985, with emphasis on the expected relationship between infant mortality and five predictor variables. This section covers the selected aspects of social change and the variables included in the causal model. Finally, the study hypotheses are stated.

Aspects and Indicators of Social Change

Since it is far from the purpose and capacity of this study to comprehend all aspects of social change, only five areas were selected: health, housing, education, labor force composition, and political participation. Each of these domains was broken down into several indicators commonly found in the literature and used in both national and international development studies and which were therefore comparable cross-culturally (Adelman & Morris, 1967; Allen & Bentz, 1965; Cutright, 1973; Magranahan 1972; Morris, 1979; Olsen, 1967; Streeten & Burki, 1978; United Nations, 1953; Wilkins, Peterson, & Schltz, 1986).

Figure 3.1 shows these social aspects and their suggested indicators. The following section explains the domains and indicators used in the study.

Social Aspects	Indicators
Health	1. Infant mortality
	2. Death rate
Housing	3. Piped water
	4. Electricity
Education	5. Literacy
	6. Female enrollment in - primary - secondary - college
Labor Force Composition	7. Women in labor force
	8. Labor force in manufactures
Politics	9. Citizen participation

Figure 3.1.--Social aspects and indicators.

Health

While health indicators are many, infant mortality (the number of infants who die before completing their first year per 1,000 live births in a given year) and death rate (the number of deaths reported in a calendar year per 1,000 persons of the mid-year population) were selected. In addition to their association with low levels of education, high death rates may indicate that hospitals, health departments, doctors, nurses, and medical staff are not working effectively. When nations develop in these areas, infant mortality and death rates will be reduced as a

result. However, such indicators as the number of doctors, nurses, hospital beds, or calorie consumption are not equally distributed among the population. The selected indicators, even though they do not take into account differences between rural and urban areas or rich and poor segments of the nation, are assumed to be accurate measures of change in the health area, in the absence of more accurate specification by regions or classes.

Housing

In the housing domain, access to piped water (the percentage of occupied dwellings with safe water piped inside or within 100 meters) and access to electricity (the percentage of occupied dwellings with access to electricity) were selected as accurate measures of housing in the process of change. It was assumed that the higher the percentage of people having access to piped water and electricity, the less likely people are to contact diseases usually caused by contaminated water from wells, channels, and rivers. Availability of piped water may also indicate that government agencies are effective in fulfilling their responsibility in this area. Access to electricity may describe the change in the proportion of the "better off" population. Further, it was selected here for its use in many research studies as a sign of modernization, urbanization, and industrialization (Cutright, 1967; Olsen, 1967).

Education

In the education domain, literacy (percentage of adult average of male and female literacy) is a well-established indicator of social change and has interdependent relationships with modernization variables (Lerner, 1958; Rogers, 1968). Female enrollment (percentage of female enrollment of the total enrollment at the primary, secondary, and college levels) was included as one composite indicator. Female education has recently been recognized in many Muslim countries. Change in the proportion of female enrollment in school is likely to increase if we assume that modernization processes are taking place. The notion that education increases women's participation in the work force depends on the belief that education influences females' ability and aspiration to enter the labor market and changes their attitudes toward females' traditional role in society (Ram, 1982; Standing, 1981). Since the percentage of GNP assigned to education does not distinguish between the material and human factors in education, it was not included. These indicators were selected for their comparability cross-nationally and over time. Including literacy in the education domain is appropriate because these nations strive to educate both their young and mature citizens.

Many social scientists, such as Weber (1946), have emphasized the important role literacy plays in the modernization process:

> Not only must mass literacy, which makes modern communications system possible, be developed, but also must the rational-secular component in attitudes which are essential for individual participation in the modernization process. (p. 298)

Labor Force Composition

For this domain, two indicators were selected: women in the labor force (the percentage of women in the labor force) and men in the industrial sector (the percentage of men in the industrial nonagricultural sector of the total labor force). The importance of including the percentage of women in the labor force springs from the nature of the extremely male-dominated culture of the nations in this study. Whereas the percentage of males in the labor force of the industrial sector was selected and expected to change significantly in the period studied, it was assumed that using women's participation in the labor force as an indicator of social change would be more accurate than men's participation for the reasons discussed above.

The interrelationships between these indicators and others (literacy, health, and poverty) were described by Viner (1967) as the requirements of modern productive labor. He said:

> The first requirements for high labor productivity under modern conditions are that the masses of the population shall be literate, healthy, and sufficiently well fed to be strong and energetic. . . . Whenever this has not been accomplished and is not being strongly promoted to the utmost limits . . . they are certain to explain pervasive poverty and slow economic growth. (p. 82)

Political Participation

Citizen political participation or the Democratization Index is based on two empirical variables: first, the share of the smaller parties and independents of the votes cast in parliamentary and/or presidential elections; and second, the degree of electoral

participation (Vanhanen, 1979). Generally speaking, political participation indicates a greater amount of democracy and this tends to influence the decision-making process toward improving areas vital for a greater number of people rather than toward those that benefit just the elites or the more powerful classes with their particular interests. When such participation is lacking, governments become corrupt, badly organized, and inefficient. Citizen participation, therefore, was included as an indicator to represent the political participation domain. In spite of increasing educational and economic growth, it was expected that change in the percentage of political participation has occurred to a lesser extent than it has in other aspects (Hoselitz, 1964; Lerner, 1958).

Each of the above-mentioned domains can be considered an area of social change. Their scores were computed, compared, and reported in this study. Expected relationships of some indicators with other variables were emphasized and tested by constructing the path model analysis explained in the following section.

A Path Model of Infant Mortality

A reduction in infant mortality is one of many consequences of modernization, one in which, moreover, institutions as subsystems may be established to contribute to such reduction. In fact, modernization is "unthinkable without major alteration in the level and pattern of death" (Goldscheider, 1971, p. 125). Infant

mortality has often been regarded as a sensitive indicator of socioeconomic differences at both the macro and micro levels. Previous researchers have demonstrated that the proportion of children dying during the first year of life is closely associated with the national level of socioeconomic development (Shin, 1975). Socioeconomic development is taken to be represented by declining infant and maternal mortality, just as it represents an increase in literacy, education, electrification, industrialization, women's participation in the labor force, urbanization, and GNP per capita (Houser, 1979).

Demographic variables also have been found to have a significant influence on infant mortality (Goldscheider, 1971). Although determinants of infant mortality cover a wide range of interrelated social, economic, cultural, and political variables, the present path model was limited to a specific number of these determinants, i.e., GNP per capita, population density, adult literacy, women's participation in the labor force, and access to piped water. The importance of these variables as major determinants of cross-cultural variations in infant mortality has been noted in previous studies (Adelman, 1963; Caldwell & McDonald, 1981; Flegg, 1982; Friedlander & Silver, 1967; Heer, 1966).

One of the principal advantages of path analysis is that it enables researchers to measure the direct and indirect effects that one variable has on another (Asher, 1983). It is also a useful

approach to quantifying and interpreting causal theory in sociology (Duncan, 1973; Goldberg & Duncan, 1973; Lewis-Beck, 1974).

The Path-Model Hypotheses

In this section, the hypothesized relationships and the components of the model are explained, and the empirical findings for each variable are briefly discussed. The major concern in constructing the model was to ascertain the degree of empirical support for the model as presented. In this manner, the model itself can be regarded as the major hypothesis or collection of hypotheses.

In this section, illustration of the path analytic principles of the six-variable causal model are explained, and the nature of each component and its effects are briefly discussed.

The most productive path toward explaining determinants of infant mortality would appear to be the tracing of interrelationships between infant mortality (the dependent variable) and other indicators (as independent variables). The conclusion of the present research should agree with the relationships presented. They are:

1. Five path coefficients link all independent variables to infant mortality.

2. Three path coefficients link GNP per capita to infant mortality: through adult literacy, through women's participation in the labor force, and through access to piped water.

3. Three path coefficients link population density to infant mortality through adult literacy: through women's participation in the labor force, and through access access to piped water.

4. One path coefficient links population density to adult literacy and to infant mortality: through women's participation in the labor force.

5. The residual terms: The model includes a path coefficient to capture the relationship between the unobserved residual term (not shown in the model) and infant mortality.

The causal model representing some of the hypothesized determinants of infant mortality is shown in Figure 3.2.

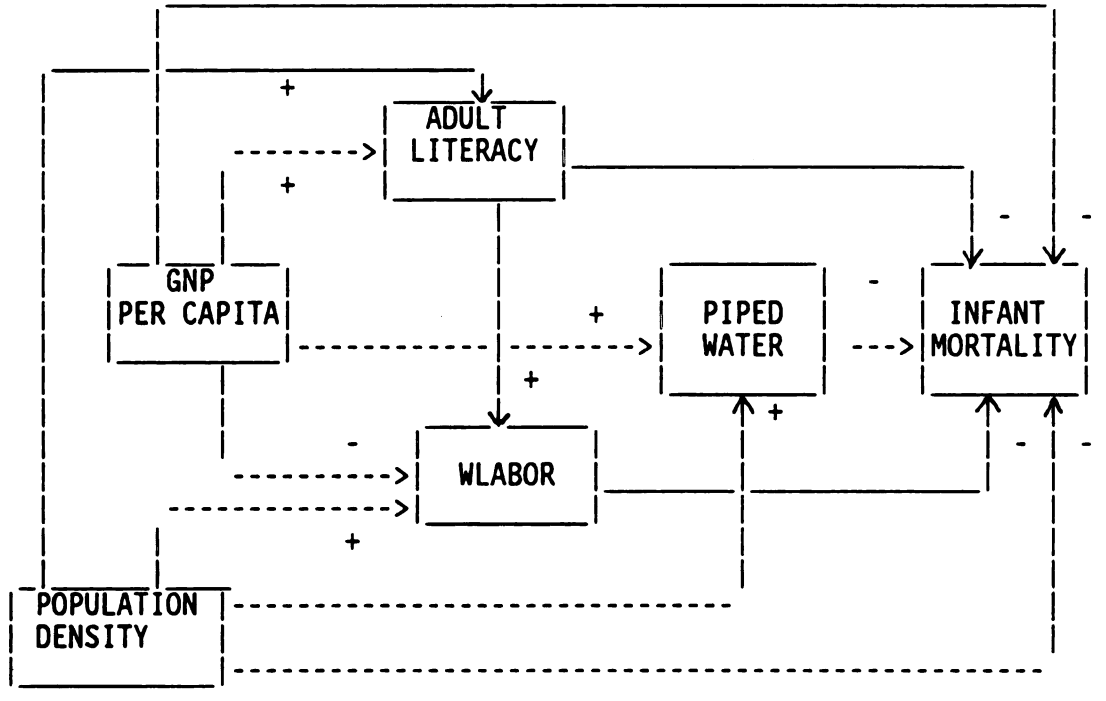


Figure 3.2.--Proposed causal model of infant mortality.

The pluses (+) and minuses (-) in the model indicate the direction of the hypothesized relationships. For example, a country's GNP per capita and its population density were posited as predetermined variables and were thus placed to the left in the diagram. They were assumed to be uncorrelated for the purpose of this study. Both greater GNP per capita and more population density were hypothesized to affect positively adult literacy, women's participation in the labor force (negatively with GNP per capita), and access to piped water. The five variables were hypothesized to have negative direct causal effects on infant mortality.

Components of the Model

Infant mortality. Infant mortality is dependent on multiple factors acting concurrently on the biological and physical environment in which people live. It is often difficult to conduct studies of causal relationships of infant mortality because it is not possible to identify all of the variables that indirectly or directly cause infant mortality. However, socioeconomic variables have been noted in previous studies (Adelman, 1963; Friedlander & Silver, 1967; Heer, 1966; Houser, 1955). For example, in reducing infant mortality, Hobcraft et al. (1982) emphasized the interplay of literacy, income, occupation, and work characteristics. This is because when people can be expected to be better nourished and to have better housing conditions, they become more likely to recognize illness requiring medical intervention and less likely to seek religious treatments (Caldwell & McDonald, 1981; Flegg, 1982).

In the model, the independent variables were limited to GNP per capita, population density, adult literacy, women's participation in the labor force, and access to piped water. In the remaining part of this chapter, hypothesized relationships among the variables and with infant mortality are briefly discussed.

GNP per capita and infant mortality. The initial factor to be considered in this model was GNP per capita. Although not all modernization is economic, economic change was assumed to be at the heart of the modernization process. GNP per capita is an indicator believed widely by many social scientists to reflect the economic condition of a nation (McGranahan et al., 1972; United Nations, 1975). More specifically, several studies have indicated high correlation between GNP per capita and economic and social indicators. Sheehan and Hopkins (1978) pointed out that "the most important variable explaining the average level of basic needs satisfaction is per capita GNP" (p. 95)

Therefore, it was assumed in the present study that GNP per capita was associated negatively with infant mortality.

Populations density and infant mortality. Population density refers to the relative size of a population with reference to the space it occupies. The concentration of population may well make it easier for governments to meet basic needs (Yotopoulis & Bovee, 1981). Such concentration is often associated with urbanization, industrialization, and modernization (Levy, 1962).

A comparative analysis of socioeconomic differentials of infant mortality showed that infant mortality is generally lower in more densely populated areas, and lowest of all in dense metropolitan areas (Hobcraft et al., 1982).

In developing countries, infant mortality is often thought to be higher in rural than urban areas. In several high-mortality countries, notably Haiti, Sudan, and Bangladesh, infant mortality rates are lower in high-density areas than in low-density areas (Sawyer, 1978).

According to these empirical findings, a negative relationship was expected to be found between population density and infant mortality in the Muslim countries.

Adult literacy and infant mortality. Social change usually accompanies economic change. Of the important aspects of change that promote specific behavior, adult literacy (male and female) is a crucial factor in the creation of certain culturally approved values. One of these values is social and economic betterment (Inkeles & Smith, 1974; Olson, 1960).

Many researchers have observed and noted a distinct relationship between literacy and social behavior and lifestyles (Lerner, 1958; McClelland, 1962; Waisanen, 1969). The level of literacy of parents has an almost competitive effect. The key factor seems to be that of literate women who increasingly are seen by both themselves and others as being part of a global society with an accepted attitude toward bacterial contamination and corresponding hygienic methods, the use of modern medical facilities, and

persistence in recommended treatments, which in turn decrease infant mortality (Caldwell, 1981).

In the modern world, educational level is a crucial determinant of both societal development and individual status (Houser, 1979). Adult literacy was thought to be more sensitive to infant mortality than the general education variable because the survival of an infant is very much linked to the quality of parental care concerning immunization. Therefore, adult literacy was expected in the model to be negatively related to infant mortality.

Women's participation in the labor force and infant mortality. In the change process, the economy is usually transformed from being largely agrarian to nonagricultural, which changes the occupations in which men and women can participate. Women's participation in the labor force is expected to affect infant mortality because parents with higher income levels are more likely to be economically better off and can afford more help to take care of the children. Therefore, a negative relationship was assumed between women's participation in the labor force and infant mortality.

Access to piped water and infant mortality. Access to piped water improves the health status in general and reduces infant mortality in particular. Houser (1979) pointed out that reducing infant mortality depends upon improved economic conditions for the mass of population. Field research has shown that clean water supply reduces the incidence of gastroenteritis and diarrheal disease, both of which are most likely to be contacted from

contaminated water (Caldwell & McDonald, 1981). Furthermore, with piped water, cleanliness increases and contact with infection decreases. People who see such a result are more likely to behave in accordance with beliefs in bacterial, rather than religious, pollution. Therefore, it was hypothesized that access to piped water was negatively associated with infant mortality.

Direct and indirect relationships in the path model. As mentioned earlier, the relationships among the independent variables were expected to be positive except for the association between GNP per capita and women's participation in the labor force, in which high GNP per capita is observed among countries deeply entrenched in a traditional culture in which women are not encouraged to work. These hypotheses can be traced easily in the diagram. For example, the higher the GNP per capita in a country, the less the infant mortality rate will be in that country. For an indirect relationship, three steps have to be made. For example, IF: The higher the GNP per capita in a country, the greater will be the adult literacy rate in that country. And IF: The greater the adult literacy rate in a country, the lower is the infant mortality rate in that country. THEN: he higher the GNP per capita in a country, the less will be the infant mortality rate in that country. The same logic applies to each indirect relationship in the model.

Other Variables

For further comparison of the variables used in the causal model, four discrete variables were selected to be tested for

significance. They are geographic location, ethnicity, political type, and oil production. Classification of countries in terms of these variables was arbitrary while the complex issues surrounding them were neglected in the present research. (For these complex issues see Lipset's Political Man; Ashford's National Development and Local Reform; Almond & Powell's Comparative Politics Today; and Remmer & Merkx's writings on bureaucracy in Latin America.) The variables used were selected to facilitate comparison to the six variables used in the causal model. These variables are discussed in the following paragraphs.

Geographic Location

Two broad categories were observed and countries were divided into African and Asian nations. The dependence of civilization on geographic environment has long been accepted. Montesqieu, for example, emphasized the influence of geographical distribution on civilizations, pointing out that centers of civilization lie within the temperate zone and diminish in quality near the tropics and the polar regions. Anthropologists and sociologists have found that the environment shapes people's activities and behaviors. Ibn Khaldun in his Muqaddimah described the influence of environment and geographic location on populations and their civilizations. Viner (cited in Novack, 1964) mentioned foreign trade as another important aspect of nations' geographic location. He said: "Geographical situation of a country is also significant with respect to its opportunities for profitable foreign

trade, since proximity to foreign markets and sources of supply can be of great importance" (p. 81).

It was expected, however, that the extent of change in the selected variables would be found to be greater in Asian Muslim countries than in African Muslim countries. The logic of this expectation depends on moderate climates, rich resources, and high literacy rates observed in most Asian countries as opposed to African countries.

Ethnic Background

With respect to this variable, countries were divided into two broad divisions--Arab and non-Arab Muslim nations--because cultural background plays an important role in social change. The use of ethnicity as a variable for comparison will help in understanding the differences and/or similarities between the two groups. It was expected, however, that the extent of change in the selected variables would be more in Arab Muslim countries than in non-Arab Muslim countries. This expectation was based on the socioeconomic measures of GNP per capita, physical quality of life index (PQLI), and other economic and social measures. This was also demonstrated in some vital statistics published by the United Nations and its specialized organizations.

Political Type

In relation to this variable, countries were broadly grouped into two types (with the exception of Iran): nonrepublican and republican regimes. The writer expected that change in the

selected social variables would be larger in nonrepublican political systems than in republican ones. Such expectations depend on the fact that the stability and order in most nonrepublican political systems was observed to encourage advancement in the social aspects of national development more than the instability and conflict. This notion, moreover, has been emphasized by social scientists, who have supported the notion that a certain amount of stability is needed for initiating development plans, especially in the newly independent states (Lerner, 1958; Levy, 1962; Remmers & Merkx, 1982). Further, most republican regimes (for example, Syria, Libya, Iraq, Algeria, Malaysia, and Indonesia) have resulted from military coups d'etat or from national movements against imperial powers. Such activities imply, in most cases, instability rather than stability. An exception to this grouping, however, was the Islamic Republic of Iran, which has faced radical political change during the period studied, in which the term "republican" might be accurate to describe the country after 1979, but inaccurate to describe the Shah's regime before 1979. To overcome this problem, it was suggested to exclude Iran from the data analysis under this variable.

Oil and Nonoil Production

Oil-producing countries began to take an important position in the world economy after the oil embargo of 1974. Eleven of the 13 members of the Organization of the Petroleum Exporting Countries (OPEC) were Muslim countries (seven Arab and four non-Arab).

Countries according to this variable were divided into two categories: oil-producing and nonoil-producing countries. The writer's expectation was that change would be greater among oil-producing countries than nonoil-producing countries.

The Issue of Fundamentalism and Social Change

It was decided that, to make sense of the findings, a comparison of the social changes in the countries under study vis-a-vis their religiosity and fundamentalism was necessary.

Fundamentalism is a Western concept. In the Christian faith, it means a religious movement that emphasizes Biblical literalism and the final authority of the Bible. The term is sometimes applied to those who have accepted the literal truth of the Bible even in past centuries. The term also was observed as a reaction against "modernism," which rejected certain traditional Christian beliefs and advocated the application of scholarly and scientific criticism to the Bible.

The term has been applied by Westerners to the Muslim societies without distinguishing the great differences between the cultural backgrounds of both societies. In Islam, the terms "Usuliyyah" and "Ilmaniyyah" have been used by Muslim writers. The first describes those who emphasize Qur'anic and Sunnah literalism, as opposed to the second term, "ilmaniyyah," which describes those who reject traditional beliefs if these beliefs stand against scientific thinking as a basis of growth and change.

It was very difficult, however, to measure "Usuliyyah" and "ilmaniyyah" in the Muslim countries since they do not mean fundamentalism and modernism as understood by Westerners, and because of lack of information and the inner feelings of the people, which cannot be easily determined by research questions.

However, the term "Usuliyyah" can be measured by asking a selected sample of Muslim social scientists who represent a large number of Muslim nations to rate countries in this dimension. Their responses, even though they may not be the most accurate method of measurement, remain the most feasible method to measure the general "Usuliyyah" variable in the Muslim countries.

The countries were ranked according to a sample of responses and compared with certain indicators to test the modernization assumption that social change have occurred to a greater extent among less religious countries than more religious ones. But the various differences among nations in terms of social aspects studied have shown deviation from the above-mentioned modernization assumption.

The ranking of nations on religiosity was made according to a survey distributed among certain selected Muslim social scientists at the 19th Annual Conference of their association at Dearborn, Michigan, October 26 -28, 1990. The present writer has been an active member of the association since 1984. The selection of the sample was made by consultation with several members who have similar interests. It was decided to have a

selected sample (panel) representing various areas of national origin, for example, from Pakistan, Bangladesh, Saudi Arabia, Iran, Somalia, and Sudan. The difficulty of dealing with countries' ranking was minimal since the contributors have long dealt with socio-anthropological and political issues similar to the issue at hand.

Ten scholars were selected as an initial list, and a questionnaire was distributed. Nine responses were included in the analysis and reported. The ranking of Muslim nations was dependent on each respondent's expertise and knowledge of Islamic countries. The ranking was general, with no precise criteria. The respondents were asked to rank nations' religiosity in terms of fundamentalism and religious services provided in each country. They were also told that this was not a systematic measurement of religiosity, but rather an educated guess to compare with other findings on social aspects in the Muslim nations.

Time Period of Comparison

A ten-year period was selected over which to assess differences in social change. The years 1975 and 1985 were selected because most of the nations included in the study were newly independent shortly before 1975. Also, the nature of the study implies that a ten-year period is much better than a five-year span for comparing changes in social aspects. Further, although most comparative studies take the beginning of a decade as the start of their study period, this writer chose the mid-point of the

decade. One reason for this choice is that some of the countries under study did not become members of the OIC until 1973, a year that was marked with regional and international tension in the area concerning the continuing Israeli occupation of Arab lands and the oil crisis. Also, in this period, a shift toward peace was observed as a policy adopted by OIC member-states. This significant occurrence, paving the way for social development, began slightly before 1975.

The Study Hypotheses

For the purpose of statistical analysis, 49 hypotheses were formulated. To simplify matters, the 49 hypotheses were divided into three groups: (a) 13 hypotheses concerning the five aspects and their indicators of social change between 1975 and 1985, (b) 12 hypotheses concerning the path-model analysis, and (c) 24 hypotheses concerning the discrete variables. In addition, for comparison purposes, countries were ranked by a selected sample in terms of the nations' religiosity and fundamentalism to test, unstatistically, certain modernization assumptions. The hypotheses in detail were as follows:

Hypotheses of Social Change in the Two Time Periods

It was hypothesized that a change did not occur in 1985 compared with 1975 in each of the social aspects, as well as in their respective indicators. For statistical purposes, these hypotheses were stated in the following form:

Education hypotheses:

Hypothesis 1. Education in the Muslim nations under study is significantly higher in 1985 than 1975.

Hypothesis 2. Female enrollment in the Muslim nations under study is significantly higher in 1985 than 1975.

Hypothesis 3. Adult literacy in the Muslim nations under study is significantly higher in 1985 than 1975.

Health Hypotheses:

Hypothesis 4. Health in the Muslim nations under study is significantly higher in 1985 than 1975.

Hypothesis 5. Infant mortality in the Muslim nations under study is significantly lower in 1985 than 1975.

Hypothesis 6. Death rate in the Muslim nations under study is significantly lower in 1985 than 1975.

Housing Hypotheses:

Hypothesis 7. Housing in the Muslim nations under study is significantly higher in 1985 than 1975.

Hypothesis 8. Access to piped water in the Muslim nations under study is significantly higher in 1985 than 1975.

Hypothesis 9. Access to energy in the Muslim nations under study is significantly higher in 1985 than 1975.

Labor Force Composition Hypotheses:

Hypothesis 10. Labor force composition in the Muslim nations under study is significantly higher in 1985 than 1975.

Hypothesis 11. Women's participation in the labor force in the Muslim nations under study is significantly higher in 1985 than 1975.

Hypothesis 12. Men's participation in the labor force in the Muslim nations under study is significantly higher in 1985 than 1975.

Political Participation Hypothesis:

Hypothesis 13. Citizen participation in the Muslim nations under study is significantly higher in 1985 than 1975.

The Path Model Hypotheses

The sign of relationships between infant mortality and other variables was expected to be minus (-). It was also hypothesized that the relationship sign between these variables other than infant mortality was expected to be positive (+). Such expectations were drawn from generalizations in the literature of social demography (Goldscheider, 1971; Lerner, 1958). The expected relationships are explained in the following manner:

Infant Mortality Hypotheses:

Hypothesis 14. The higher the GNP per capita in the Muslim nations, the lower infant mortality in these nations.

Hypothesis 15. The higher the population density rate in the Muslim nations, the lower infant mortality in these nations.

Hypothesis 16. The higher the literacy rate in the Muslim nations, the lower infant mortality in these nations.

Hypothesis 17. The higher women's participation in the labor force in the Muslim nations, the lower infant mortality in these nations.

Hypothesis 18. The higher the access to piped water in the Muslim nations, the lower infant mortality in these nations.

Access to Piped Water Hypotheses:

Hypothesis 19. The higher the GNP per capita in the Muslim nations, the higher access to piped water in these nations.

Hypothesis 20. The higher the population density in the Muslim nations, the higher access to piped water in these nations.

Women's Participation in the Labor Force Hypotheses:

Hypothesis 21. The higher GNP per capita in the Muslim nations, the lower women's participation in the labor force in these nations

Hypothesis 22. The higher population density in the Muslim nations, the higher women's participation in the labor force in these nations.

Hypothesis 23. The higher adult literacy in the Muslim nations, the higher women's participation in the labor force in these nations.

Adult Literacy Hypotheses:

Hypothesis 24. The higher GNP per capita in the Muslim nations, the higher adult literacy in these nations.

Hypothesis 25. The higher population density in the Muslim nations, the higher adult literacy in these nations.

Discrete-Variables Hypotheses

Twenty-four hypotheses were formulated to be tested for significant differences between categories of each variable (geographic location, ethnic background, political type, and oil production) in terms of the six variables used in the path model. These were:

Geographic Location Hypotheses:

Hypothesis 26. Asian nations are not significantly higher than African nations in adult literacy.

Hypothesis 27. Asian nations are not significantly higher than African nations in women's participation in the labor force.

Hypothesis 28. Asian nations are not significantly higher than African nations in access to piped water.

Hypothesis 29. Asian nations are not significantly higher than African nations in population density.

Hypothesis 30. Asian nations are not significantly higher than African nations in GNP per capita.

Hypothesis 31. Asian nations are not significantly higher than African nations in infant mortality.

Ethnic Background Hypotheses:

Hypothesis 32. Arab nations are not significantly higher than non-Arab nations in adult literacy.

Hypothesis 33. Arab nations are not significantly higher than non-Arab nations in access to piped water.

Hypothesis 34. Arab nations are not significantly higher than non-Arab nations in women's participation in the labor force.

Hypothesis 35. Arab nations are not significantly higher than non-Arab nations in GNP per capita.

Hypothesis 36. Arab nations are not significantly higher than non-Arab nations in population density.

Hypothesis 37. Arab nations are not significantly higher than non-Arab nations in infant mortality.

Political Type Hypotheses:

Hypothesis 38. Nations of republican political type are not significantly higher than nations of nonrepublican type in adult literacy.

Hypothesis 39. Nations of republican political type are not significantly higher than nations of nonrepublican type in access to piped water.

Hypothesis 40. Nations of republican political type are not significantly higher than nations of nonrepublican type in women's participation in the labor force.

Hypothesis 41. Nations of republican political type are not significantly higher than nations of nonrepublican type in population density.

Hypothesis 42. Nations of republican political type are not significantly higher than nations of nonrepublican type in GNP per capita.

Hypothesis 43. Nations of republican political type are not significantly higher than nations of nonrepublican type in infant mortality.

Oil-Production Hypotheses:

Hypothesis 44. Oil-producing nations are not significantly higher than nonoil-producing nations in adult literacy.

Hypothesis 45. Oil-producing nations are not significantly higher than nonoil-producing nations in access to piped water.

Hypothesis 46. Oil-producing nations are not significantly higher than nonoil-producing nations in women's participation in the labor force.

Hypothesis 47. Oil-producing nations are not significantly higher than nonoil-producing nations in population density.

Hypothesis 48. Oil-producing nations are not significantly higher than nonoil-producing nations in GNP per capita.

Hypothesis 49. Oil-producing nations are not significantly higher than nonoil-producing nations in infant mortality.

Religiosity and Modernization Assumptions

The measurement of religiosity was intended to be objective in the present study. However, it was decided that to make sense of the findings on social aspects of change to rank the countries under study somehow using a panel or survey to be distributed among selected small sample. After consultation, the sample was selected, the survey was distributed, the responses were received, and the ranking table was made.

The assumption was as follows: According to modernization theory, it was assumed that change in the social aspects among the nations studied would be more among those countries with low religiosity and would be less among those countries with high

religiosity. It was expected, however, that such an assumption is far from being completely true among the nations studied, taking into consideration the various differences among them in terms of the nation's wealth and health. This assumption, even though it was not statistically tested, was expected to give some insights into understanding certain findings.

CHAPTER IV

THE MUSLIM WORLD

Irving (1986) described the Muslim World in the following words: "The Muslim world stretches from Morocco on the Atlantic to the Islands of Indonesia on the Pacific. It embraces the vast underbelly of Europe and the Soviet Union." In the first two parts of this chapter, the Muslim world is defined and its socio-demographic characteristics are described. Included are population dynamics (density and growth), geographic location, ethnicity, political types, and wealth and oil production. The emergence of the Organization of the Islamic Conference (OIC) and its objectives are covered in the third part of the chapter.

Definition of the Muslim World

When writers use the term "Muslim world," they usually mean those countries whose citizens follow the Islamic faith, despite their diverse cultures, languages, and political types or ideologies. The term by itself is misleading to the layman. In the past, the term "Muslim world" referred to the areas under the domination of the Islamic empire, beginning with the state under the third caliph, Omar, the Umayyad, the Abbasids, and finally the Ottoman caliphate. In recent times, the actual meaning of the term

has changed because of the diversity of Muslim peoples, races, religions, and national borders.

After the colonization period, each Muslim country pursued its own struggle toward development. Nationalism was more appreciated than religion. Therefore, Arabism was a leading symbol in the days of Egypt's Nasser. Saudi Arabia, because of its position as the center of the Muslim holy places and as the center of wealth after the 1973 oil embargo, broadened the concept to Islamism rather than Arabism. Several reasons were behind that transformation. One was to attack the wave of communism, and another may have been the failure of Arabism to achieve victory over Israel.

The Muslim world began to be recognized in the international world system after the oil embargo, which affected the West in its basic need for industrialization and modernity. The term "Muslim world" was misunderstood because most oil-producing countries were Arabic, and Islam became synonymous with Arab. After the success of the Iranian Islamic revolution, which overthrew the Shah's regime, the Muslim world began to have a new meaning and to be connected with Iran, although Shi'ite Muslims, the revolutionaries in Iran, comprise only one-tenth of the Muslim population worldwide.

The establishment of the Organization of the Islamic Conference (OIC) gave the Islamic world a new identity. Decisions became collective, especially those involving regional and global economic and political problems.

Other terms have been used to denote the Muslim world, such as the Middle East, the Near East, and the Fertile Crescent (the area

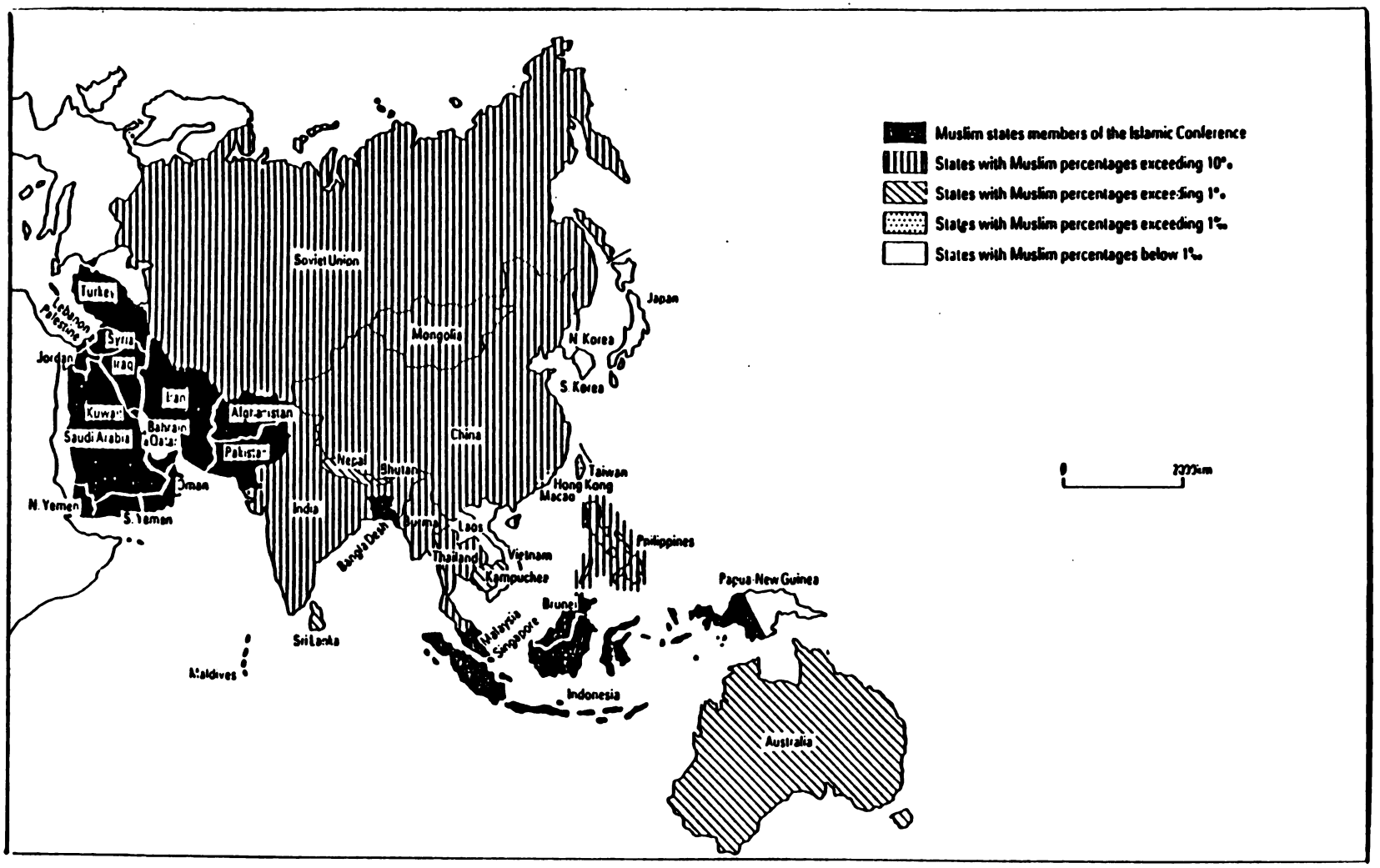
located between and linking, the three continents of the old and the new world). This location has contributed to the existence of extreme racial and cultural mixtures, which have stamped the nations of the region with differentiation of progress, development, and modernization. The population of the Muslim world is a mixture of Bedouins, peasants, and urban dwellers. Transition of regions and nations is a marked feature, despite the radically different religions, racial origins, and languages. Tradition exists side by side with secularism, or, in sociological terms, the sacred and the profane are competing in a strongly traditional culture.

The progress of world communication systems and inventions has contributed to the decline of isolation of agricultural and desert populations. Such transformation has created and still creates local as well as global unrest and tension. Sietz (1988) recognized this unrest, especially in the Middle East, which includes a large number of Muslim nations. He stated:

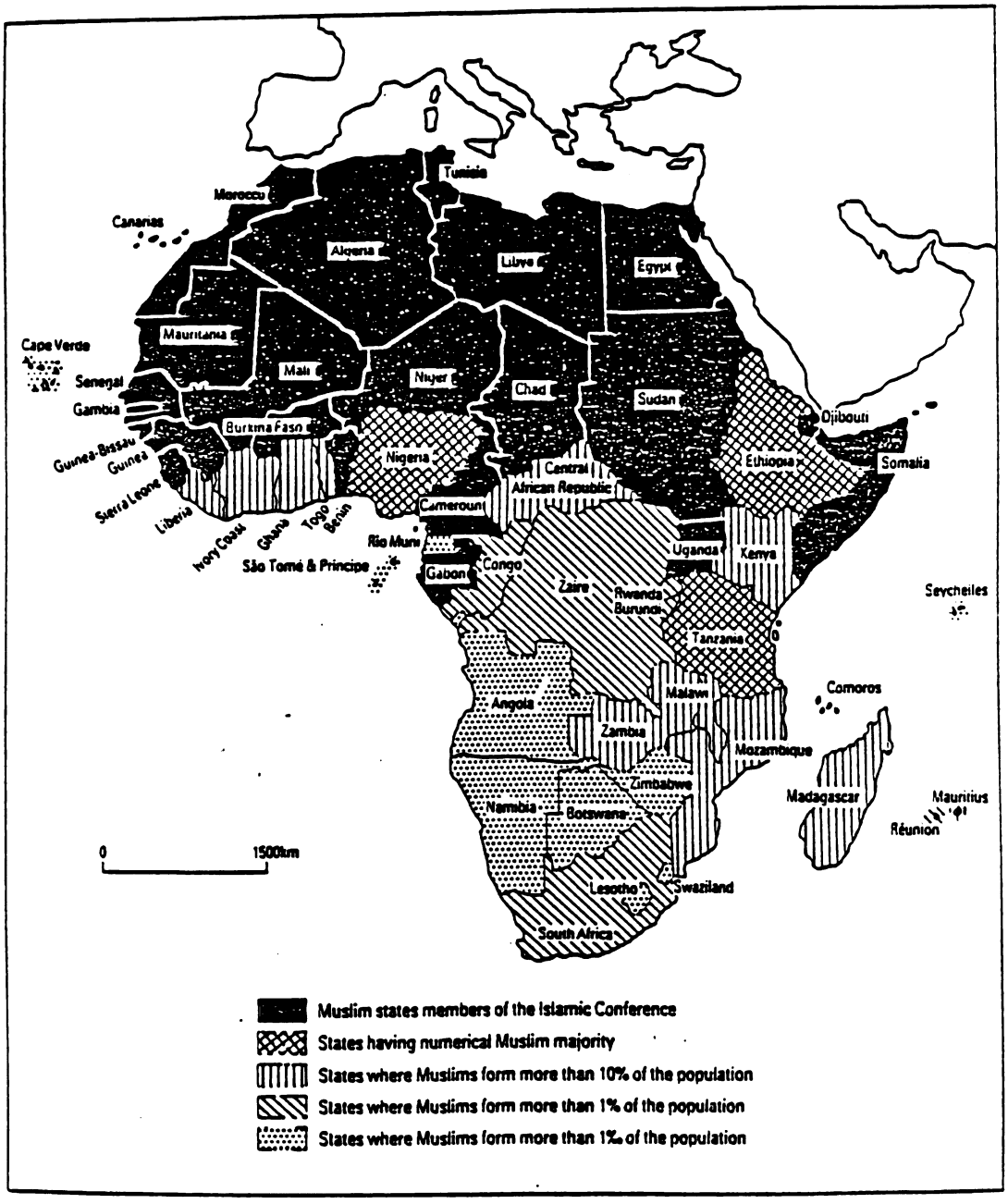
> The Middle East . . . is a highly unstable area. It is torn by regional conflicts (the Arabs against Israel, Iran against Iraq, Syria against Iraq, Egypt against Libya); by religious conflicts (Moslem against Jew, Christian against Moslem, Shi'ite Moslem against Sunni Moslem); by social and ideological conflicts (traditionalists against radicals); and by East-West competition (the USA against the Soviet Union). (p. 78)

The Muslim world today can be likened to an eagle. Its body is the Arabian peninsula (from South Yemen in the South to Turkey in the North), and its two wings represent the east Asian (from Pakistan to Indonesia) and the African Islamic nations (from Egypt to Sierra Leone) (see Maps 1, 2, and 3). Whether or not this

Map 1: Muslim countries worldwide.



Map 2: Muslim countries in Asia.



Map 3.--Muslim countries in Africa.

description is accurate, it is useful in dividing the Muslim nations into three units in terms of their geographic characteristics.

Characteristics of the Muslim World

It is beyond the scope of this dissertation to discuss all the characteristics of the Muslim world, but a few of the problems that influence current trends in the Muslim world are pertinent to the present discussion. These dilemmas--population growth, political leadership, secularity as a cultural crisis, and distribution of wealth--are discussed in the following pages. The narrative sheds some light on demographic and socioeconomic characteristics, with special emphasis on population dynamics (density and growth), geographic location, ethnicity, political types, and wealth.

Population Dynamics

In this section, population density and population growth are described in terms of two periods: 1970-1975 and 1975-1980.

Population density. Population density, which usually means the ratio of people to land area, serves many purposes in the study of population distribution. In the Muslim world, the four countries with the highest population density (more than 300 people per square kilometer) are Bangladesh (616 persons), Bahrain (585 persons), Maldives (497 persons), and Lebanon (304 persons) (see Table 4.1). Conversely, countries with a large area and a small population have a small population density. Examples are Algeria, with an area of 950,000 square meters and a density of eight persons; Libya, with 679,000 square meters and a density of two persons; Saudi Arabia,

with 900,000 square meters and a density of four persons; Sudan, with 967,000 square meters and a density of seven persons; and Iran, with 636,000 square meters and a density of 23 persons.

Table 4.1.--Population, area, and density of selected Muslim countries.

Country	Population 1985 (Million)	Area Sq/M	Density Sq/Km (1983)
Afghanistan	14.7	250,000	30
Algeria	22.2	950,000	8
Bahrain	.4	230	585
Bangladesh	101.5	55,020	616
Chad	5.2	496,000	4
Indonesia	168.4	736,000	78
Libya	4.0	679,000	2
Saudi Arabia	11.2	900,000	4
Turkey	52.1	296,000	58

Source: Compliled from several tables in UN Demographic Yearbook and A. Kettani, Muslim Minorities in the World Today (London: Mansell Publishing, 1986).

Population growth. Although there is no reliable census of the Muslim population, some figures have been estimated for each country and a total for all Muslim countries. The total Muslim population is estimated to be between 700 million and slightly over one billion.

The annual rate of population growth in the Muslim countries is about 3%. It is estimated that 30 million Muslims may be added annually. In his recent publication, Muslim Minorities in the World Today, Kettani (1986) gave the total Muslim population as more than

one billion. Table 4.2 shows the number and percentage of Muslims in nations with populations of more than a million people. More than half of the world's Muslims live in the 45 member-states of the OIC (636,720,000, to be exact) (Kettani, 1986).

Table 4.2.--Large Muslim minority groups in selected nations with populations over one million (in thousands).

Country	Number of Muslims	Percent
China	107,000	10.5
India	84,425	12.0
Soviet Union	47,330	17.8
Ethiopia	20,460	60.0
Tanzania	10,410	55.0
Philippines	6,250	12.2
Thailand	6,000	12.0
Kenya	5,330	30.0
Mozambique	4,920	45.0
Yugoslavia	4,825	21.5
Ghana	4,240	33.0
Burma	3,560	10.7
United States	3,000	1.3
Ivory Coast	3,000	35.0
Zaire	2,800	9.0
Malawi	2,550	40.0
France	2,500	4.6
Albania	2,110	75.0
West Germany	1,800	2.9
Bulgaria	1,700	19.3
United Kingdom	1,250	2.2
Sri Lanka	1,168	7.6
Total	392,707	

Source: A. Kettani, Muslim Minorities in the World Today (London: Mansell Publishing, 1986).

Table 4.3 shows these population figures in terms of continental regions and majority or minority status. The proportion

of Muslims is distributed as follows: 68.3% in Asia, 27.4% in Africa, and the remaining 4.3% on other continents.

Table 4.3.--Distribution of Muslims throughout the world, 1982 (in thousands).

Continent	Majorities	Minorities	Total
Asia	468,600	239,362	707,962
Africa	162,120	114,200	276,320
Europe	6,000	34,285	40,285
America	---	4,600	4,600
Oceania	---	260	260
Total	636,720	392,707	1,029,427

Source: The data were compiled from several resources, including Almanac, 1986; United Nations Demographic Year Book, and Kittani (1986).

Geographic Location

The Muslim world can be divided geographically into three zones: African, West Asian, and East Asian. With the exception of Turkey, all of the Muslim countries in the OIC are located in Africa and Asia. Turkey straddles both Europe and Asia. More specifically, 23 Muslim countries are located in Africa and 22 in Asia (including Turkey).

The African zone includes the Muslim countries from Sierra Leone on the Atlantic Ocean to Somalia on the Arab Sea, and from Uganda in the middle of Africa to Tunisia on the Mediterranean. This zone includes all North African countries, in addition to

Gabon, Cameroon, Nigeria, Benin, Buriko Faso, Sierra Leone, Guinea, Gambia, Senegal, Mauritania, Somalia, Djibouti, Uganda, and Sudan. The total population living in this zone numbers 276,320,000.

The West Asian zone includes South and North Yemen, Oman, the United Arab Emirates, Qatar, Bahrain, Kuwait, Saudi Arabia, Jordan, Iraq, Lebanon, Syria, and Turkey, with a population of 107,900,000.

The East Asian zone includes Indonesia, Malaysia, Brunei, Bangladesh, Pakistan, Afghanistan, Iran, and the Maldives, with a total population of 445,000,000.

Ethnicity and Culture

Sociologically, ethnicity came from the Greek ethos, which means people or nation (Gordon, 1964). It is a sense of peoplehood or nationhood. Ethnicity according to Gordon is a group of characteristics that are culturally transmitted, and ethnic group thinks of itself as viewed by others as culturally different. However, in this dissertation, ethnicity is used to have political affiliation rather than sociological orientation.

The 23 Arab countries in the Arab League have about 181,120,000 inhabitants. Of that number, 92.4% (167,340,000 people) are Muslims. Arabs in the Muslim world constitute slightly more than one-fifth of the total Muslim population. Non-Arab Muslims live in 22 countries in Asia and Africa that belong to the OIC. The remaining Muslims are scattered throughout the world. In many cases, Muslims living as minorities in non-Muslim countries outnumber Muslim majorities in OIC member-states. For example, more than half

of the world's Muslim population (about 503,380,000 people) live in five countries: Indonesia (168 million), China (77 million), Pakistan (99 million), Bangladesh (101 million), and India (61 million); three of these countries are members of the OIC. The other half of the Muslim population live as a minority under non-Islamic regimes.

According to racial divisions, inhabitants of the West Asian zone are Caucasians, similar in appearance to the Greeks, Spanish, Italians, and Irish. The Negroid types are scattered throughout the African zone. Inhabitants of the East Asian zone are of Mongoloid ancestry. Throughout history, the Muslim world, especially the Middle East, was a crossroads area. Thus, because of racial blending, it is now difficult to distinguish the people from different zones in terms of their physical appearance.

Languages spoken in the Muslim world fall mainly into three categories: Indo-European, Turkic, and Semite languages. Persians dominate the first category and share linguistic and cultural traits with Afghans and Pakistanis; Armenians and Kurds are also considered to be linguistically related to the Persians. Linguistically, there is an affinity between India and Europe on the one hand and the Persian language on the other. The Turkic-speaking peoples are best represented by the Turks and some Turkmans and Uzbecks. The third main group is the Semite people who comprise the Middle East. The dominant group in this area is the Arabic-speaking peoples.

Whereas the Arab countries share various cultural characteristics, they have numerous regional, national, and

religious differences. Throughout the Muslim world, group identification remains alive in terms of language, religion, and politics. Individuals find themselves with conflicting loyalties, sometimes on racial and linguistic or religious grounds, i.e., between Arabs and Israelis, among the Shi'ite, Sunni, and Yazidi sects, or between nations, as in the case of the Iraq-Iran and Iraq-Kuwait conflicts.

Political Type

Various methodological and theoretical differences exist among theorists dealing with political systems. Some use the Weberian classification of social organizations, and others use modernity and ideology to classify political systems. A third group assigns the criteria of group interest and party involvement in decision making, whereas yet another group of theorists divides nations into democratic and nondemocratic political systems.

Our intention concerning this variable, however, will be given to the last group because the first three groups do not represent fully the Muslim nations. For instance, Muslim nations according to the Weberian model follow the traditional systems category even though they are in transition to other categories. The dominance of Islamic ideology distinguishes these countries and demolishes other ideologies as well.

According to Lipset (1963), democracy is

> a political system which supplies regular constitutional opportunities for changing the governing officials. . . . It is a social mechanism for the resolution of the problem of

> societal decision making among conflicting interest groups which permits the largest possible part of the population to influence these decisions through their ability to choose among alternative contenders for political office. (p. 125)

Lipset stated that, from a sociological point of view, any analysis of a political system should take into account two important social conditions: consensus and cleavage. According to Lipset, without these two conditions there can be no democracy. Consensus, he explained, allows the peaceful "play" of power and the interplay of recognition between those who are in politics and those who are outside politics. On the other hand, he defined cleavage as the reason encouraging conditions for democracy. Democracy, according to the above definition, cannot suffice for the present typology of the Muslim regimes that exist today.

In his comparative study of Arab political systems, Tibi (1985) listed the following four general typologies or types of government: (a) traditional political systems with religious, religio-tribal, or tribal legitimacy; (b) secular, one-party systems; (c) military regimes with a charismatic leader; and (d) democratic parliamentary political systems. Applying these typologies to the other non-Arab political systems, more similarities than differences are found between these typologies and the actual characteristics of these systems. Using a similar typology, Muinuddin (1987) considered Islamic law as the criterion for dividing Muslim countries into four groups. He stated:

> It is possible to divide up the States within the Islamic world into four different groups according to the legal policy and orientation followed by each of them. . . . Turkey, the only state rejecting Islamic law openly, followed a path of total

> secularization. The disintegration of the Ottoman Empire led to the emergence of a number of Middle Eastern States called the modernist Islamic States led by Egypt which enacted codes derived from the Western World indicating Islamic law as a subsidiary source of law. This group could be contrasted with States of traditionalist orientation led by Saudi Arabia, where the only law applicable is the Shari'ah (in the case of Saudi Arabia it is the Hanbali school which is officially followed) and where the sovereign is given exclusive competence on matters of public administration (siyasa shr'iyyah) in a way that does not contradict the Shari'ah. Finally, the Islamic States of Asia and Africa previously colonized by the English and French retained the Common Law or Civil Law systems. (p. 12)

Muinuddin's division does not describe the Muslim nations as adequately as does Tibi's typology, discussed above, which this writer believes is more accurate.

Politically speaking, Lipset (1963) in his Political Man recognized that two political categories exist in the world: democratic and nondemocratic (totalitarian) types of governments. Almond (1956) found a fourfold classification of political systems to be most useful: the Anglo-American, continental European, preindustrial (or partially industrial), and totalitarian political systems. Looking at this classification, however, it is seen that it does not include many countries, among them the majority of Islamic nations (Macridis & Brown, 1972). However, Almond included the states he missed in his typology, but this time in terms of interest groups and political parties. The Anglo-American remained the first type; in the second type he included Asia, the Middle East, and Latin America, in which neither interest groups nor parties are fully differentiated. In the third type he included Italy, France, and

Germany as a group following the Anglo-American type. In the fourth type, Almond included Scandinavian and Low Countries.

In general, the Muslim countries have been independent for a short time. For instance, of the 96 nations that have become independent since 1943, 38 are member-nations of the OIC. Eight of them have been independent less than 20 years. These countries are the United Arab Emirates, Bahrain, Oman, and Qatar (1971); Bangladesh (1972); Guinea (1974); Comoros (1975); Djibouti (1977); and Brunei (1983). Conversely, only five Muslim nations were independent before 1943. These are Iran (1906), Egypt (1922), Turkey (1923), North Yemen (1928), and Saudi Arabia (1932).

Wealth and Oil Production

A gap between rich and poor countries exists worldwide and in the Muslim world in particular. Even though some economic indicators, such as life expectancy, literacy, and declining infant mortality rate improved in many of these countries between 1960 and 1980, the world in general and the Muslim countries in particular continue to experience large disparities in wealth and per-capita income.

In terms of wealth, the inequality among Muslim countries is obvious, whether in terms of GNP or export-import measurements. For example, the oil-rich countries can be considered to be on the highest side of a scale and the remaining Muslim countries on the lower half of the same scale. The mean individual income of the oil-rich countries (N = 12), is $13,494, compared with $597 in non-

oil-rich Muslim countries (N = 24); the mean individual income for all Muslim countries is $3,896. Only seven countries have mean individual incomes higher than the mean; the remainder have incomes lower than the mean.

Comparing Arab with non-Arab Muslim countries, the mean GNP per capita among Arab countries (N = 23) is $5,665, and for non-Arab countries (N = 20) the mean is $1,507. The gap between Arab oil-producing countries and Arab nonoil-producing countries is clear with such a comparison: Whereas the GNP per capita in the first group was $18,171 in 1983, it was $664 in the second group that same year.

In terms of exports and imports, the total export of six Gulf State members of the Gulf Cooperation Council (GCC) was $163.01 billion in 1981 or 57.9% of the total export of all Muslim countries. The total import was $58.15 billion or 29.1% of that of all Muslim countries. The same year, Saudi Arabia alone had a total export of $119.8 billion or 42.6% of the export of all Muslim countries, and a total import of $35.1 billion or 17.6% of that of all Muslim countries. Whereas the imports of 18 countries amount to less than $1 billion each year, the exports of 21 countries amount of less than $1 billion a year. Table 4.4 shows export-import figures and other statistics for selected Muslim countries.

What distinguishes the six Gulf States from other Muslim countries is their small population and their extreme wealth. Although the six states had a total population of less than 15 million in 1981-82, their per-capita GNP was very high. Two of the

Table 4.4.--Socioeconomic indicators for selected Muslim countries.

Country		Export ($ Billion)	Import ($ Billion)	Per-Capita GNP ($)	Population (Million)	Area (000 KM^2)
Oil-Producing Nations						
Algeria	(1983)	12.90	12.10	1,951	20.500	2.400
Bahrain	(1982)	3.20	3.30	9,284	.400	.678
Kuwait	(1982)	15.70	6.70	16,500	1.550	17.818
Oman	(1982)	4.40	2.70	6,900	.900	212.457
Qatar	(1982)	4.50	1.90	35,000	.267	11.000
Saudi Arabia	(1981)	119.80	35.20	18,344	8.600	2,330.000
U.A.E.	(1983)	15.40	8.30	23,000	1.194	82.000
Nonoil-Producing Nations						
Bangladesh		.78	.71	119	96.000	143.998
Pakistan		2.60	6.00	350	84.000	803.943
Turkey		5.70	9.20	1,000	47.200	766.640
Egypt*		3.50	8.30	686	47.000	1,001.258
Indonesia		19.00	20.00	560	153.000	1,900.000

*Egypt is a member in the Organization of Oil-Producing Arab Countries.

states (the United Arab Emirates and Kuwait) had higher per-capita GNPs than such advanced nations as Switzerland, Sweden, the United States, and Japan whose per-capita GNPs were $16,440, $13,520, $11,360, and $9,890, respectively, in 1983.

There are many reasons for considering the Gulf States as a unit, because their characteristics differ from those of other Muslim states. Politically, the council of the Gulf States was established in 1979 to enhance cooperation between member-states and to develop their potential in all aspects of life, especially the economic area. The small population of most of these states may be the reason for their unity. The six member-states--Oman, the United Arab Emirates, Qatar, Bahrain, Kuwait, and Saudi Arabia--are generally known as the Gulf Cooperation Council (GCC). The organization was established on May 25, 1981. Its goals are to enhance cooperation in the fields of industry, agriculture, transportation, energy, defense, and investment. The Council meets annually in regular sessions in one of the member-states. The Supreme Council decides the overall policy of the organization.

The Organization of the Islamic Conference

It is common knowledge that there is more gain in nations' association than their isolation; the identities of interest may be economic, social, and/or political. In any association, it is assumed that a common denominator encourages coalition for certain purposes. For example, after the Second World War several international organizations were established, such as the United

Nations, the Warsaw Pact, the European Economic Community, and the Arab League. Even though these organizations differ widely in their objectives, they all have a commonality that binds together their states into an organizational fabric.

The OIC is no exception to the general rule. As with other alliances, the OIC countries have different political systems, languages, and cultures. The majority of OIC states share a common religion, closely comparable social structures, and a common history, all of which encourage coalition and unity.

In today's world there is a tendency toward peace, or at least toward using negotiations rather than power and arms to resolve disputes and conflicts. The OIC was established within this framework, as represented by the United Nations system, to promote universally accepted principles of international law.

As a result of the recent political resurgence of Islam in Iran and Pakistan and to some extent in Libya, two approaches to handling international conflict have emerged in the OIC; one follows the classical Islamic conception of international relations in terms of the Jihad (the holy war). According to this conception, the Jihad is the only basis for external relations between Muslims and non-Muslims. The second approach, however, is opposed to the first. It asserts that other methods can be used and emphasizes that the Jihad is not the sole basis of international relations.

The differences between the two approaches have created problems not only in theory, but also in the practical implications of the approaches. In rejecting the first approach, the West

unfortunately is neglecting the power of the second. Such rejection gives the Jihad approach more power in the Muslim world vis-a-vis the second method. In terms of the sociological theory of modernization, those espousing the Jihad are commensurate with the traditional social type represented by Iran and Pakistan, and those supporting the second approach are commensurate with the secular modern social type represented by Turkey, Tunisia, and Egypt.

The Purpose of the OIC

The OIC consists of 45 member-states based on the charter of the Islamic Conference, which came into force in February 1973. The OIC is an organization of Islamic states that was institutionalized to achieve rapprochement, solidarity, and cooperation among member-states (Muinuddin, 1987).

The OIC is "a heterogeneous assembly of States which could not justifiably be called a 'regional' organization" because of the geographical distances separating them. Culturally speaking, no "common cohesive political, economic, social, and cultural factors deemed to be essential preconditions for regional 'integration' could be said to be 'absent' in this case" (Muinuddin, 1987, p. 69). The OIC is a group of developing nations that share a colonial or semi-colonial history in addition to a brief experience of independence.

Despite the heterogeneous character of the OIC, its charter reflects some basic principles to which its members, as well as the wider international community, consent. The organization is based

primarily on religion, which functions as the cohesive force that binds the member-states together despite difference in ideology and political systems. The resolution "to preserve Islamic spiritual, economic, and social values does not reinforce any commitment on the part of the member States to the Shari'ah" (Muinuddin, 1987, p. 108). Such a loose, flexible framework was encouraged to enhance Muslim states' rapprochement and solidarity. Whatever the justification, the OIC in its charter follows the Western way of resolving disputes and conflicts through negotiation rather than by launching a Jihad as some Muslim sects do. Concerning this issue, Muinuddin explained: "Many African and Asian States, including OIC member States, prefer to settle their conflicts by negotiation, mediation, and conciliation" (p. 95).

The Roots of the OIC

After the caliphate institution was abolished, the Muslim world was left open to foreign domination and colonialism. It was unthinkable to find a Muslim unity outside the caliphate institution. Several other factors mitigated against such unity. Al-Ahsan (1988) mentioned some of these reasons:

> They [the Muslim nations] were politically too weak to organize themselves under a single leadership. . . . Muslim territories were colonies of one or the other European powers, and those which had nominal independence were not strong enough to assume the leadership of all the Muslims. (p. 11)

However, the idea of unity remained in the minds of Muslim leaders and scholars, and several conferences were held to discuss the concept. In May 1926, less than three years after the abolition

of the caliphate, scholars from Egypt, Tunisia, Libya, Morocco, Indonesia (the Dutch East Indies), South Africa, British India, Yemen, Palestine, Iraq, the Hijaz, and Poland attended the first conference to discuss the situation of Muslims. What distinguished this conference was that the delegations were nongovernmental.

Conference leaders appealed to all Muslims to remember and to work for the purpose of reestablishing the caliphate. However, the conference, in general, failed to produce any results concerning the caliphate.

Less than a month later, in June 1926, another conference was held in Makkah, Saudi Arabia, which concentrated on Muslim affairs, the holy cities, and administration of the pilgrimage. This conference resulted in the establishment of the Muslim World Congress (Mu'tamar al-Alam al-Islami), which was to convene each year during the pilgrimage period.

In response to the designs of Zionism in Palestine, the conference was held in Jerusalem in 1931. Both because of internal and external international situations, the conference failed to achieve its goals. Although it failed to establish an Islamic university in Jerusalem, the conference was not a total failure; it defied the instructions of the British administration in Palestine and protested the mandate system and French colonization of North Africa, Soviet policies in Central Asia, and Italian brutality in Libya. The most noteworthy result of the conference was the

establishment of an executive council of 25 members representing Muslims from all over the world.

In the early 1950s, as Al-Ahsan (1988) noted, two fundamental issues

> contributed to united activities of Muslim states at the world body. First, the common concern of Muslim states for the independence of the rest of the Muslim World. Second, the creation of the State of 'Israel' backed by superpowers at the heart of the Muslim World. (p. 14)

Karachi, Pakistan, was the site of two conferences in 1949 and 1951. At the latter conference a number of projects in the fields of commerce, education, and social welfare were proposed, and the Red Crescent Medical Relief Organization was established.

In 1952, the conference was again convened in Karachi. In a speech the Grand Mufti of Palestine expressed the need for Muslim unity in light of social change in the world system. He said:

> Modern scientific research and discoveries have shortened distances. In these circumstances even the most powerful nations . . . cannot remain in isolation. . . . Blocks are being formed today . . . the Anglo-American block . . . [and the] communist . . . block. Each nation . . . is joining one block or the other. Only the Muslims in the face of so many difficulties and problems have so far failed to form themselves into the Ummah. Therefore, it was our duty to respond to the call of the "ulama'" of Pakistan to consider closer cooperation among the "ulama'" of the world, to popularize Islamic culture, jurisprudence and way of life, and to replace the modern laws in Muslim countries with Islamic laws. (cited in Al-Ahsan, 1988, p. 15)

Muslim leaders were not successful in producing practical solutions for Islamic unity. A major reason for this lack of success was that many Muslim leaders adopted secularized European thought and rejected the idea of Muslim unity. Two conferences that were held in 1962 and 1964 in Baghdad, Iraq, and Mogadicio, Somalia,

respectively, had a profound effect on the establishment of the Muslim World League (Rabitatu al-Alam al-Islami), which was more successful than the Muslim World Congress.

In the face of Arab nationalism represented by President Nasser of Egypt, the concept of Islamism was forwarded by Saudi Crown Prince Faisal (later King Faisal), emphasizing the idea of Muslim unity based on the concept of Ummah. In 1964, King Faisal continued his efforts "to bring nation-states together on the basis of Muslim identity as opposed to linguistic nationalist groups and secular ideas" (Al-Ahsan, 1988, p. 22).

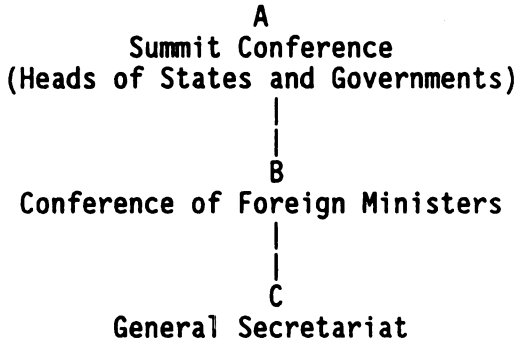
The success of the idea of bringing together Muslim nation-states can be credited primarily to King Faisal, who adopted the concept and traveled to most Muslim countries, including Iran, Jordan, Sudan, Turkey, Morocco, Guinea, Mali, and Tunisia, to make it a reality. Following his active role in bringing about Islamic unity, he called for a summit conference of all Muslim leaders to discuss Muslim affairs.

The defeat of Arab nationalism in the 1967 Arab-Israeli war encouraged King Faisal to call for pan-Islamic cooperation for the purpose of liberating Jerusalem. In 1969, Muslims were outraged at the burning of the al-Aqsa mosque in Jerusalem. As a result, the only choice for Arab and non-Arab Muslim governments was to become involved in the idea of Muslim unity on traditional rather than secular Western grounds.

Organizational Structure and Membership of the OIC

In 1972, Article I of its charter named the new institution the Organization of the Islamic Conference (Munathamt al-Mu'tamar al-Islami). Jeddah was designated to serve as the temporary headquarters of the General Secretariat because of the occupation of Jerusalem. Arabic, English, and French were declared the official languages of the organization.

According to Article III of the OIC Charter, the Islamic Conference comprises three main bodies: the Summit Conference, the Conference of Foreign Ministers, and the General Secretariat. The first has policy-making powers, the second is the consultative body for the first, and the third represents the functional arm for the OIC. Figure 4.1 is an organizational chart of the OIC.



D. Islamic Court of Justice

E. Subsidiary Organs

E. Special Committees

G. Affiliated Organs

Figure 4.1.--Organizational chart: Subsidiary and functional organs of the OIC.

Under subsidiary organs, the following bodies represent the various activities and functions of the OIC:

1. The Islamic Solidarity Fund
2. The Jerusalem (Al-Quds) Fund
3. Statistical, Economic, and Social Research and Training Center for the Islamic Countries (Ankara, Turkey)
4. Research Center for Islamic History, Art, and Culture
5. Islamic Center for Vocational and Technical Training and Research
6. Islamic Foundation for Science, Technology, and Development
7. Islamic Center for Development of Trade
8. Islamic Commission for the International Crescent
9. Islamic Jurisprudence Academy
10. The International Islamic Law Commission
11. The Islamic Civil Aviation Council

The affiliated organs are:

1. The Islamic Development Bank
2. The International Islamic News Agency
3. The Islamic States Broadcasting Organization
4. The Islamic Chamber of Commerce, Industry, and Commodity Exchange
5. The Islamic Shipowners' Association
6. The Islamic Educational, Scientific, and Cultural Organization (ISESCO)
7. The Organization of Islamic Capitals

The number of Muslim member-states grew from 24 in 1972 to 46 in 1986. The unique position of the OIC is reflected in the

diversity of political as well as economic systems included in its membership, such as monarchies, republics, dictatorships, and democratic socialists. In other words, using sociological terms, the organization includes both traditional and secular political systems. From a socio-demographic viewpoint, the diversities of wealth, population size, and geographic location are characteristics of the member-nations of the OIC. Nonetheless, they share a rich cultural legacy and traditional value system, despite the challenge of secular trends.

The percentage of Muslim population was not the sole condition for membership in the OIC; any state whose religion was Islam and that attended the Conference was included. Nevertheless, 40% of the population of all the countries included in the OIC are Muslims.

Some countries with a majority Muslim population have not joined the OIC, such as Ethiopia (60% Muslim), Albania (75% Muslim), and Tanzania (55% Muslim). In contrast, other countries with a minority Muslim population are members of the organization, such as Gabon (10% Muslim) and Benin (40% Muslim). Table 4.2 showed selected countries with over one million inhabitants and the percentage of their minority Muslim populations.

The main objectives of the OIC are to promote Islamic solidarity; to encourage cooperation among the 45 member-nations in economic, social, cultural, and scientific fields; to eliminate racial tension and discrimination; and to eradicate colonialism. Other objectives are to enhance cooperation among member-states and

to support world peace and security founded on the use of negotiation and mediation to settle conflicts.

Activities of the OIC

In the cultural field, the OIC supports education in Muslim communities throughout the world. Efforts have been made to establish Muslim universities in Niger, Uganda, and Malaysia. One of the objectives of cultural cooperation has been to organize seminars on various aspects of Islam and to encourage dialogue with adherents of other monotheistic religions.

In the field of economic cooperation, a general agreement was adopted in 1981 to establish joint investment projects and trade coordination and to enhance economic and social projects in OIC member-nations. For this purpose, the Islamic Development Bank, an international financial institution, was established by the OIC in December 1973. Its goal was to encourage the economic and social progress of member-nations as well as of Muslim communities throughout the world. Table 4.5 shows project financing by sector for the years 1983-1984 and 1985-1986.

From Table 4.5, a decline in the social services sector is observed from 41.37 million Islamic dinar (20.1%) to 15.57 million (8.9%) in one year. However, an increase in the agriculture and transport and communication sectors is observed from 28.79 (14.0%) and 43.43 (16.8%) million Islamic dinar to 33.04 (18.8%) and 40.56 (23.1%) million, respectively.

Table 4.5.--Islamic Development Bank project financing by sector, 1983-1984 and 1985-1986.

Sector	Amount (Million Islamic Dinar)* 1983-84	%	Amount (Million Islamic Dinar) 1985-86	%
Agriculture	28.79	14.0	33.04	18.8
Industry and Mining	79.42	38.6	73.72	41.9
Transportation and Communication	34.43	16.8	40.56	32.1
Utilities	21.20	10.3	12.84	7.3
Social Services	41.37	20.1	15.57	8.9
Others	.49	0.2	-	-
Total	205.70	100.0	175.73	100.0

Source: The Middle East and North Africa, 1986, 1988 (Europa Publications), editions 32 and 34.

*One Islamic dinar is equivalent to US$.9930.

A decline was also observed in the industrial and mining sector, where the amount spent on this sector in 1983-84 was 79.43 million Islamic dinar compared with 73.72 million in 1985-86. The total amount assigned for all sectors was also declined from 205.70 million Islamic dinar in 1983-84 to 175.73 million in 1985-86.

Summary

The main discussion in this chapter was about the way the Muslim world as a unit constitutes the body of the member-states of the Organization of the Islamic Conference--OIC. The concept was defined, and the characteristics of the Muslim World in terms of sociodemographic indicators were discussed. Finally, the history, roots, structure, and activities of the OIC were described.

CHAPTER V

DESIGN AND METHODOLOGY

The design and the methodology of the study are the focus of this chapter. First, the data set of nation-states included in the study is discussed. Next, the comparative analysis model is introduced. Finally, instruments of measurement and methods used in analyzing the data are explained.

The Data Set

The primary purpose of this research was to study social change in Muslim nations in certain areas of education, health, housing, labor force composition, and political participation. The researcher would have liked to include in the study more countries in which much social change had occurred. In practice, selection of countries was delimited to the member-states of the Organization of Islamic Conference (OIC). Thirty-six countries were selected for the study (see Appendix A), according to the following criteria:

1. Population size: Countries must have had a population of more than one million people in 1985. Such a condition was aimed at reducing the variance in change measures induced by population size.

2. Membership and political sovereignty: The country must be a member of the OIC and the United Nations and be politically

independent. This condition was made to increase the availability of data collected through United Nations agencies.

3. A majority of Muslims in its population.

The Historical-Comparative Analysis Model

Goldscheider (1971) pointed out that examining the alternating roles of population processes as both determinants and consequences of social structure and social change forms the basis for the sociological analysis of demographic phenomena. The notion of analysis is to include the proposed social aspects in this study. Whereas comparison is the essential methodological ingredient in the shift beyond description toward analysis, comparing nations to one another is an elementary step toward understanding change (Goldscheider, 1971).

Goldscheider suggested three types of comparisons for analysis of data: historical, comparative, and hybrid. In historical analysis, comparison may be made over time or between two or more specific time periods, within one social unit. In comparative analysis, comparison may be made between two or more social units while holding time constant. The hybrid type of comparison retains partial features of comparative analysis (two or more units) and partial features of historical analysis (time varies).

The historical-comparative model was adopted in this research to serve the purpose of comparison of the proposed social aspects in two time periods and more than one social unit. It was assumed that every country experiences change in general and in certain

areas in particular such as education, health, housing, labor force composition, and politics. The two time periods compared are 1975 (times 1) and 1985 (time2). Figure 5.1. shows the suggested historical-comparative model.

Variable	Dimensions of Time	
	Time I	Time II
V1	HEALTH	HEALTH
V2	EDUCATION	EDUCATION
V3	LABOR FORCE COMPOSITION	LABOR FORCE COMPOSITION
V4	HOUSING	HOUSING
V5	POLITICS	POLITICS

Figure 5.1.--The historical-comparative analysis model.

To compare these changes, several computational steps need to be made for each area as well as for each indicator. These steps are:

1. Computation of central tendency and dispersion.

2. Transformation of raw scores into standardized scores in case of different measures among indicators.

3. Computation of indices scores.

4. Computation of variables' averages to be used in the path-analysis model.

The advantages of computation of indices gained by using standardized scores can be observed in ranking the countries under study on the same scale. Furthermore, such standardization was necessary to transform certain values (death rate and infant mortality, for example) into percentages in order to conform with other indicators which were already in percentage form. Another advantage of standardized scores was observed in the computation of the path-analysis indicators where the average of the two scores was used.

Data Collection

Secondary sources were used to obtain data concerning the selected indicators. Given the tremendous cost of collecting data, this method was preferred over other methods. Using secondary sources also provides an opportunity to make use of internationally available information for the purpose of cross-cultural research. These sources include the World Bank Atlas, the UNESCO Yearbook, and the United Nations Demographic Yearbook. Concerning the reliability of these data, it is assumed that the data included in the present study are accurate, based on their use in other studies. Such reliability, however, cannot be absolutely determined by a study of this scope. Limitations of such data can be traced in the United Nations documents, which show that accuracy of such data varies among agencies (governmental and private) of data collection. In

general, the accuracy of the data is taken at their face value; their reliability may depend on the previous usages of the indicators in cross-cultural research projects (Allen & Bentz, 1965; MacGranahan, 1970; Morris, 1979; United Nations, 1954; World Bank Publications).

Instrumentation and Measurement

Standardizing Values of Certain Indicators

To handle the variable values, the raw values were transformed for certain indicators (infant mortality, death rate, and female enrollment) into standardized values on a 100-point scale. This was done to make these indicators conform to other indicators. Although this decision was not the most appropriate method to deal with measure differences, it was thought to best serve in understanding the findings as opposed to using the adding-up-indicators method without standardization.

The simplicity of the method, in fact, made it superior to any more complex method, such as that which adds up, for example, 216/1000 infant mortality rate to 35% adult literacy. Standardization here was not meant to be statistical (Z-score, for example); rather it was an attempt to deal with two different quantities in a more simplified method using one measure. Taking into consideration that the majority of indicators were percentages, it was decided to transform the nonpercentage indicators' values into equally weighted percentage values. The literature on this issue gave the researcher great help. For example, Morris in 1979 and

MacGranahan in 1973 used the same method dealing with similar situations. Morris in his study Measuring the Condition of World's Poor: The Physical Quality of Life Index (PQLI) used three indicators: infant mortality at age one, life expectancy, and literacy. Although literacy measures posed no problem in his measurement, life expectancy and infant mortality composed such a problem of scale differences. Borrowing the solution from Morris to overcome the problem in this research, the following equation was used to rank nations using maximum and minimum values (MacGranahan, 1973; Morris, 1979):

$$CIV = Xm - Xi \;/\; Xm - Xo * 100 = \text{Variable Value (\%)}$$

where:

CIV = Computed indicator's value
Xm = Nation's actual maximum score in the group
Xi = Nation's actual score
Xo = Nation's actual minimum score in the group
/ = Division symbol
* = Multiplication symbol

In each indicator, multiplying the product by 100 yields the standard score. In the case of an index (more than one indicator), the scores of the indicators are added to each other and divided by the number of indicators. The product will be the score of the index. For example, health index equals death score plus infant mortality score divided by two. To illustrate, variables of infant mortality, death rate, and female enrollment were transformed to 100-point scales to be in congruity with other variables. Infant mortality rates in the countries studied, for example, lie between 205/1000 and 22/1000. Applying the above equation, the country with

the highest infant mortality rate was considered zero, and the lowest score was treated as 100. In other words, the country with the lowest infant mortality rate was ranked first and the country with the highest infant mortality rate was ranked last. Applying this logic for Afghanistan, for example, infant mortality will be standardized as follows:

$$(205 - 205) / (205 - 22) * 100 = \text{ZERO}$$

and for Kuwait using the same equation, infant mortality was given the score of 100. This was a product of the following computations:

$$(205 - 22) / (205 - 22) * 100 = 100$$

Death rate and female enrollment were calculated according to the same principle.

Measurement of Religiosity

Although it was difficult to measure fundamentalism systematically, it was suggested to use a selected sample (a panel) of knowledgeable people to help grade the Muslim nations on a scale from (0) as the lowest degree to (10) as the highest degree of religiosity and fundamentalism. The results are shown and compared in the data analysis chapter, and findings were discussed according to the modernization assumption that scores on social indicators were greater among less religious countries than scores on social indicators among more religious countries. It was expected, however, that this assumption was totally true for some countries

and partially true for others. Deviations from that assumption were observed and noted. he scale selected in the present study included 10 points, where one side of the scale was given 0, and the other end was given 10. The question about the concept of religiosity was asked as follows (a sample of the survey can be found in the Appendix):

> Please, put an (X) mark on the following measure of religiosity in terms of fundamentalism and religious services provided for each country on the scale from zero (0) as the lowest religious degree and (1) as the highest religious degree.

For example:

	VERY LOW RELIGIOSITY				MEDIUM						VERY HIGH RELIGIOSITY
UNITED STATES	0	1	2	X	3	4	5	6	7	8	9	10

Analysis of Data

The nature of the present study necessitated the use of descriptive as well as inferential statistics. Measures of central tendency of distribution and measures of variation (range, variance, and standard deviation) were used to analyze the data. Other techniques were multiple regression analysis, F-test (analysis of variance), t-test, and simple correlation.

Multiple regression served the hypotheses of the causal model where the importance of all variables in explaining infant mortality was shown and the strength of each variable controlling for other variables was computed.

The path model was used in analyzing the interrelationships between the dependent and the independent variables where the path coefficients permit the calculation of indirect causal effects. Through the multiplication of path values of compound paths connecting variables via intervening variables, it is possible to compare induced causal effects with direct causal effects.

The path-analysis model well served the purpose of the study since it was possible to determine, for example, how much of the observed correlation between infant mortality and GNP per capita on the one hand, and between infant mortality and population density on the other, is due to a direct, or indirect, or unexplained effect through the hypothesized causal processes.

The analysis of variance tested the hypothesis that the group means of the dependent variable were equal. This technique was selected because the dependent variables were interval and the independent variable nations was categorical. The F-value was obtained by dividing the Mean Square Between (MSB) by Mean Square Within (MSW).

The F-statistics and level of significance (with degrees of freedom) determined the rejection or acceptance of the hypothesis.

T-test is a technique used to compare two sample means of continuous variables and to test for significance of difference. Using a two-tailed test, with alpha .05 (divided by 2 in this case), the alternative hypothesis states simply inequality of the means. The rejection of a hypothesis falls within both tails of the

sampling distribution rather than one side of the sampling distribution. If the t-score was lower than -1.96 or higher than +1.96, the hypothesis was rejected; otherwise it was accepted. Differences significant beyond the .05 level were accepted.

Correlation matrices for the variables used in each year, as well as the variables included in the causal model, were constructed to compute the standardized correlation coefficients. Findings of the study were compared in each area, and hypothesis testing was discussed and reported.

For this purpose, the Statistical Package for the Social Sciences (SPSS-PC and SPSS-X) through the main-frame computer at the Computer Center at Michigan State University was used for the statistical computations.

Summary

This chapter contained a discussion of the data set of nation-states and the comparative analysis model. Instruments of measurement and methods used in analyzing the data were explained.

CHAPTER VI

ANALYSIS OF DATA

This chapter contains a discussion of the data analyses conducted for this study. Data regarding the social indicators and domains are presented in the first section. Next, a discussion of the path model and the multiple regression analysis is presented. The third section contains the results of the analyses of variance that were performed to test the study hypotheses.

Data Regarding Social Indicators and Aspects of Change

Social Indicators of Change

As explained in Chapter III, nine core indicators in five aspects representing areas of social change were included in this study. Table 6.1 shows the mean and standard deviation for each core indicator for 1975 and 1985. Tables 6.2 and 6.3 show the correlations between core indicators for 1975 and 1985, respectively.

In a quick look at Table 6.1. it can be observed that the highest means for both time periods were percentages of men in the industrial sector. The mean scores were 58.85 and 63.21 in 1975 and 1985, respectively. The second highest mean in 1975 was female enrollment in education, and in 1985 was access to electricity. The lowest mean scores in both time periods were adult

literacy (27.05 and 35.47) in 1975 and 1985, respectively. The second lowest mean observed was citizen participation, where the score for 1975 was 36.86 and for 1985 it was 39.11.

Table 6.1.--Means and standard deviations of the nine core indicators of social change (N = 36).*

Variable	1975		1985	
	Mean %	SD	Mean %	SD
Death rate	54.08	14.65	49.44	15.69
Access to water	41.00	19.57	49.25	20.20
Infant mortality	48.72	27.96	43.00	30.56
Access to electricity	54.84	24.36	61.48	22.73
Men in industrial sector	58.85	21.64	63.21	21.16
Women in labor force	47.00	27.74	51.94	29.36
Adult literacy	27.05	21.68	35.47	25.48
Female enrollment	57.56	16.75	59.63	15.93
Citizen participation	36.86	19.63	39.11	17.46

*Death rate, infant mortality, and female enrollment were transformed into percentages. Other indicators were the actual percentages. (Discussion of this issue can be found under instrumentation and measurement in the previous chapter.)

The correlation matrices (Tables 6.2 and 6.3) show the highest correlations between adult literacy and citizen participation in 1975 (r = .88) and between death rate and citizen participation in 1985 (r = .79). However, the correlation between adult literacy and citizen participation in 1985 remained relatively high (r = .65) but not the highest correlation.

Table 6.2.--Correlation matrix of the core indicators, 1975.

Indicator	Indicator								
	1	2	3	4	5	6	7	8	9
1	1.000								
2	.499**	1.000							
3	-.584***	-.362*	1.000						
4	.408*	.204	.290*	1.000					
5	.038	-.214	-.134	.203	1.000				
6	.509**	.348*	-.567***	.116	.492**	1.000			
7	.532***	.886***	-.472**	.243	-.291*	.475**	1.000		
8	.543***	.371*	-.597***	.242	-.216	.621***	.411*	1.000	
9	-.616***	-.474**	-.638***	-.311*	-.383*	-.377*	-.439**	-.478**	1.00

*p < .05.

**p < .01.

***p < .001.

Indicator key:

1 = Female enrollment (3 stages)
2 = Adult literacy
3 = Death rate
4 = Access to water
5 = Women in labor force
6 = Men in industrial sector
7 = Citizen participation
8 = Access to electricity
9 = Infant mortality

Table 6.3.--Correlation matrix of the core indicators, 1985.

Indicator	Indicator								
	1	2	3	4	5	6	7	8	9
1	1.000								
2	.567***	1.000							
3	-.651***	.559***	1.000						
4	.368*	.124	.461**	1.000					
5	.068	-.145	-.118	.262	1.000				
6	.690***	.513**	-.664***	.245	.383*	1.000			
7	.672***	.656***	-.791***	.245	-.447**	.673***	1.000		
8	.711***	.479**	-.624***	.231	-.153	.685***	.582***	1.000	
9	-.632***	-.476**	-.658***	-.393**	-.094	-.448**	-.667***	-.435**	1.00

*p < .05.

**p < .01.

***p < .001.

Indicator key:

1 = Female enrollment (3 stages)
2 = Adult literacy
3 = Death rate
4 = Access to water
5 = Women in labor force
6 = Men in industrial sector
7 = Citizen participation
8 = Access to electricity
9 = Infant mortality

Social Aspects of Change

The five domains or aspects of social change (health, housing, education, labor force composition, and citizen participation in the decision-making process) comprised the variables for this study. Table 6.4 shows the mean, standard deviation, and minimum and maximum scores for each of these variables for both 1975 and 1985.

Health. The maximum scores for health were 97.5 in 1975 and 98.0 in 1985. The minimum scores were 20.5 in 1975 and 24.0 in 1985. The mean score for 1985 was 46.22 (SD = 21.42), compared with a mean score of 51.40 (SD = 19.59) for 1985. As mentioned earlier, the health subindex comprised two indicators, infant mortality and death rate.

Housing. The mean score for housing was 43.76 (SD = 14.37) in 1975, whereas in 1985 the mean score was 49.85 (SD = 15.94). The maximum scores observed for housing were 73.6 and 85.0 for 1975 and 1985, respectively, compared with minimum scores of 21.0 and 25.0 for the same years.

Education. In 1975 the mean score for education was 42.31 (SD = 16.68), whereas in 1985 the mean score was 47.55 (SD = 18.47). The range was between maximum scores of 87.1 and 88.3 and minimum scores of 17.8 and 18.8 for 1975 and 1985, respectively.

Table 6.4.--Measures of central tendency and dispersion on the standardized indexes of social change by year and subindex (N = 36).

Variable	Measures of Central Tendency	Measures of Dispersion			
	Mean	SD	Minimum	Maximum	Range
Health					
1975	51.40	19.59	24.00	98.00	74.00
1985	46.22	21.42	20.50	97.50	77.00
Housing					
1975	43.76	14.37	21.00	73.66	52.66
1985	49.85	15.94	25.00	85.00	60.00
Education					
1975	42.31	16.68	17.83	87.16	69.33
1985	47.55	18.47	18.83	88.33	69.50
Labor Force Comp.					
1975	53.43	12.73	26.50	78.00	51.50
1985	58.61	13.88	25.50	79.50	54.00
Citizen Partic.					
1975	36.86	19.63	14.00	87.00	73.00
1985	39.11	17.46	17.00	77.00	60.00

Labor force composition. An increase was observed in this domain when comparing the means of the two years. The mean in 1975 was 53.43 (SD = 12.73) compared with a mean of 58.61 (SD = 13.88) in 1985. The maximum scores were 78.0 and 79.5 in 1975 and 1985, respectively, and the minimum scores were 26.5 and 25.5 in those same years.

Citizen participation. Of all the variables, citizen participation evidenced the least change in scores in the Muslim countries in

the sample. In 1975, the maximum citizen participation was 87.0 and the minimum was 14.0, compared with a maximum of 77.0 and a minimum of 17.0 in 1985. In 1975, the mean for citizen participation was 36.86 (SD = 19.63), whereas in 1985 the mean was 39.11 (SD = 17.46). Findings about citizen participation suggest that more accurate data are required. The United Nations data are questioned because they did not reflect the facts observed in many of the countries under study.

Up to this point, we have provided measures of central tendency and degree of dispersion to indicate what the general pattern in the data was. As seen in Table 6.4, the mean patterns did not exceed 60% in any social aspect of change. The means remained in the middle third of the 100-point scale. Such findings, however, did not demolish the deviations of some nations from that measure, especially the oil-producing countries.

The Path Analysis

This method of testing the path model of infant mortality was originally selected by default, as the traditional technique of path analysis and other multivariate techniques created too many impossible requirements on the data and the model.

The more rigorous multivariate techniques of analysis (especially the nonrecursive path analysis) generally require interval data, the presence of reciprocal relationships or feedback loops, the inclusion of relevant variables, large samples, and the correct causal ordering before analysis (Hiese, 1968, 1969). None

of these assumptions need to be met with the technique used here. As a result of its simplicity and flexibility, its results cannot be interpreted as precisely or finally as those other techniques, but as an initial, exploratory device it is an appropriate method of analysis.

The main advantage of this method, however, lies in its ability to use a variety of data, its openness to inspection and alteration at all stages of analysis, and fundamentally its intrinsic simplicity. The flexibility of this method is reflected in its ability to use any number of measures of association as well as any type of data. As a result, this method can be used as a method of proof and by the frequently combined practice of testing an original hypothesis while looking for alternate hypotheses. It can also be used as an exploratory method if the components were known but the order of components was not.

The disadvantage of this method is that it is crude and does not permit precise generalizations or relationships between the model components. This crudeness is primarily a result of the difficulty of control for multiple effects. The lack of control may mean that one or more variables exercise undue influence on variables far removed from them in theory. However, it is frequently of great concern to inspect these relationships, reflecting such a strong relationship in reality, before they are controlled.

On the basis of the theoretical considerations presented earlier and the measures of the various variables, we can now proceed with the specific hypotheses and causal interpretation of

the effect of the independent variables on infant mortality, the dependent variable.

To begin with, the mean scores, standard deviations, and skewness for the 1975 and 1985 time periods are shown in Table 6.5.

Table 6.5.--Summary measures of independent and dependent variables used in the multiple regression analysis (N = 36).

Independent Variables	1975			1985		
	Mean	SD	Skewness	Mean	SD	Skewness
Access to water	41.00	19.57	.845	49.25	20.20	.818
Women in labor force	47.00	27.74	.133	51.94	29.36	-.007
Adult literacy	27.05	21.68	.990	35.47	25.48	.446
Population density	67.83	132.93	3.254	118.00	198.20	2.223
GNP per capita*	243.25	599.91	3.307	399.28	1094.19	4.445
Dependent Variable						
Infant mortality	44.77	30.02	.313	48.72	27.96	.299

*The actual value for GNP per capita should be multiplied by 10.

The separate effect of five independent variables on the dependent variable is explained according to the following propositions (Table 6.6):

Proposition 1: Infant mortality will be negatively associated with the independent variables.

Proposition 2: Access to piped water will be positively associated with GNP per capita and population density.

Proposition 3: Adult literacy will be positively associated with GNP per capita and population density.

Proposition 4: Women's participation in the labor force is associated negatively with the GNP per capita.

Proposition 5: Women's participation will be positively associated with adult literacy and population density.

Table 6.6.--Expected and actual relationship signs in the path-model variables.

	Expected Sign	Actual Sign
Infant mortality with:		
H1. Access to piped water	-	-
H2. Women in labor force	-	-
H3. Adult literacy	-	-
H4. Population density	-	-
H5. GNP per capita	-	-
Access to piped water with:		
H6. GNP per capita	+	+
H7. Population density	+	+
Women in the labor force with:		
H8. Adult literacy	+	-
H9. Population density	+	-
H10. GNP per capita	-	-
Adult literacy with:		
H11. Population density	+	+
H12. GNP per capita	+	+

On the basis of the above propositions regarding the separate effect of each independent variable, we derived a causal model connecting all the independent variables with the dependent variable (Figure 6.1). We assumed that GNP per capita and population density are contextual variables representing the degree of modernization (urbanization, social mobility, industrialization, etc.). Thus, in the causal model, they were considered as exogenous variables. Both of them were expected to affect adult literacy and women's participation in the labor force, which in turn affected infant mortality.

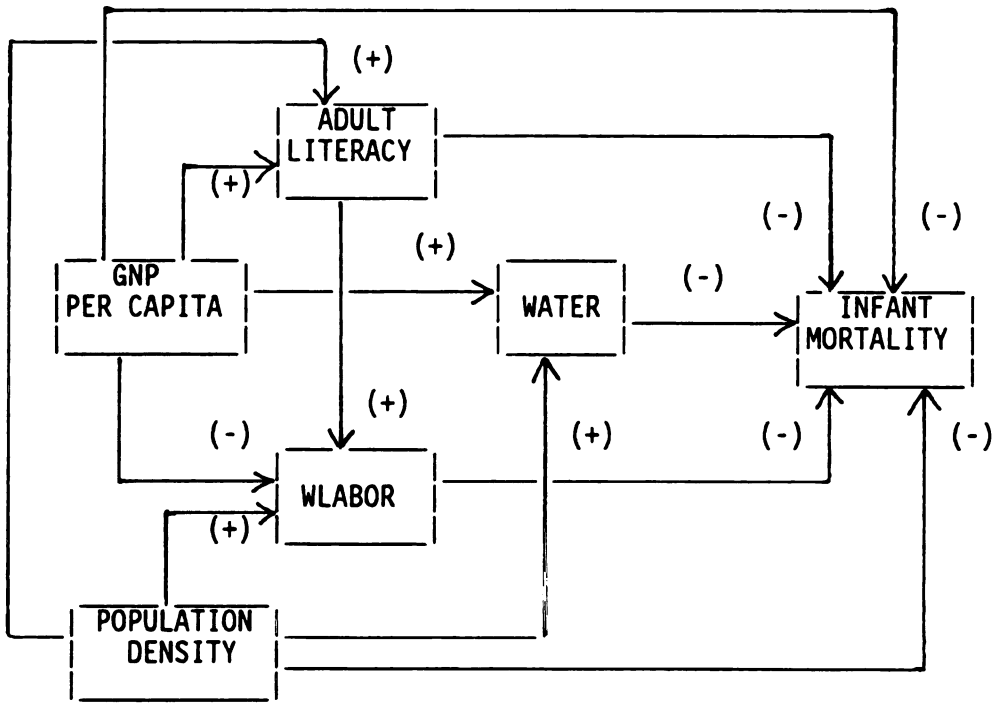


Figure 6.1.--Expected signs of the causal model of infant mortality (N = 36).

Before explaining the results of the path analysis, we examine the six propositions briefly on the basis of the zero-order correlation matrix shown in Table 6.7. GNP per capita, population density, adult literacy, women's participation in the labor force, and access to piped water were negatively correlated with infant mortality (access to piped water and GNP per capita at .01 and adult literacy at .001 significance level). However, population density and women's participation in the labor force were negatively associated with infant mortality but not at a statistically significant level (proposition 1). Access to piped water was positively correlated with GNP per capita and population density (proposition 2). Adult literacy was found to have a positive association with GNP per capita and population density (proposition 3). Women's participation in the labor force was negatively associated with GNP per capita (proposition 4). Thus propositions 1 through 4 were generally supported, and proposition 5 was not. In fact, women's participation in the labor force was negatively associated with adult literacy and population density, in opposition to the hypothesized relationships (proposition 5).

Table 6.7.--Zero-order correlations among the variables used in the model.

	1	2	3	4	5	6
1	1.00	-.345**	-.161	-.612***	-.030	-.380**
2		1.000	.235	.122	.113	.271*
3			1.000	-.192	-.101	-.246
4				1.000	.255	.374**
5					1.000	.016
6						1.000

Note: Average scores were used in these correlations.

*p < .05.

**p < .01.

***p < .001.

Variable Key:

1. Infant mortality
2. Access to piped water
3. Women in the labor force
4. Adult literacy
5. Population density
6. GNP per capita

In more detail, as it was expected, adult literacy was a function of GNP per capita and population density with path coefficients of .398 and .261 respectively, with R^2 =.223. It was apparent that adult literacy was much more influenced by GNP per capita than by population density. Women's participation in the labor force was a function of GNP per capita, population density, and adult literacy, with path coefficients of -.213, -.071, and -.133, with R^2 = .093. In the case of access to piped water as a function of GNP per capita and population density, the path coefficients were .336 and .089, with R^2 =.163. Finally, as was expected,

infant mortality was a function of the five independent variables, with path coefficients as follows: access to piped water -.277, women's participation in the labor force -.122, adult literacy -.597, GNP per capita .028, and population density -.162, with R^2 = .50. As for the entire causal model, however, the amount of variance explained in infant mortality was moderately high at 50%, which was significant at the .01 level, and path coefficients fairly moderate (Table 6.8 and Figure 6.2).

Table 6.8.--Summary of multiple regression of independent variable(s) on dependent variable(s).

Independent Variables	Dependent Variables			
	Infant Mortality Beta	Water Access Beta	Women Labor Beta	Literacy Beta
	Eq. 1	Eq. 2	Eq. 3	Eq. 4
Access to piped water	-.277*			
Women in labor force	-.122*			
Adult literacy	-.597***	-.133*		
GNP per capita	-.028	.336**	-.213*	.398**
Population density	-.162*	.089	-.071	.261*
Multiple R	.70755	.40470	.30808	.47306
R^2	.50063	.16378	.09391	.22378

*p < .05.

**p < .01.

***p < .001.

The betas in Table 6.9 represent the direct effect of each independent variable on the dependent variable (infant mortality). The correlation represents a measure of association between the independent variables and infant mortality as the dependent variable. Partial correlations represent correlation between each independent variable and infant mortality after controlling for all other variables.

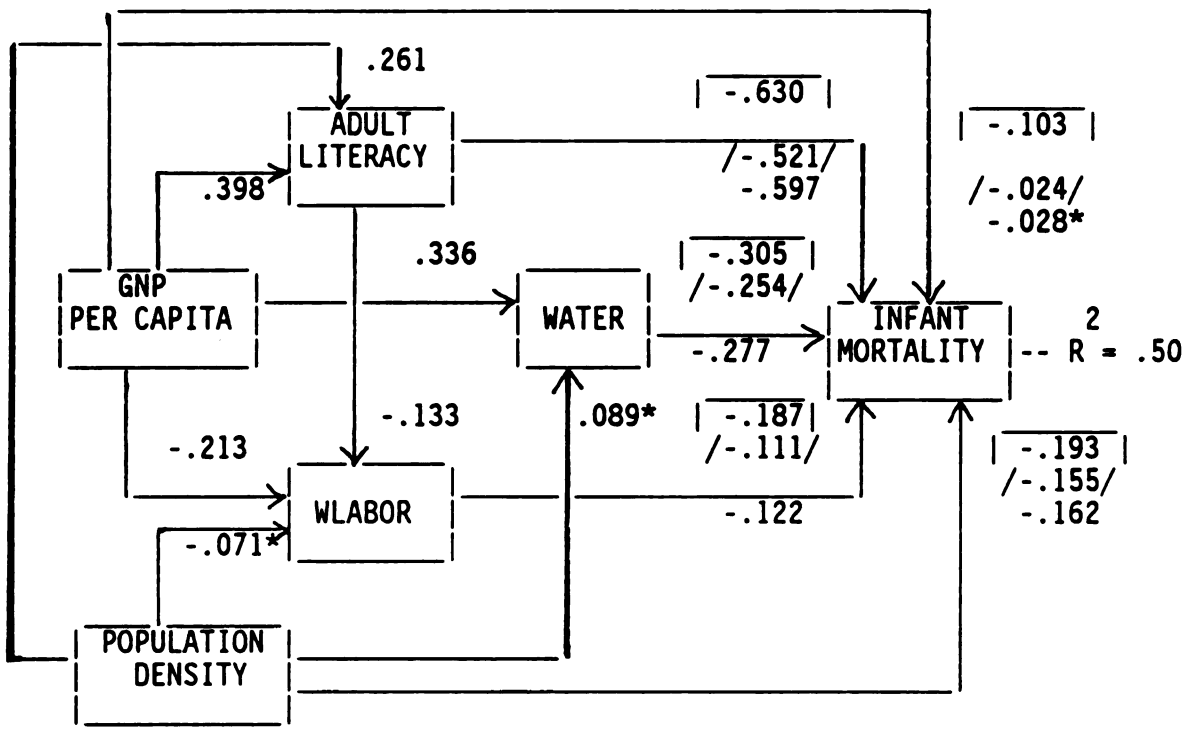
Table 6.9.--Direct (beta coefficients), correlations, and partial correlations of the path-model variables (N = 36).

	Beta	Correlation	Partial Corr.
r_{12}	-.277	-.345	-.254
r_{13}	-.122	-.161	-.111
r_{14}	-.597	-.612	-.521
r_{15}	-.162	-.030	-.155
r_{16}	-.028	-.380	-.024

Indicator key:

1. Infant mortality
2. Access to piped water
3. Women in the labor force
4. Adult literacy
5. Population density
6. GNP per capita

It was assumed that the final paths among the variables in Figure 6.2 were causal, additive, and recursive. It was also assumed that omitting the relationships between adult literacy and access to piped water, and between women's participation in the labor force and access to piped water, did not bias the results.



* Not significant

Figure 6.2.--Causal model of infant mortality. (The unmarked coefficients represent estimated relationships. Coefficients /partial bracketed/ report partial (beta) correlation between each factor and infant mortality, holding constant the other four variables in the model. The complete bracketed coefficients indicate the estimated total causal effects of each independent variable (direct and indirect effect.)

According to the results of the path analysis, it is essential to give the general findings from the regression analysis of the data used in the model. The following are the linear equations and information about their accuracy:

$$X1 = 11.65 \underset{(.146)}{-.27X2} \underset{(.146)}{-.122X3} \underset{(.152)}{-.59X4} \underset{(.140)}{-.16X5} \underset{(.157)}{-.028X6}$$

$R^2 = .50$ $F(5,28) = 5.61$

Where X1 = infant mortality, X2 = access to piped water, X3 = women's participation in the labor force, X4 = adult literacy, X5 = population density, and X6 = GNP per capita. The numbers in parentheses are standard errors of the regression coefficients. Thus, the five independent variables accounted for about 50% of the variance in the infant mortality rate. The significant R^2 value obtained from the regression equation seems to suggest that the model is effective in explaining variations in the infant mortality rate.

According to the literature on infant mortality, the findings should lead one to expect that all the statistically significant relationships among the antecedent variables and infant mortality would be negative. By checking the detailed results of the path analysis, it was possible to ascertain to what extent the empirical data support the hypotheses concerning the causal structure of the model.

Interpretation of the Path Analysis

As the path diagram in Figure 6.2 indicates, the effects of GNP per capita, population density, adult literacy, women's participation in the labor force, and access to piped water on infant mortality are numerous and varied. With recursive models, a convenient, systematic way of sorting out these multiple influences is the

decomposition of bivariate correlations between variables (Duncan, 1966; Stokes, 1971) and then multiplying the new equation through by the variable of interest. As a result of these computations, direct, indirect, and total effects can be made.

We assumed that the observed variables in the model (X1, X2, X3, X4, X5, and X6) are measured on interval scales without errorsand that the random disturbances (Xu, Xw, Xv, and Xy) are mutually uncorrelated to each other as well as to other observed variables (these terms do not appear in the figure). Without loss of generality, we assume all variables are normalized with a mean of zero and a standard deviation of unity.

The direct effect (DE). The DE of one variable on another is simply that part of its total effect that is not transmitted via intervening variables. In the model, we are interested in the five direct effects of the independent variables on infant mortality. The direct effects are one-way arrows coming from the independent variable to the dependent variable. In other words, the direct effect is the effect that remains when intervening variables have been held constant.

The indirect effect (IE). The IE are those parts of a variable's total effect that are transmitted or mediated by variables specified as intervening between the cause and effect of interest in a model. The intervening variables in Figure 6.2 are access to piped water, women's participation in the labor force, and adult literacy.

The total effect (TE). The TE of a variable was computed by adding the direct and indirect effects.

As Figure 6.2. and Table 6.10. show, the highest total effect on infant mortality was for adult literacy (TE = -.630), followed by access to piped water (TE = -.305). The least total effect, however, was for GNP per capita (TE = -.103), followed by women's participation in the labor force (TE = -.187). These findings, however, are commensurate with the literature findings concerning education in general and adult literacy in particular as an effective variable in the process of change and modernization (Inkeles, 1973).

Table 6.10.--Estimated direct, indirect, and total effects of the independent variables on infant mortality (N = 36).*

Estimated Correlation	Direct Effect	Indirect Effect	Total Effect
$\hat{r}_{12}$	- .277	- .028	- .305
$\hat{r}_{13}$	- .122	- .065	- .187
$\hat{r}_{14}$	- .597	- .033	- .630
$\hat{r}_{15}$	- .162	- .031	- .193
$\hat{r}_{16}$	- .028	- .075	- .103

*The computations were made according to the general form of the basic theorem of path analysis $r_{ij} = kp_{ij} \cdot r_{jk}$, where i and j denote two variables in the system and the index k includes all variables from which paths lead directoy to Xi (Duncan, 1966, pp. 5-6; Land, 1969, pp. 26-27).

Results of Social Change Between 1985 and 1975

It was hypothesized that no change had occurred among Muslim nations in the various indicators used in the study between 1975 and 1985. That is, the means for 1985 are equal to those for 1975. In principle, the decision to reject or not reject a null hypothesis about a population mean is based on the difference between the sample mean and the hypothesized value of the population mean. If the difference is below the criterion established for significance, the researcher fails to reject the hypothesized value of the population mean contained in the hypothesis. If the difference exceeds that criterion, the researcher rejects the null hypothesis. For the purpose of testing the 13 hypotheses, a t-test was used. The t-test is a technique to compare two sample means under two assumptions: (a) the sample is drawn from a normally distributed population, and (b) the sample is small.

Hypotheses according to the t-test may be formulated in the null hypothesis form of equal means or in the alternate form of unequal means. In the present study, this set of hypotheses was formulated in the null form of equal means. A two-tailed test requires that the rejection of the hypothesis fall within both tails of the curve rather than on one side of the curve. Under the two-tailed test, half of alpha (.05) lies on each side of the curve. In this case, the alpha value will be .025 with a positive or negative sign, accordingly. In contrast, the Z-value will be divided into two halves, each equal plus or minus 1.96. If the test was greater than 1.96 or lower than -1.96, the null hypothesis would be

rejected. Of the 13 hypotheses regarding aspects and indicators of social change, according to the rules of the t-test, 11 null hypotheses were rejected at the .05 alpha level, and two null hypotheses were not rejected. Therefore, social change had occurred in all the indicators tested except in female enrollment ($p < .061$) and political participation ($p < .220$) (see Table 6.11).

Table 6.11.--T-test values, degrees of freedom, and 2-tailed probability for the change indicators.

Variable	T-Value	df	2-Tailed Probability
H1. Health	- 5.24	35	0.000
H1.1. Death rate	- 5.49	35	0.000
H1.2. Infant mortality	- 2.68	35	0.011
H2. Education	- 2.59	35	0.014
H2.1 Female enrollment	- 1.93	35	0.061
H2.2. Adult literacy	- 2.12	35	0.041
H3. Housing	-10.03	35	0.000
H3.1. Access to piped water	-10.11	35	0.000
H3.2. Access to energy	- 2.28	35	0.029
H4. Labor force composition	- 6.30	35	0.000
H4.1. Women in labor force	- 4.40	35	0.000
H4.2. Men in industrial sector	- 5.03	35	0.000
H5. Citizen Participation	- 1.25	35	0.220

Results of the Analysis of Variance

Analysis of variance (ANOVA) is a statistical technique to compare more than two means. The selection of this technique

depends on the data under study where variability in the sample means was observed in each variable. One can use the ANOVA technique to determine whether there is reason to believe the population means are unequal by comparing the within-group and between-groups estimates of variability. In such a comparison, one can decide to reject or not reject a null hypothesis.

Twenty-four null hypotheses were formulated and tested for mean differences between groups. Variables of geographic location, ethnicity, political type, and oil production were selected for testing against the six variables used in the path analysis (infant mortality, access to piped water, women's participation in the labor force, literacy, population density, and GNP per capita). Tables 6.12, 6.13, 6.14, and 6.15 show the analysis of variance, F-distribution, and level of significance in these areas. The findings in each area are explained in the following paragraphs.

Geographic Location

> Ho 1: There is no significant difference between Asian and African Muslim countries in terms of infant mortality rate, access to piped water, women in the labor force, literacy, population density, and GNP per capita.

No significant differences were found between Asian and African Muslim countries in terms of infant mortality, access to piped water, population density, and GNP per capita. The null hypotheses concerning these areas were not rejected beyond the .05 probability level. However, significant differences were found between the two

groups in terms of women in the labor force and adult literacy, where the null hypotheses in these cases were rejected.

Ethnic Background

> Ho 2: There is no significant difference between Arab and non-Arab Muslim countries in terms of infant mortality, access to piped water, women in the labor force, literacy, population density, and GNP per capita.

Arab countries were not found to be different in access to piped water, adult literacy, and population density from non-Arab Muslim countries. The null hypotheses were not rejected beyond the .05 probability level. However, the null hypotheses concerning the two groups of countries in terms of infant mortality rates, women's participation in the labor force, and GNP per capita were rejected.

Political Type

> Ho 3: There is no significant difference between republican and nonrepublican Muslim countries in terms of infant mortality, access to piped water, women in the labor force, literacy, population density, and GNP per capita.

No significant differences were found between republican and nonrepublican countries in terms of women in the labor force and population density, where the null hypotheses were not rejected beyond the .05 probability level. However, differences were found between the two groups with regard to infant mortality rate, access to piped water, adult literacy, and GNP per capita since the null hypotheses were rejected beyond the .05 probability level.

Table 6.12.--Analysis of variance of geographic location and infant mortality, access to piped water, women in the labor force, population density, and GNP per capita.

Variable	SS	MS	DF	F.	Sig.
Geographic location Infant mortality					
Between groups	2844.00	2844.00	1	3.729	.061
Within groups	25930.74	762.68	34		
Total	28774.74				
Geographic location Access to piped water					
Between groups	46.28	46.28	1	.112	.735
Within groups	13595.40	399.86	34		
Total	13641.68				
Geographic location Women in labor force					
Between groups	9255.73	9255.73	1	16.648	.0003
Within groups	18902.23	555.94	34		
Total	28157.96				
Geographic location Adult literacy					
Between groups	2963.93	2963.93	1	8.631	.005
Within groups	11674.80	343.37	34		
Total	14638.73				
Geographic location Population density					
Between groups	12484.62	12484.62	1	.629	.433
Within groups	634524.53	19828.89	34		
Total	647009.15				
Geographic location GNP per capita					
Between groups	219001.55	219001.53	1	1.669	.205
Within groups	4458864.21	131143.06	34		
Total	4677865.76				

Table 6.13.--Analysis of variance of ethnic background and infant mortality, piped water, women in the labor force, population density, and GNP per capita.

Variable	SS	MS	DF	F.	Sig.
Ethnic background Infant mortality					
Between groups	3052.81	3052.81	1	4.050	.052
Within groups	25711.93	756.23	34		
Total	28774.74				
Ethnic background Access to piped water					
Between groups	253.82	253.82	1	.644	.427
Within groups	13387.85	393.76	34		
Total	13641.67				
Ethnic background Woman in labor force					
Between groups	7204.17	7204.17	1	11.68	.001
Within groups	20953.79	616.28	34		
Total	28157.96				
Ethnic background Adult literacy					
Between groups	947.60	947.60	1	2.353	.134
Within groups	13691.13	402.68	34		
Total	14638.73				
Ethnic background Population density					
Between groups	5489.69	5489.69	1	.273	.604
Within groups	641519.45	20047.48	34		
Total	647009.14				
Ethnic background GNP per capita					
Between groups	706942.66	706942.66	1	6.053	.019
Within groups	3970923.07	116791.85	34		
Total	4677865.73				

Table 6.14.--Analysis of variance of political type and infant mortality, piped water, women in the labor force, population density, and GNP per capita.

Variable	SS	MS	DF	F.	Sig.
Political type Infant mortality					
Between groups	4929.80	4929.80	1	7.029	.012
Within groups	23844.95	701.32	34		
Total	28774.75				
Political type Access to piped water					
Between groups	1575.31	1575.31	1	4.438	.042
Within groups	12066.37	354.89	34		
Total	13641.68				
Political type Women in labor force					
Between groups	1993.33	1993.33	1	2.590	.116
Within groups	26164.63	769.54	34		
Total	28157.96				
Political type Adult literacy					
Between groups	1528.33	1528.33	1	3.963	.054
Within groups	13110.40	385.60	34		
Total	14638.73				
Political type Population density					
Between groups	20015.09	20015.09	1	1.021	.319
Within groups	626994.05	19593.56	34		
Total	647009.14				
Political type GNP per capita					
Between groups	881930.00	881930.00	1	7.899	.008
Within groups	3795935.74	111645.16			
Total	4677865.74				

Table 6.15.--Analysis of variance of oil-producing nations and infant mortality, access to piped water, women in the labor force, population density, and GNP per capita.

Variable	SS	MS	DF	F.	Sig.
Oil-producing nations					
Infant mortality					
Between groups	2244.50	2244.50	1	2.876	.099
Within groups	26530.25	780.30	34		
Total	28774.75				
Oil-producing nations					
Access to piped water					
Between groups	105.12	105.12	1	.264	.610
Within groups	13536.56	398.13	34		
Total	13641.68				
Oil-producing nations					
Women in labor force					
Between groups	1408.92	1408.92	1	1.790	.189
Within groups	26749.05	786.73	34		
Total	28157.97				
Oil-producing nations					
Adult literacy					
Between groups	1334.72	1334.72	1	3.411	.073
Within groups	13304.02	391.29	34		
Total	14638.74				
Oil-producing nations					
Population density					
Between groups	9404.90	9404.90	1	.472	.497
Within groups	637604.15	19925.13	32		
Total	647009.15				
Oil-producing nations					
GNP per capita					
Between groups	1279866.67	1279866.67	1	12.806	.001
Within groups	3397999.07	99941.14			
Total	4677865.74				

Oil-Producing Nations

Ho 4: There is no significant difference between oil-producing and nonoil-producing Muslim nations in terms of infant mortality rate, access to piped water, women in the labor force, literacy, population density, and GNP per capita.

No differences were found between oil and nonoil-producing countries with regard to infant mortality rate, access to piped water, women in the labor force, adult literacy, and population density, where the null hypotheses were not rejected beyond the .05 probability level. The only significant difference was found between the two groups in GNP per capita, where the null hypothesis was rejected beyond the .05 probability level.

Religiosity and Modernization Assumptions

For comparative purposes, nations were ranked in terms of their religiosity and fundamentalism. Table 6.16 shows nations' rankings on religiosity compared with actual scores for certain indicators such as woman's participation in the labor force, infant mortality, adult literacy, and GNP per capita.

According to the modernization assumption, the more religious countries should score less on indicators of modernization and change, and the less religious countries should score more on the same indicators. Findings show that this assumption was completely true in two cases (Turkey, and Lebanon) and partially true in Tunisia, Syria, Niger, Libya, and Iraq in terms of infant mortality and adult literacy but not in woman's participation in the labor

Table 6.16.--Selected actual social indicator scores compared with three levels of religiosity (N = 36).

Country	Religi-osity (Rank)	Women in Labor (%)	Infant Mortality (per 1,000)	Adult Literacy (%)	GNP Per Capita (US$)
Most Religious Countries:					
AFGHANISTAN @	1	19	205	12	230
SAUDI ARABIA	2	5	61*	21	18,344
IRAN	3	14	112	50*	2,180
PAKISTAN @	4	11	116	21	350
BANGLADESH @	5	10	124	26	119
MALAYSIA	6	31*	28*	68*	714
EGYPT	7	8	94	54*	686
INDONESIA	8	30*	97	65*	560
MAURITANIA @	9	4	133	10	466
SUDAN @	10	11	113	20	370
MOROCCO @	11	16	98	28	800
ALGERIA	12	4	82*	37	1,951
Middle Religious Countries:					
YEMEN NORTH	13	4	146	13	460
SOMALIA	14	29	153	60	450
SIERRA LEONE	15	34	176	15	320
MALI	16	47	176	10	190
SENEGAL	17	38	138	10	400
CHAD	18	24	139	15	73
CAMEROON	19	42	92	70	669
BENIN	20	44	116	11	310
KUWAIT	21	9	22	60	16,500
BURKINA FASO	22	46	146	10	180
JORDAN	23	6	50	70	1,060
UGANDA	24	33	110	45	240
Least Religious Countries:					
THE GAMBIA	25	44	193*	5*	330
IRAQ	26	5*	74	55	2,410
GABON	27	38	111*	14*	2,974
LIBYA	28	5*	91	50	1,150
GUINEA	29	40	176*	10*	293
YEMEN SOUTH	30	5*	146*	27*	310
NIGERIA	31	40	110*	25*	720
NIGER	32	10*	142	8*	340
SYRIA	33	12*	55	53	1,650
LEBANON @	34	19	48	86	1,150
TUNISIA	35	9*	79	70	844
TURKEY @	36	37	86	60	1,000

@ Countries are in congruity with modernization assumptions.
* Scores for countries deviating from modernization assumptions concerning religiosity.

force. The assumption was completely untrue in the case of South Yemen, where all scores were in contradiction with the assumption.

Conversely, the assumption was true for certain countries that are more religious and less modernized, such as Afghanistan, Pakistan, Mauritania, Sudan, and Morocco. However, deviation from the assumption among less modernized, more religious countries can be observed in Saudi Arabia and Algeria (infant mortality), and Iran and Egypt (adult literacy).

In the case of Malaysia, the assumption was totally untrue in all the indicators, while it was partly untrue for Indonesia in women's participation and adult literacy (Table 6.16).

For analysis purposes, the countries were divided equally into three parts; 12 countries were considered high on the religiosity measure and ranked from 1 to 12, the second part were considered medium in their religiosity and ranked from 13 to 24, and the third part included nations with low religiosity and ranked from 25 to 36.

After ranking the nations in terms of their scores in the five aspects of social change, the following countries were ranked in the top ten. These are alphabetically arranged: Algeria, Lebanon, Libya, Jordan, Kuwait, Malaysia, Syria, Tunisia, and Turkey. The bottom ten countries, in almost all aspects of social change were (alphabetically arranged): Afghanistan, Bangladesh, Burkina Faso, Chad, the Gambia, Mali, Mauritania, Niger, North Yemen, and Sudan. These countries as well as many others were considered as among the least developed group according to the United Nations measures. (For more detail, see the Appendix.)

According to Table 6.17, countries ranking high in religiosity should rank high in social aspects (the countries rank from 1 to 12). Conversely, countries ranked low in religiosity should rank low in social aspects (countries ranked from 25 to 36). The middle group of nations, ranked from 13 to 24, were left out of the analysis. According to modernization assumptions, findings show that Afghanistan, Iran, Pakistan, Bangladesh, Mauritania, Sudan, and Morocco were in congruity with the first part of the assumption, whereas Saudi Arabia, Malaysia, Indonesia, Egypt, and Algeria deviated from that assumption in almost all social aspects. Turkey, Tunisia, Lebanon, Syria, and Libya were in congruity with the second part of the assumption, whereas countries of the Gambia, South Yemen, Gabon, Iraq, Guinea, Niger, and Nigeria deviated from that assumption. Furthermore, countries such as Cameroon, Kuwait, and Jordan, ranking 19, 21, and 23, respectively, ranked low in education, health, housing, and political participation. Cameroon ranked 6 in labor force composition, whereas Kuwait and Jordan ranked 16 and 21, respectively, on the same variable.

Table 6.17.--Ranking of social aspects compared with religiosity in in the Muslim nations (N = 36).

Country	Religi-osity	Educa-tion	Health	Housing	Labor Force	Partici-pation
Most Religious Countries:						
AFGHANISTAN @	1	34	35	31	31	32
SAUDI ARABIA	2	19	8*	12*	24	18
IRAN @	3	15	20	24	30	8*
PAKISTAN @	4	24	12*	9*	28	15
BANGLADESH @	5	26	27	35	36	17
MALAYSIA	6	2*	2*	4*	4*	11*
EGYPT	7	20	11*	15	5*	20
INDONESIA	8	3*	14	13	8*	9*
MAURITANIA @	9	23	31	28	35	27
SUDAN @	10	35	28	20	16	27
MOROCCO @	11	21	14	6*	21	14
ALGERIA	12	14	9*	22	2*	12*
Middle Religious Countries:						
YEMEN NORTH	13	36	25	28	34	31
SOMALIA	14	12	26	36	26	16
SIERRA LEONE	15	26	30	24	10	20
MALI	16	29	14	32	19	35
SENEGAL	17	21	17	11	14	25
CHAD	18	33	23	33	32	26
CAMEROON	19	9	13	21	6	24
BENIN	20	32	19	12	14	23
KUWAIT	21	1	3	3	16	4
BURKINA FASO	22	31	24	30	21	33
JORDAN	23	3	6	8	23	6
UGANDA	24	16	18	23	24	18
Least Religious Countries:						
GAMBIA, THE	25	30	32	18	11	36
IRAQ	26	4	29*	19*	26*	13
GABON	27	26*	34*	14	11	27*
LIBYA @	28	6	5	5	20	2
GUINEA	29	13	32*	26*	1	27*
YEMEN SOUTH @	30	17	22	27*	28*	22*
NIGERIA	31	18	25*	2	2	20
NIGER	32	25*	21	33*	33*	33*
SYRIA @	33	11	1	1	6	3
LEBANON @	34	7	4	16	16	1
TUNISIA @	35	5	7	10	9	6
TURKEY @	36	8	10	7	13	5

@ Countries are in congruity with modernization assumptions.

* Scores of social aspects for countries deviating from modernization assumptions concerning religiosity.

Summary

This chapter contained the results of the data analyses. Included were data regarding change of social aspects, data on the path analysis, the analysis of variance, and religiosity and social change. The study findings were also reported and discussed.

CHAPTER VII

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter contains a summary of the study and the major findings, conclusions regarding the study hypotheses and findings, and recommendations for further research.

Summary

The main purpose of the present research was to study aspects of social change in the education, health, housing, labor force composition, and political participation among Muslim nations at two times, 1975 and 1985. A secondary purpose was to test relationships between infant mortality and certain socioeconomic determinants using path-analysis techniques.

The question posed in this study was whether a significant social change was observable between the year 1985 when compared with the year 1975. To test the main hypothesis, scores of social change were computed, transformed, and calculated. A path analysis, an analysis of variance (ANOVA), multiple regression, and t-test were used to test the study hypotheses.

Summary and Findings

Social Change in 1985 Compared With 1975

As shown in the previous chapter, changes were found that were statistically significant in the areas of education, health,

education, labor force composition, where the hypothesized relationships concerning these areas were rejected. In these areas, it was hypothesized that scores in 1985 would be higher than the scores in 1975.

However, two hypotheses concerning female enrollment and citizen participation were not rejected; findings on these variables showed that no significant changes had occurred in these areas.

Determinants of Infant Mortality

From the 13 hypotheses of the path model, 11 were found consistent with the hypothesized relationships. The two relationships between adult literacy and women's participation in the labor force, and between population density and women's participation in the labor force were found in opposition with the hypothesized positive relationships.

Analysis of Variance

Twenty-four hypotheses were tested for mean differences between groups. The four areas selected for testing were geographic location, ethnicity, political type, and oil production against six variables used in the path analysis. These were infant mortality, access to piped water, women in the labor force, literacy, population density, and GNP per capita. The findings for each variable are presented in the following paragraphs.

Geographic location. Findings showed that the hypotheses concerning differences between African and Asian countries in infant mortality, access to piped water, population density, and GNP per

capita were not rejected. However, differences were found between the two groups in women's participation in the labor force and adult literacy.

Ethnic background. The findings showed that significant differences were found between Arab and non-Arab Muslim countries in access to piped water, adult literacy, and population density. No difference was found between the two ethnic groups in infant mortality, women in the labor force, and GNP per capita.

Political type. The findings showed that no significant difference was found between republican and nonrepublican countries in women in the labor force and population density. However, significant differences were found between the two groups in infant mortality, access to piped water, adult literacy, and GNP per capita.

Oil-producing nations. The findings showed that there was no significant difference between the two groups of countries in women in the labor force, population density, infant mortality, access to piped water, and adult literacy. A significant difference was found between the two groups of nations only in GNP per capita.

Fundamentalism and social change. The findings showed a deviation from modernization assumptions in some countries. The more religious countries had lower scores on indicators of social change, especially on women's participation in the labor force, infant mortality, and adult literacy. However, the assumption was totally true in nine countries where they ranked high on the social aspects of education, health, labor force composition, housing, and political participation. These countries are Afghanistan, Pakistan,

Bangladesh, Mauritania, Sudan, Morocco, and North Yemen as the more religious countries, and Turkey, Syria, Tunisia, and Lebanon as the least religious countries.

Countries deviating from the modernization assumption were Saudi Arabia, Malaysia, Indonesia, and Egypt as the most religious nations, and Niger, Guinea, Gabon, Iraq, the Gambia, and Uganda as the least religious countries.

Conclusions

The study provided a recent assessment of change in social aspects of education, health, housing, labor force composition, and citizens' participation, as well as infant mortality, in the Muslim countries. The researcher attempted to evaluate the importance of certain variables in explaining this demographic phenomenon. When explaining infant mortality, a dramatic decline, particularly in recent years, was noted.

Five variables qualified for inclusion in the best-fitting regression model. Together these variables provided a joint explanatory capacity of 50% of the total variation on infant mortality. The five variables were access to piped water, women's participation in the labor force, adult literacy, GNP per capita, and population density.

A major portion of the present research was focused on the study of social change. However, the hypotheses tested in the study enabled evaluation of certain contextual variables in the two time periods. The study results led to the conclusion that social change as well as its domains (health, education, housing,

labor force composition, and citizen participation) of the member-states of the Organization of the Islamic Conference (OIC) were significantly observed, except in the areas of citizen participation and female enrollment in schools.

Implications can be drawn from this research, then, as to which social aspects had changed and which had not and in which nations such changes had occurred and in which they had not. The differences in the variables' means had changed from 1975 to 1985 as follows: 6.09 in housing, 5.24 in education, 5.18 in health as well as in labor force composition, and, finally, 2.25 in citizens' participation.

From the results here, it is difficult to recommend promoting one aspect over another, because these aspects are interrelated and interdependent. But for certain nations, it would be desirable to give one aspect more attention than other aspects, even though one aspect is not alone sufficient to stimulate change in a society. Nigeria, for example, has 40% of women participating in the labor force, with 25% adult literacy and 110 per 1,000 infant mortality rate. Another country, say, Iraq, has 5% of women participating in the labor force, with 55% adult literacy, and 74 per 1,000 infant mortality rate. If we compare the two countries in terms of adult literacy, we find Iraq to be more literate by 30% than Nigeria. In contrast, if we compare the two countries in terms of the participation of women in the labor force, we find Nigeria to have a 35% higher rate than Iraq. Our recommendation, therefore, would be that adult literacy should get more attention from the policy makers in

Nigeria than women's participation in the labor force, whereas women's participation in the labor force should get more attention in Iraq than adult literacy.

In general, in the nations under study, national development had been made in general terms including almost all social and economic aspects according to each country's capacity and resources. Universal indicators (adult literacy, for example), moreover, were promoted by international and United Nations agencies. The case of women's participation in the labor force may have depended primarily on specific cultural or socioeconomic grounds, which vary considerably among nations in spite of the activities and actions taken by the United Nations agencies.

Political participation was the only variable that remained comparatively low in almost all nations under study. Change in this variable was slight. It would clearly be desirable, therefore, for the governments of these nations to give more attention to democracy and citizen participation. Programs to promote such participation are recommended and highly accepted by industrialized nations as a step toward easing social problems and leading society into a stable condition.

Recommendations for Policy and Further Research

The study recommendations may be divided into two categories: policy and research.

Policy Recommendations

The study can provide guidelines toward population policy, with particular emphasis on further reduction in infant mortality levels. The following policy recommendations are proposed for consideration:

1. Adult literacy was found to be the strongest path coefficient leading to reduced infant mortality. It is recommended that policy makers, based on the findings, give more attention and support to that variable in the countries involved, especially Afghanistan, Pakistan, Sudan, North Yemen, Mali, Senegal, Benin, Burkano Faso, the Gambia, Guinea, and Niger.

2. Mortality differentials within the Muslim countries can be narrowed by providing better channels of access to piped water, education, and opportunities for women to participate in the labor force.

3. Although national mortality levels have been effectively reduced in the ten-year period, high mortality rates still persist in the lower-income and denser countries. Hence, population policies should be translated to accommodate a large number of people and to be effective in these countries.

4. Socioeconomic improvement may be the key to promoting infant mortality decline; therefore, programs must be established to promote the socioeconomic levels of the population.

5. In the area of women's participation in the labor force, it is recommended that countries of Algeria, Saudi Arabia, Egypt, Mauritania, North Yemen, Jordan, Iraq, Libya, and South Yemen

increase programs to enhance women's participation in the labor force.

6. The countries in which the subject of infant mortality needs the most serious attention are Afghanistan, the Gambia, Guinea, Sierra Leone, Mali, Somalia, and South Yemen.

Research Recommendations

1. Attempts to create new measurements for the purpose of taking into account "human" interests and goals are recommended. While social change can be measured in terms of a theoretical framework, social scientists should be encouraged to relate the theory to its empirical context.

2. A comparative methodology should be developed to enhance scientific understanding of progress, especially in the social sector.

3. Large-scale cross-cultural and time-series studies should be encouraged. Such studies are likely to have more ability than small-scale comparative studies to assess change. It is recommended that international organizations support and sponsor such research, which supersedes individual and limited efforts.

4. A causal interpretation using the path-analysis technique could shed significant light on the theoretically perplexing questions in the area of social change. Further improvement in this technique is much to be desired and recommended. The areas in which these techniques are urgently needed are infant mortality, death rate, women's participation in the labor force, and opportunities open for citizen participation in a democratic society.

The present study, however, was a serious attempt to explore these areas and has made a vital contribution to the literature of scientific inquiry.

APPENDICES

APPENDIX A

MUSLIM NATIONS INCLUDED IN THE STUDY, OIL AND NON-OIL PRODUCING MUSLIM NATIONS, AND RELIGIOSITY SURVEY

Table A.1.--Muslim nations included in the study.*

Arab Muslim Nations	Non-Arab Muslim Nations
Algeria	Afghanistan
Egypt	Bangladesh
Iraq	Benin
Jordan	Burkina Faso
Kuwait	Cameroon
Lebanon	Chad
Libya	Gabon
Mauritania	Gambia
Morocco	Guinea
Saudi Arabia	Indonesia
Somalia	Iran
Sudan	Malaysia
Syria	Mali
Tunisia	Niger
Yemen A.R.	Nigeria
Yemen P.D.R.	Pakistan
	Senegal
	Sierra Leone
	Turkey
	Uganda

*Nations not included in the study:

Arab countries: Bahrain, Djibouti, Oman, PLO, Qatar, and United Arab Emirates,

Non-Arab countries: Brunei, the Comoros, Maldives.

Table A.2.--The Muslim nations and their dates of independence.

Country	Date of Independence	Country	Date of Independence
Algeria	July 5, 1962	Afghanistan	Nov. 19, 1946
Bahrain	Aug. 14, 1971	Bangladesh	Apr. 4, 1972
Djibouti	June 27, 1977	Benin	Aug. 1, 1960
Egypt	Oct. 24, 1945	Brunei	June 1, 1984
Iraq	Mar. 22, 1946	Burkina Faso	Aug. 5, 1960
Jordan	Mar. 22, 1946	Cameroon	Dec. 31, 1975
Kuwait	June 19, 1961	Chad	Aug. 11, 1960
Lebanon	Nov. 22, 1943	Comorus	Jan. 1, 1960
Libya	Dec. 24, 1951	Gabon	Aug. 17, 1960
Maldives	July 26, 1965	The Gambia	Sep. 21, 1965
Mauritania	Nov. 28, 1960	Guinea	Oct. 2, 1957
Morocco	Mar. 2, 1956	Indonesia	Dec. 28, 1949
Oman	Oct. 7, 1971	Iran	Oct. 24, 1945
Palestine*	Nov. 15, 1988	Malaysia	Aug. 31, 1957
Qatar	Sep. 3, 1971	Mali	Aug. 22, 1960
Saudi Arabia	Oct. 24, 1945	Niger	Aug. 3, 1960
Somalia	July 1, 1960	Nigeria	Oct. 1, 1960
Sudan	Jan. 1, 1956	Pakistan	Aug. 14, 1947
Syria	Jan. 1, 1944	Senegal	Aug. 20, 1960
Tunisia	Mar. 20, 1956	Sierra Leone	Apr. 27, 1961
U. A. E	Dec. 2, 1971	Turkey	Oct. 24, 1945
Yemen, A.R.	Sep. 30, 1947	Uganda	Oct. 9, 1962
Yemen, PDR	Nov. 30, 1967		

*Palestine independence was political rather than geographical.

Table A.3.--Oil and nonoil-producing Muslim nations.*

Oil-Producing Nations (N=12)	Nonoil-Producing Nations (N=24)
Algeria	Afganistan
Egypt	Bangladesh
Gabon	Benin
Indonesia	Burkina Faso
Iran	Cameroon
Iraq	Chad
Kuwait	Gambia
Libya	Guinea
Nigeria	Jordan
Saudi Arabia	Lebanon
Syria	Malaysia
Tunisia	Mali
	Mauritania
	Niger
	Morocco
	Pakistan
	Senegal
	Sierra Leone
	Somalia
	Sudan
	Turkey
	Uganda
	Yemen A.R.
	Yemen P.D.R.

*Arab oil-producing countries not included in the analysis:

Oman, Qatar, and United Arab Emirates,

Please, put an (X) mark on the following measure of religiosity in terms of fundamentalism and religious services provided for each country on the scale from zero (0) as the lowest religious degree, and (10) as the highest religious degree.

For example:

	VERY LOW RELIGIOSITY				MEDIUM					VERY HIGH RELIGIOSITY
UNITED STATES	0	1	2	X 3	4	5	6	7	8	9 10

	VERY LOW RELIGIOSITY				MEDIUM					VERY HIGH RELIGIOSITY
AFGHANISTAN	0	1	2	3	4	5	6	7	8	9 10
ALGERIA	0	1	2	3	4	5	6	7	8	9 10
BANGLADESH	0	1	2	3	4	5	6	7	8	9 10
BENIN	0	1	2	3	4	5	6	7	8	9 10
BURKINA FASO	0	1	2	3	4	5	6	7	8	9 10
CAMEROON	0	1	2	3	4	5	6	7	8	9 10
CHAD	0	1	2	3	4	5	6	7	8	9 10
EGYPT	0	1	2	3	4	5	6	7	8	9 10
GABON	0	1	2	3	4	5	6	7	8	9 10
GAMBIA, THE	0	1	2	3	4	5	6	7	8	9 10
GUINEA	0	1	2	3	4	5	6	7	8	9 10
INDONESIA	0	1	2	3	4	5	6	7	8	9 10
IRAN	0	1	2	3	4	5	6	7	8	9 10
IRAQ	0	1	2	3	4	5	6	7	8	9 10
JORDAN	0	1	2	3	4	5	6	7	8	9 10
KUWAIT	0	1	2	3	4	5	6	7	8	9 10

	VERY LOW RELIGIOSITY				MEDIUM					VERY HIGH RELIGIOSITY
LEBANON	0	1	2	3	4	5	6	7	8	9 10
LIBYA	0	1	2	3	4	5	6	7	8	9 10
MALAYSIA	0	1	2	3	4	5	6	7	8	9 10
MALI	0	1	2	3	4	5	6	7	8	9 10
MAURITANIA	0	1	2	3	4	5	6	7	8	9 10
MOROCCO	0	1	2	3	4	5	6	7	8	9 10
NIGER	0	1	2	3	4	5	6	7	8	9 10
NIGERIA	0	1	2	3	4	5	6	7	8	9 10
PAKISTAN	0	1	2	3	4	5	6	7	8	9 10
SAUDI ARABIA	0	1	2	3	4	5	6	7	8	9 10
SENEGAL	0	1	2	3	4	5	6	7	8	9 10
SIERRA LEONE	0	1	2	3	4	5	6	7	8	9 10
SOMALIA	0	1	2	3	4	5	6	7	8	9 10
SUDAN	0	1	2	3	4	5	6	7	8	9 10
SYRIA	0	1	2	3	4	5	6	7	8	9 10
TUNISIA	0	1	2	3	4	5	6	7	8	9 10
TURKEY	0	1	2	3	4	5	6	7	8	9 10
UGANDA	0	1	2	3	4	5	6	7	8	9 10
YEMEN, NORTH	0	1	2	3	4	5	6	7	8	9 10
YEMEN, SOUTH	0	1	2	3	4	5	6	7	8	9 10

APPENDIX B

TRANSFORMED SCORES AND CHANGE RATES OF THE SOCIAL ASPECTS OF CHANGE

Table B.1.--Transformed scores and change rate of the social aspects of change (N = 36).

Country	Health	Education	Employment	Housing	Political Particip.
AFGHANISTAN					
1975	20.5	18.3	39.0	29.0	19.0
1985	24.0	23.2	42.5	32.3	21.0
Change (%)	17.7	26.4	9.0	11.5	10.5
ALGERIA					
1975	61.5	45.8	76.5	39.7	42.0
1985	64.5	52.2	78.5	44.0	48.0
Change (%)	4.9	13.8	2.6	10.9	14.3
BANGLADESH					
1975	30.0	36.2	26.5	23.3	33.0
1985	34.5	34.8	25.5	27.7	36.0
Change (%)	15.0	- 3.7	- 3.8	18.6	9.1
BENIN					
1975	48.5	35.0	56.0	41.7	23.0
1985	48.0	26.2	65.0	49.0	29.0
Change (%)	- 1.0	-25.3	16.1	17.6	26.1
BURKINA FASO					
1975	28.5	32.2	57.0	32.3	17.0
1985	39.0	30.0	57.5	35.7	19.0
Change (%)	36.8	- 6.7	.9	10.3	11.8
CAMEROON					
1975	51.5	51.0	60.5	39.3	28.0
1985	53.0	65.3	70.5	44.7	28.0
Change (%)	2.9	28.1	16.5	13.6	0.0
CHAD					
1975	35.5	17.9	42.5	22.3	20.0
1985	40.0	25.3	41.5	29.0	24.0
Change (%)	12.7	42.1	- 2.4	29.9	20.0
EGYPT					
1975	50.0	51.0	68.0	38.3	76.0
1985	59.0	39.3	75.0	51.7	54.0
Change (%)	18.0	-22.8	10.3	34.8	-28.9
GABON					
1975	22.0	40.7	70.0	47.0	21.0
1985	26.0	34.8	67.5	52.3	23.0
Change (%)	18.2	-14.3	- 3.6	11.4	9.5

Table B.1.--Continued.

Country	Health	Education	Employment	Housing	Political Particip.
GAMBIA					
1975	24.5	27.5	65.0	43.3	22.0
1985	29.0	31.0	67.5	48.3	17.0
Change (%)	18.4	12.7	3.9	11.5	-22.7
GUINEA					
1975	23.5	28.7	78.0	34.0	20.0
1985	29.0	55.7	79.5	40.7	23.0
Change (%)	23.4	94.2	1.9	19.6	15.0
INDONESIA					
1975	51.0	68.0	64.0	48.0	50.0
1985	52.5	60.8	70.0	54.3	55.0
Change (%)	2.9	-10.5	9.4	13.2	10.0
IRAN					
1975	60.5	62.0	35.0	34.0	87.0
1985	46.5	51.8	47.5	41.7	57.0
Change (%)	-23.1	-16.4	35.7	22.6	-34.5
IRAQ					
1975	33.0	40.0	48.0	43.3	46.0
1985	33.5	71.8	52.5	48.0	47.0
Change (%)	1.5	79.6	9.4	10.8	2.2
JORDAN					
1975	74.5	65.0	53.0	52.7	48.0
1985	75.5	72.5	54.0	62.3	59.0
Change (%)	1.3	11.5	2.0	18.4	22.9
KUWAIT					
1975	81.5	76.8	58.5	73.7	76.0
1985	86.5	88.3	63.0	80.3	77.0
Change (%)	6.1	15.0	7.7	9.0	
LEBANON					
1975	83.5	87.2	44.0	41.3	80.0
1985	86.0	67.7	63.0	49.3	63.0
Change (%)	3.0	-22.4	43.2	19.4	
LIBYA					
1975	74.5	51.8	53.5	66.0	42.0
1985	76.0	69.0	58.5	71.3	75.0
Change (%)	2.0	33.1	9.4	8.1	78.6

Table B.1.--Continued.

Country	Health	Education	Employment	Housing	Political Particip.
MALAYSIA					
1975	82.5	67.0	67.5	68.7	59.0
1985	90.5	85.5	77.0	74.0	52.0
Change (%)	9.7	27.6	14.1	7.8	-11.9
MALI					
1975	42.5	26.5	49.5	28.0	15.0
1985	52.5	31.7	59.5	31.0	18.0
Change (%)	23.5	19.5	20.2	10.7	20.0
MAURITANIA					
1975	28.0	26.2	35.5	33.7	15.0
1985	32.0	36.7	30.5	37.0	23.0
Change (%)	14.3	40.1	-14.1	9.9	53.3
MOROCCO					
1975	46.5	41.0	51.0	61.3	40.0
1985	52.5	36.8	57.5	67.0	45.0
Change (%)	12.9	-10.2	12.8	9.2	12.5
NIGER					
1975	33.0	27.8	37.0	25.3	14.0
1985	43.5	35.8	39.0	29.0	19.0
Change (%)	31.8	28.7	5.4	14.5	35.7
NIGERIA					
1975	27.5	47.8	70.0	60.3	25.0
1985	37.0	44.7	78.5	81.7	31.0
Change (%)	34.6	- 6.6	12.1	35.4	24.0
PAKISTAN					
1975	56.0	34.2	43.5	56.0	37.0
1985	57.0	36.2	48.5	61.7	40.0
Change (%)	1.8	5.9	11.5	10.1	8.1
SAUDI ARABIA					
1975	63.5	37.2	44.0	49.7	29.0
1985	66.0	41.0	53.0	55.3	35.0
Change (%)	3.9	10.3	20.5	11.4	20.7
SENEGAL					
1975	51.0	33.5	61.5	56.3	22.0
1985	52.0	36.8	65.0	57.0	25.0
Change (%)	2.0	10.0	5.7	1.2	13.6

Table B.1.--Continued.

Country	Health	Education	Employment	Housing	Political Particip.
SIERRA LEONE					
1975	28.0	34.3	63.5	38.3	29.0
1985	33.0	34.8	68.0	41.7	31.0
Change (%)	17.9	1.5	7.1	8.7	6.9
SOMALIA					
1975	32.0	25.8	43.0	21.0	19.0
1985	36.0	56.3	52.5	25.0	39.0
Change (%)	12.5	118.1	22.1	19.1	105.3
SUDAN					
1975	27.5	38.5	50.0	45.3	37.0
1985	34.0	22.2	63.0	47.0	23.0
Change (%)	23.6	-42.4	26.0	3.7	-37.8
SYRIA					
1975	97.5	52.0	61.0	73.7	52.0
1985	98.0	59.8	70.5	85.0	64.0
Change (%)	.5	15.1	15.6	15.4	23.1
TUNISIA					
1975	69.0	49.0	64.5	51.7	44.0
1985	71.0	70.7	68.5	57.7	59.0
Change (%)	2.9	44.2	6.2	11.6	34.1
TURKEY					
1975	59.5	58.2	59.5	56.0	54.0
1985	63.0	65.5	65.5	65.5	62.0
Change (%)	5.9	12.6	10.1	16.7	14.8
UGANDA					
1975	44.0	38.0	47.0	39.0	32.0
1985	50.0	50.8	53.0	42.3	35.0
Change (%)	13.6	33.8	12.8	8.6	9.4
NORTH YEMEN					
1975	35.5	18.8	36.0	30.7	27.0
1985	37.0	18.8	33.0	37.0	22.0
Change (%)	4.2	0.0	- 8.3	20.7	-18.5
SOUTH YEMEN					
1975	38.0	32.3	45.5	31.3	27.0
1985	43.0	48.0	48.5	37.3	30.0
Change (%)	13.2	48.5	9.0	19.2	11.1

APPENDIX C

RANKING OF MUSLIM NATIONS IN THE HEALTH, HOUSING, EDUCATION, LABOR FORCE COMPOSITION, AND CITIZEN PARTICIPATION DOMAINS, 1975 AND 1985

Table C.1.--Ranking of Muslim nations on the social aspects of change, 1975 and 1985.

1975 Nation	Rank	1985 Nation	Rank
		The Top Ten	
Lebanon	1	Kuwait	1
Kuwait	2	Syria	2
Malaysia	3	Malaysia	3
Syria	4	Libya	4
Iran	5	Lebanon	5
Jordan	6	Jordan	6
Egypt	7	Tunisia	7
Turkey	8	Turkey	8
Indonesia	9	Indonesia	9
Libya	10	Algeria	10
		The Middle	
Tunisia	11	Iran	11
Algeria	12	Egypt	12
Morocco	13	Iraq	13
Cameroon	14	Morocco	14
Pakistan	15	Saudi Arabia	15
Saudi Arabia	16	Cameroon	16
Iraq	17	Pakistan	17
Nigeria	18	Nigeria	18
Senegal	19	Senegal	19
Uganda	20	Uganda	20
Benin	21	Benin	21
Sudan	22	Somalia	22
Sierra Leone	23	South Yemen	23
Gabon	24	Guinea	24
South Yemen	25	Sierra Leone	25
Bangladesh	26	Gabon	26
		The Bottom Ten	
Guinea	27	Mali	27
Gambia	28	Gambia	28
Burkina Faso	29	Bangladesh	29
Mali	30	Sudan	30
North Yemen	31	Mauritania	31
Somalia	32	Burkina Faso	32
Niger	33	Niger	33
Chad	34	Chad	34
Mauritania	35	North Yemen	35
Afghanistan	36	Afghanistan	36

Table C.2.--Ranking of Muslim nations in the health domain, 1975 and 1985.

1975 Nation	Rank	1985 Nation	Rank
	The Top Ten		
Syria	1	Syria	1
Lebanon	2	Malaysia	2
Malaysia	3	Kuwait	3
Kuwait	4	Lebanon	4
Jordan	5	Libya	5
Libya	5	Jordan	6
Tunisia	7	Tunisia	7
Saudi Arabia	8	Saudi Arabia	8
Algeria	9	Algeria	9
Iran	10	Turkey	10
	The Middle		
Turkey	11	Egypt	11
Pakistan	12	Pakistan	12
Cameroon	13	Cameroon	13
Indonesia	14	Morocco	14
Senegal	14	Indonesia	14
Egypt	16	Mali	14
Benin	17	Senegal	17
Morocco	17	Uganda	18
Uganda	19	Benin	19
Mali	20	Iran	20
South Yemen	21	Niger	21
North Yemen	22	South Yemen	22
Chad	22	Chad	23
Iraq	24	Burkina Faso	24
Niger	24	North Yemen	25
Somalia	26	Nigeria	25
	The Bottom Ten		
Bangladesh	27	Somalia	27
Burkina Faso	28	Bangladesh	28
Mauritania	29	Sudan	29
Sierra Leone	29	Iraq	30
Sudan	31	Sierra Leone	31
Nigeria	31	Mauritania	32
Gambia	33	Gambia	33
Guinea	34	Guinea	34
Gabon	35	Gabon	35
Afghanistan	36	Afghanistan	36

Table C.3.--Ranking of Muslim nations in the housing and nutrition domain, 1975 and 1985.

1975		1985	
Nation	Rank	Nation	Rank
	The Top Ten		
Syria	1	Syria	1
Kuwait	1	Nigeria	2
Malaysia	3	Kuwait	3
Libya	4	Malaysia	4
Morocco	5	Libya	5
Nigeria	6	Morocco	6
Senegal	7	Turkey	7
Pakistan	8	Jordan	8
Turkey	8	Pakistan	9
Jordan	10	Tunisia	10
	The Middle		
Tunisia	11	Senegal	11
Saudi Arabia	12	Saudi Arabia	12
Indonesia	13	Indonesia	13
Gabon	14	Gabon	14
Sudan	15	Egypt	15
Iraq	16	Lebanon	16
Gambia	16	Benin	17
Benin	18	Gambia	18
Lebanon	19	Iraq	19
Algeria	20	Sudan	20
Cameroon	21	Cameroon	21
Uganda	22	Algeria	22
Egypt	23	Uganda	23
Sierra Leone	23	Sierra Leone	24
Guinea	25	Iran	25
Iran	25	Guinea	26
	The Bottom Ten		
Mauritania	27	South Yemen	27
Burkina Faso	28	Mauritania	28
South Yemen	29	North Yemen	28
North Yemen	30	Burkina Faso	30
Afghanistan	31	Afghanistan	31
Mali	32	Mali	32
Niger	33	Niger	33
Bangladesh	34	Chad	33
Chad	35	Bangladesh	35
Somalia	36	Somalia	36

Table C.4.--Ranking of Muslim nations in the education domain, 1975 and 1985.

1975		1985	
Nation	Rank	Nation	Rank
	The Top Ten		
Lebanon	1	Kuwait	1
Kuwait	2	Malaysia	2
Indonesia	3	Jordan	3
Malaysia	4	Iraq	4
Jordan	5	Tunisia	5
Iran	6	Libya	6
Turkey	7	Lebanon	7
Syria	8	Turkey	8
Libya	9	Cameroon	9
Cameroon	10	Indonesia	10
	The Middle		
Egypt	10	Syria	11
Tunisia	12	Somalia	12
Nigeria	13	Guinea	13
Algeria	14	Algeria	14
Morocco	15	Iran	15
Gabon	16	Uganda	16
Iraq	17	South Yemen	17
Sudan	18	Nigeria	18
Uganda	19	Saudi Arabia	19
Saudi Arabia	20	Egypt	20
Bangladesh	21	Morocco	21
Benin	22	Senegal	21
Sierra Leone	23	Mauritania	23
Pakistan	24	Pakistan	24
Senegal	25	Niger	25
South Yemen	26	Bangladesh	26
	The Bottom Ten		
Burkano Faso	27	Sierra Leone	26
Niger	28	Bangladesh	26
Guinea	29	Mali	29
Gambia	30	Gambia	30
Mali	31	Burkano Faso	31
Mauritania	32	Benin	32
Somalia	33	Chad	33
North Yemen	34	Afghanistan	34
Afghanistan	35	Sudan	35
Chad	36	North Yemen	36

Table C.5.--Ranking of Muslim nations in the employment domain, 1975 and 1985.

1975 Nation	Rank	1985 Nation	Rank
	The Top Ten		
Guinea	1	Guinea	1
Algeria	2	Algeria	2
Gabon	3	Nigeria	2
Nigeria	4	Malaysia	4
Egypt	5	Egypt	5
Malaysia	6	Cameroon	6
Gambia	7	Syria	6
Tunisia	8	Indonesia	8
Indonesia	9	Tunisia	9
Sierra Leone	10	Sierra Leone	10
	The Middle		
Senegal	11	Gabon	11
Syria	12	Gambia	11
Cameroon	13	Turkey	13
Turkey	14	Benin	14
Kuwait	15	Senegal	14
Burkano Faso	16	Kuwait	16
Benin	17	Lebanon	16
Libya	18	Sudan	16
Jordan	19	Mali	19
Morocco	20	Libya	20
Sudan	21	Morocco	21
Mali	22	Burkano Faso	21
Iraq	23	Jordan	23
Uganda	24	Uganda	24
South Yemen	25	Saudi Arabia	24
Lebanon	26	Iraq	26
	The Bottom Ten		
Saudi Arabia	27	Somalia	26
Pakistan	28	Pakistan	28
Somalia	29	South Yemen	28
Chad	30	Iran	30
Afghanistan	31	Afghanistan	31
Niger	32	Chad	32
North Yemen	33	Niger	33
Mauritania	34	North Yemen	34
Iran	35	Mauritania	35
Bangladesh	36	Bangladesh	36

Table C.6.--Ranking of Muslim nations in the citizen-participation domain, 1975 and 1985.

Nation	1975 Rank	Nation	1985 Rank
	The Top Ten		
Iran	1	Kuwait	1
Lebanon	2	Libya	2
Kuwait	3	Syria	3
Egypt	3	Lebanon	4
Malaysia	5	Turkey	5
Turkey	6	Jordan	6
Syria	7	Tunisia	6
Indonesia	8	Iran	8
Jordan	9	Indonesia	9
Iraq	10	Egypt	10
	The Middle		
Tunisia	11	Malaysia	11
Libya	12	Algeria	12
Algeria	12	Iraq	13
Morocco	14	Morocco	14
Pakistan	15	Pakistan	15
Sudan	15	Somalia	16
Bangladesh	17	Bangladesh	17
Uganda	18	Saudi Arabia	18
Saudi Arabia	19	Uganda	18
Sierra Leone	19	Nigeria	20
Cameroon	21	Sierra Leone	20
North Yemen	22	South Yemen	22
South Yemen	22	Benin	23
Nigeria	24	Cameroon	24
Benin	25	Senegal	25
Gambia	26	Chad	26
Senegal	26		
	The Bottom Ten		
--		Gabon	27
Gabon	28	Guinea	27
Chad	29	Mauritania	27
Guinea	29	Sudan	27
Afghanistan	31	North Yemen	31
Somalia	31	Afghanistan	32
Burkano Faso	33	Burkano Faso	33
Mali	34	Niger	33
Mauritania	34	Mali	35
Niger	36	Gambia	36

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