The Politics and Economics of Health: A Cross-National Comparison of Civic Engagement and Health Status

Suzanne J. Wood
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DISSERTATION:
THE POLITICS AND ECONOMICS OF HEALTH:
A CROSS-NATIONAL COMPARISON OF
CIVIC ENGAGEMENT AND HEALTH STATUS

by

Suzanne J. Wood

B.S., 2000, Old Dominion University
M.S., 2001, Old Dominion University

A Dissertation to the Faculty of
Old Dominion University in Partial Fulfillment of the
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PUBLIC ADMINISTRATION AND URBAN POLICY
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ABSTRACT

THE POLITICS AND ECONOMICS OF HEALTH: A CROSS-NATIONAL COMPARISON OF CIVIC ENGAGEMENT AND HEALTH STATUS

Suzanne J. Wood
Old Dominion University, 2006
Director: John C. Morris, Ph.D.

Over the past two decades, various structural modifications associated with the provision of national health and its systems have been undertaken. The preponderance of liberalization experiences have occurred in the absence of epidemiological, political, or social considerations associated with adoption and implementation. Often, financial and political manipulation by international organizations and powerful foreign governments has served as the impetus for fundamental shifts leading to an asymmetrical distribution of resources by population density, geography, and along various socio-cultural boundaries. Consequently, structural adjustments have resulted in unpredictable and divergent outcomes with regard to health status. The question of whether or not health policies and programs served to fulfill public health objectives appeared to be one of the most critical.

Using national-level data for the 192 member nations of the World Health Organization, this exploratory dissertation employs phased statistical methods to determine the individual and collective associations of economics and socio-political conditions with the dependent variable, health status. Results of the stepwise regression suggest that the individual variable most responsible for achieving favorable health status is median age ($R^2=.586, p<.001$), followed by adult literacy ($R^2=.629, p<.001$) and GDP per capita ($R^2=.643, p<.01$). Taken together, these findings indicate that both the socio-
political and economic environments contain key mechanisms for the achievement of national health. Measures of democracy, though important, do not constitute measures that best predict favorable health status, as measured by life expectancy. However, suggestive of these findings is the assertion that free nations are more likely to provide opportunities for increasing wealth and education within a secure, orderly environment and to include provisions for health services.

This exploratory study provides some new evidence concerning the individual and combined roles of economic conditions and the socio-political environment in determining health status, thus providing a foundation for thoughtful consideration of the milieu under which health policy is developed and implemented. The result is a solution capable of accounting for the impact of social, political, and economic leveraging on health status and provides a theoretical framework suitable for cross-national comparative research.
This dissertation embodies the culmination of a non-traditional secondary education that spanned seventeen years, half of my life. Of the possible choices with regard to dedicating this work, none was clearer than that of my supportive, loving husband, Colin. Even before I completed my undergraduate education, it was he who believed in me, having insights into my talents and abilities that I was incapable of or unwilling to acknowledge. Through the long, arduous process of internal exploration, it was he who challenged, cajoled, advised, and encouraged me. Secondarily, but no less important, was the support I received from my young son, Stephen, whose own growth I observed from behind class notes, computer printouts, and an endless collection of texts. For the lost holidays, abbreviated weekends, and hurried bedtime rituals, it was he who sacrificed as much, if not more, for this achievement. Lastly, to my grandparents, Benjamin and Jean M. Kuller, who lived by example and made time for each of us in spite of our numbers. To each of you, I extend my heartfelt appreciation and eternal devotion.
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CHAPTER I

Background

Though faced with increasing scrutiny by international, public, and private organizations, much of the globe continues to be plagued with health problems. Ravaged by infectious, preventable disease the Third World struggles to attain health services infrastructure and widely available preventive resources (Twaddle, 1996). Even as death rates rise in economically disadvantaged regions, over consumption and idleness contribute to chronic disease in developed nations (Twaddle). Further confounding such problems are infectious conditions that defy widespread curative modalities, alarming increases in health care costs, and deficits resulting in the rationing or abandonment of prescribed treatments. As a result, global communities have turned to the World Health Organization (WHO) and other international agencies to identify problems and set goals. Yet, the climate of global health and health services delivery remains fragmented, a consequence of the numerous and often competing demands of powerful stakeholders: interest groups, lobbyists, policy-makers, trade and multinational organizations (Waitzkin, Jasso-Aguilar, Landwehr, & Mountain, 2005). Promoting their respective agendas, each has a role in shaping national and sub-national policies and programs which serve to promote or impede health, health behavior, capacity, and cost. Often, organizational interests differ significantly from the social or clinical objectives of government and its citizens, whose own needs may or may not be met through policy implementation. Rather, systemic failures to achieving health policy objectives may be
attributed to a lack of regulatory oversight, funding inadequacies, or simply an under-appreciation for population demand.

Through the use of political and economic leveraging, powerful stakeholders manipulate international and national policy in an effort to remove trade barriers and bolster financial returns that asymmetrically benefit their own organizations (Waitzkin et al., 2005). Leveraging often serves as the impetus for fundamental shifts in the provision and delivery of public services, in particular with regard to health care (Waitzkin et al.). Further confounding the problems of restructuring is that core systemic modifications are often undertaken by those with little understanding of the epidemiological, political, or social ramifications associated with implementation (De la Jara & Bossert, 1995). Rather, changes are distinguished by the calamitous decentralization and/or privatization of public services resulting in the absence of infrastructure necessary to support even the most basic of health care needs (Blumenthal & Hsiao, 2005; Homedes & Ugalde, 2005; Liu, 2004).

Presuming authoritative stakeholders act in their own best interests, the environment in which health policies and programs are developed, implemented, and evaluated is daunting at best, devastating at worst (Blumenthal & Hsiao, 2005; Bommier & Stecklov, 2002; Bossert & Beauvais, 2002; Liu, 2004; Twaddle, 1996; Waitzkin et al., 2005). Given the results of socio-political and economic reform range from very good to very poor, many conclude that policy decisions often rest on erroneous casual assumptions, cultural ideology, and/or the political will of the most influential (Bossert & Beauvais, 2002; De la Jara & Bossert, 1995; Waitzkin et al., 2005). Of the possible consequences of external stakeholder influence over national healthcare policy
development, the question of whether or not emerging arrangements serve to fulfill public health objectives appears to be one of the most critical (Saltman, 2003; Segall, 2000). Rather, the adequacy of policy decisions is often based on the availability of financial resources, the ability of the citizenry to pay out-of-pocket expenses, or by assessing actual or potential disparities resulting from implementation (Blumenthal & Hsiao, 2005; De Groote, De Paepe, & Unger, 2005; De Vos, Dewitte, & Van der Stuyft, 2004; Fiedler & Wright, 2003; Giffin, 1994; Liu, 2004; Segal, 2004).

The international health policy environment is further plagued by a lack of consensus with reference to governmental navigation of sanctions, incentives, and commitment to civic engagement in connection with the provision of health and healthcare policymaking (Bossert & Beauvais, 2002). Addressing this issue and calling for further research, Bossert and Beauvais (2002) contend:

> We need to better understand the factors that drive local decision-making processes. In many cases, local agents are simply thought of as “black boxes;” resources are transferred to them and control exerted over them, but it is not clear exactly what factors influence their choices. What tools or factors are most likely (to) improve local agent compliance with national objectives? To what degree are democratic institutions and/or civic participation relevant to effective local decision-making? (p. 29)

Numerous articles, books, and reports provide data on health and medical care; yet, they are limited by the lack of conceptualization that would allow for systematic international comparisons (Twaddle, 1996). Reports, even in the same text, are often prepared independently, address divergent issues, and highlight an assortment of
variables, which may be broadly categorized in terms of access to care, quality of services provided, and cost (Benson, 2001; Cormack, 2002; De Vos, Dewitte, & Van der Stuyft, 2004; Kaufman & Jing, 2002; Paphassarang, Philavong, Boupha, & Blas, 2002; Twaddle, 1996). One thing is certain; the decision to transform health service delivery explicitly is often undertaken by decision-makers in possession of a vague understanding for the root causes and potential consequences of a given strategy (Bommier & Stecklov, 2002; Giffin, 1994; Homedes & Ugalde, 2005; Kamat, 2001; Sen & Koivusalo, 1998).

Statement of the Problem

The decision to address health services delivery through formal policy initiatives has taken place throughout the world, under various socio-political and economic conditions, and with wildly divergent outcomes. Agreement on just how to address health service delivery, whether through market-based decentralization, governmental control, or a combination thereof, is simply nonexistent (Bossert & Beauvais, 2002; Twaddle, 1996). As governments wrestle with economic, political, and ideological considerations, academics key in on issues of quality, equity, efficiency, and access (Blumenthal & Hsiao, 2005; Chlabicz & Marcinowicz, 2005; Hebrang et al., 2003; Lim, 2004; Liu, 2004). To advocates, the introduction of competition indicates a growing trend to provide high quality service of value and relevance to beneficiaries within a cost-conscious environment (Bossert & Beauvais, 2002). For others, the decision marks the total devastation of a valued health services infrastructure, diminished access to and quality of care, and an increase in costs far exceeding budgetary capacity (Blumenthal & Hsiao; Liu). Absent within the political milieu is thoughtful consideration for public needs and
preferences with regard to the structure, function, and delivery of health services that is reflective of local conditions (Bossert & Beauvais).

International health policy literature most often addresses the problems of health access and equity, outlining the impact of economic restructuring through the diffusion or consolidation of service delivery, funding, and regulation (Anell & Hjelmgren, 2002; Blumenthal & Hsiao, 2005; Bossert & Beauvais, 2002; Pfeiffer, 2003). Research is further limited to an individual country, a single region, or an institute, such as a hospital within a particular city. A small number of studies report multiple country data, wherein research is limited to a handful of nations and is overwhelmingly qualitative or descriptive in nature. Few studies address specifically the interplay of socio-political forces, such as political rights and civil liberties, and health status. Only a handful of researchers address the question: To what degree are democratic institutions and/or civic participation relevant in fulfilling public health objectives? Consequently, a palatable deficiency exists with regard to the identification of pathways that lead to effective decision-making, specifically as they relate to the influence of civic engagement in shaping health outcomes. The result of the literature review reveals a gap at the multiple-country empirical comparison level, to include socio-political and economic data concerning individual and collective relationships to health status.

Statement of the Purpose

This dissertation, an exploratory study, examines the influence of national-level indicators identified as: life expectancy at birth, under age five mortality rate, maternal mortality ratio, HIV prevalence, tuberculosis prevalence, access to a sustainable water source, number of healthcare workers, number of hospital beds, gross domestic product
(GDP) per capita, per capita total expenditure on health at international dollar rate, total expenditures on health as percentage of GDP, private health expenditures as percentage of total health expenditures, political rights, civil liberties, country status, adult literacy, total population, and median age to gauge their importance in explaining the associations between economics, the socio-political environment, and health status. The research question is: What is the relationship between socio-political and economic factors and major determinants of health? Corollary questions include: (1) Is there a positive and significant relationship between economic indicators and health status? (2) What is the relationship of socio-political conditions, with regard to civil liberties and political rights, to health status? (3) Do distinct combinations of socio-political and economic variables significantly promote or impede health? (4) Can the socio-political and economic environment explain standard indicators of health?

Differing socio-political and economic liberalization experiences around the world have produced deep structural adjustments, which may or may not have affected living standards, including health status. Using a broadly based cross-national comparison of socio-political, economic, and health data, this study will inform the debate regarding health status and the environment in which health policy is developed and implemented by answering the fundamental research question (adapted from Bossert & Beauvais, 2002): To what degree is civic engagement relevant to the fulfillment of health status objectives? In answering this question, this study will examine the interplay of socio-political forces by political rights, civil liberties, and the relationship of civic engagement to health status in a broadly based cross-national comparison of the 192 member nations of the World Health Organization. Furthermore, economic variables will
be taken into consideration in order to determine the relationship between financial leverage, measures of democracy, and health status and to establish individual and combined associations with the same. Development of a theoretical framework capable of describing national-level features that contribute substantially to increasing health status is the intended result.

Data Analysis

Using national-level data, this research undertakes a multiple country empirical analysis of socio-political, economic, and health indicators in an effort to better understand the role of civic engagement in meeting public health objectives. To achieve cross-national comparisons of World Health Organization (WHO) member nations, this dissertation first outlines then justifies the inclusion of national-level data from three distinct areas: health status, economic conditions, and the socio-political environment. Health status is established using select major determinants of health, as outlined by the WHO. Economic conditions derive from the World Bank, as published by the WHO. The socio-political environment is delineated in part by demographic data available from the CIA. Remaining are three measures of democracy, as established in Freedom in the World 2005: The Annual Survey of Political Rights and Civil Liberties (Piano & Puddington, 2005.). This study employs phased statistical methods, including a correlation matrix and factor analysis. Individual and stepwise linear regressions follow, the purpose of which is to determine the individual and collective associations of independent variables, economics and socio-political characteristics, with the dependent variable, health status. A discriminant analysis rounds out the methods and is used to determine if nations may be classified by measures of democracy.
Study Outline

The study follows an empirical methods research plan. Chapter 1 provides a brief overview of international health and health services reform, introduces the research problem, purpose, and resulting research questions. Chapter 1 also summarizes the previous research leading to this effort and the methodology employed.

Chapter 2 provides a literature review and explores constructions of health, health policy, and the economic and social environments in which international health systems are developed. To provide contextual information, chapter 2 also elaborates on international health services reform from both governmental and market-based perspectives and provides an historical synopsis of initiatives. As a result of the literature review and findings contained therein, this chapter concludes with the development of a theoretical model that outlines the role of socio-political and economic conditions in shaping public health status and the hypotheses contained therein.

Chapter 3 details the construction of empirical analyses used in the study. This chapter also provides background for the selection of variables, data sources, operational definitions, the unit of analyses, and statistical instrumentation used to analyze data. Limitations are also included.

Chapter 4 presents detailed empirical analyses of health, economic, and sociopolitical data. This is accomplished first through the use of factor analysis, designed to reduce data and confirm relationships between variables. To satisfy predictive analyses, a Stepwise Regression is then carried out. Classification of data through discriminant analysis rounds out the chapter.
Chapter 5 contains interpretation and summarization of the data, the intent of which is to provide insights of utmost importance to the field of international health policy and, more specifically, with regard to restructuring initiatives as related to the global health environment. Development of a theoretical framework capable of describing national-level features that contribute substantially to the improvement of health status is the intended result. Suggestions for further research conclude the project.
CHAPTER II

Introduction

*Definition of Health*

The manner by which health is conceptualized in any society is of importance in that it is a reflection of society’s values and indicates how much support it may provide in the pursuit of health among its members (Longest, 1998). Longest provides the following explanation:

Generally, negative and narrow conceptualizations of health lead to interventions that focus on correcting or reducing an undesirable state. Positive and broad conceptualizations of health, on the other hand, stimulate proactive interventions aimed at many variables in the quest for health. (p. 2)

According to the World Health Organization, “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity,” as defined in the Preamble to the Constitution of the World Health Organization, adopted by the International Health Conference, New York, 19-22 June, 1946, and signed on 22 July 1946 by the representatives of 61 nations and entered into force on 7 April 1948 (see Appendix A). The Constitution further asserts, “The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.” In accepting the principles of the Constitution, Member States of the World Health Organization are charged with the promotion and protection of health;
however, differing social constructions regarding health, the right to care, and responsibility for the provision of service remain unsettled.

Several nations promote health as a right and health services as a public good and, as such, government bears responsibility for that right (Waitzkin et al., 2005). In contrast, others contend supporting free trade and promoting a market economy improve economic conditions and, subsequently, advance health status with a minimum of government provision for health care. Waitzkin et al. (2005) argue, “Social constructions concerning trade and health reflect broad ideologies concerning the impacts of market processes” (p. 902). Such constructions manifest differing roles of the market in advancing human purposes and meeting human needs and constrain policies to address profound changes generated by global trade.

**Policy Development and Implementation**

Health policies are the principal means through which societies shape the pursuit of health, taking into consideration operational definitions of health and the key determinants by which health is measured (Longest, 1998). Within this context, policies are negotiated along two lines: (1) through the division of resources, “tangibles,” and (2) through the resolution of psychological dynamics, the individual incentives of negotiating parties, or “intangibles.” Policy negotiations, therefore, are undertaken with an eye toward relative rewards mediated by costs incurred, as with economic markets, wherein each stakeholder has a vested interest in maximizing organizational gains. Interestingly, in health care policy, decisions are often made in terms of economic feasibility, a pursuit generally incongruent with clinical or social objectives of the population in question, the
result of political leveraging by powerful stakeholders (Saltman, 2003; Segall, 2000; Waitzkin et al., 2005).

Historically, international health care policymaking has been characterized by insufficient attention to research that might provide stronger evidence for policy reforms and that current health policies have been driven by ideology rather than evidence (Bridges, 2003). In many instances, efforts to transform health service delivery have been undertaken by decision-makers with an imprecise understanding of the core issues and potential consequences surrounding a given strategy (Bommier & Stecklov, 2002; Giffin, 1994; Homedes & Ugalde, 2005; Kamat, 2001; Sen & Koivusalo, 1998).

This point is well substantiated by Sen and Koivusalo (1998) who decry the processes under which health care reforms have been implemented in both developed and developing countries since the 1980s, arguing little discussion regarding the historical, social, and political contexts in which such reforms has taken place. Supporting the notion that health care reforms in developing countries are an integral component of structural adjustment policies, these authors maintain scant attention has been paid to such connections, nor to their implications. Outlining prescriptive measures to remedy past indiscretions, Sen and Koivusalo question basic assumptions behind reforms and, in particular, the ideological underpinnings inherent in reorganization. Rather, these authors maintain that each must be taken into account when considering long-term strategies and policies to provide health care services.

De la Jara and Bossert (1995) provide further evidence in support of this position by applying a multidisciplinary approach to an historic examination of Chilean health care reform, a study in which they emphasize the importance of epidemiological
considerations, the inhibiting role of economic recession in adoption and implementation, and the significance of congruence with underlying political ideology in civil society. In reviewing data, findings indicate that interest group politics and consensus building are complex processes not readily supported in terms of providing the impetus for change; rather, certain periods of reform are often preceded by outbreaks of disease, or simply dictated by government. These findings support the assertion that health policy decisions are often based on ill-conceived reactive or prescriptive strategies deficient of evidence-based conceptualizations designed to provide comprehensive public health support for a given population. The results underscore the need for further inquiry into the role of socio-political and economic conditions that promote or impede favorable public health outcomes.

**Power, Influence, and Political Will**

Globalization is the broadly employed term used to describe worldwide strategic business practices now commonly applied to the socio-political environment that incites political wrangling and compels local decision-makers to attempt to capture economic gains via centralized regional governance. This new order, characterized by technological advances, such as high-speed transportation and communications, has challenged the traditional cultural, linguistic, and sovereign confines of territorial divisions, suggesting that the interconnectedness of citizen to community within the global milieu has resulted in the breakdown of social bonds crucial to proactive involvement in local participatory governance (Putnam, 2000; Scheuerman, 2002; Soja, 2000). Due in large part to the socio-economic and spatial segregation of metropolitan regions, for many, globalization has been a critical factor in economically undermining communities, neighborhoods, and
even cities (Soja). A casualty of private sector strategic planning and ineffective public policy and implementation practices, many communities have been rendered ineffective against more powerful stakeholders whose economic interests reign supreme.

Under the rubric of globalization, economic transactions, facilitated by international trade agreements, enhance foreign direct investment and promote the implementation of prescriptive restructuring initiatives (Waitzkin et al., 2005). The World Bank, International Monetary Fund (IMF), and World Trade Organization (WTO), who are most often involved in such initiatives, customarily require the transfer of authority for services formerly provided in the public sector as a condition for new or renegotiated loans. Through the use of political and economic leveraging, these institutions manipulate international and national policies in an effort to remove trade barriers and bolster financial returns that result in strategically defined benefits.

Certainly, it is the most powerful of stakeholders who have the most to gain. Of key concern is an appreciation for stakeholder constructions of health policy, as it is from each stakeholder’s unique vantage point that organizational goals and objectives are defined.

Using a multi-method qualitative design, Waitzkin et al. (2005) target several organizations: government agencies, international financial institutions and trade organizations, international health organizations, multinational corporations (MNCs), and advocacy groups, uncovering evidence of differing ideologies and organizational interests. Extending previous research on economic globalization in Latin America and the United States, Waitzkin et al. examine the attitudes, decisions and actions of major groups participating in policy debates about globalization, public health, and health
services. Analyses support the assertion that social constructions differ among groups of stakeholders:

United States government agencies focus on U.S. national interests while Latin American governments emphasize a right to health; international financial and trade organizations favor privatization and support of foreign direct investment in health services with a limited role for the public sector in fulfilling public health functions; executives of MNCs constructed their own motivations in terms of service to humanity, emphasizing the intellectual property rights of scientists in less developed countries; and advocacy groups' constructions accentuated the unfavorable effects on health in terms of reduced access and equity as a result of the imposition of policies and regulations upon governments by international organizations and MNCs (p. 902).

In summary, institutional stakeholders express visions of empirical conditions that define problems and solutions in terms of ideologies consistent with organizational interests in survival and growth (Edelman, 1985). This present trend, as it relates to health care policymaking, requires thoughtful, contemplative reconsideration of political and economic differentials on the control and impact of health and health services delivery. Of particular interest is the dedication to rectifying unjust features that perpetuate the disenfranchiseement of definable groups: women, children, ethnic minorities, and others (Giffin, 1994; Homer, 2002; Kaufman & Jing, 2002). In correcting causal factors of asymmetrical negotiation, Soja (2000) outlines a solution, based on assertive advocacy in "... struggling against economic exploitation, cultural domination,
and individual oppression, whether based on class, race, gender, or any other axis of differential power and inequality in society” (p. 352). The resulting integrative approach challenges decision-makers to coalesce, rather than compartmentalize, views regarding the influence of segmented economic, social, political, and historic features of organization and control with regard to the global environment and entices them to rectify those elements of policy development and implementation which impede proactive societal inclusion and economic regionalization (Putnam, 2000).

Economic Conditions

Government Control of Health

The provision of valued health services assumed to serve the public interest must be governed by an institutional body capable of meeting clinical and social objectives within the confines of budgetary limits, regardless of its source. In meeting the dual objectives of efficiency and efficacy, many have turned to government believing that government is both capable of equitably distributing resources and serving the public good. While it may seem as though public organizations have the capacity to operate like private organizations, acknowledgment of critical differences provides the best evidence to the contrary, primarily, that they differ in underlying goals and motivations. Public sector organizations exist to serve the public interest and to provide for the common good; thus, there is a certain social significance inherent in the operation of these entities. Some of the provisions of public service organizations include: quality assurance, defense, education, protection of natural resources, and regulation, just to name a few (Denhardt, 1999).
Research indicates the single dominant authority of national government provides an effective source of planning and promoting the equitable distribution of health care resources (Mooney, 2002). For developed nations, as with Cuba and the Netherlands, governmental control over the provision of health has resulted in the achievement of model health and health practices among the best in the world (De Vos, 2005; Mooney, 2002). Among developing nations, major investments in centralized public health mechanisms have resulted in the betterment of health, as measured by increases in life expectancy, declining infant mortality, and a shift in morbidity rates from infectious to chronic disease (Blumenthal & Hsiao, 2005). However, rapid demographic changes, such as urbanization and globalization, have combined disastrously with diminished governmental capacity to respond to health crises (Islam & Tahir, 2002). In abruptly dismantling centralized health systems and transferring control and funding to localities or private investors, governments have laid the foundation for remarkable disparities between geographic regions, specifically with regard to urban and rural areas, and have undermined national effectiveness against the control of communicable disease (Blumenthal & Hsiao, 2005; Liu, 2004).

**Market-Based Control of Health**

Laissez-faire economics, the cornerstone of classical liberal philosophy, is based on free markets and market-based competition. Within this context, the perpetuation of civil liberties and individual rights is paramount and the maintenance of private property is viewed as an absolute right (Bell, 1976). Democratic political traditions have espoused fundamental property rights believing in a core of economic individualism and the value
of competition, thus accepting capitalist culture as "a necessary quality of men" (Hofstader, 1974, p. 13).

Adam Smith, the Scottish philosopher considered to be the founder of economic liberalism, remains the most influential scholar in shaping the basis of modern socioeconomic thought in defense of capitalism. Considered the forefather of the pure liberal ideology that grew in opposition to increasing power and influence of the bourgeoisie, Smith opposed government interference in the free market, to include regulation and asymmetrical privileges in favor of monopolies (Shichor, 1995). Rather, he supported a free, unfettered economy wherein individuals following their own interests would contribute to the common good, thus resulting in greater income for everyone (McKay, Hill, & Buckler, 1983).

In his seminal work, "Institutions, Institutional Change and Economic Performance," North (1990) contends that a country's institutional framework evolves in response to incentives, strategies, and choices. Central to his theory is the idea that human cooperation permits economies to capture the gains from trade. Institutions, therefore, provide formal structures, which guide human interaction. More specifically, institutions determine the opportunities and incentives available within a society. Consequently, it is the relative power and influence of organizations, which effectively shape the formal environment so that marginal forces may take advantage of opportunities. Central to this theory is the balance of power between government and the citizenry and the relative influence government will allow. As such, institutions promote or impede the hospitality of an environment, thus affecting the degree to which cooperative solutions and complex exchange may provide for economic growth.
Findings in "The Poor and the Rich" (Anonymous, 1996a) support the following statement: "countries that have pursued broadly free-market policies - in particular, trade liberalization and the maintenance of secure property rights - have raised their growth rates" (p. 24). Additionally, information contained within "Economic Freedom" (Anonymous, 1996b) supports the argument that there is a strong positive correlation between economic freedom and wealth, especially for countries that, through liberal economic regulation, have maintained a high level of economic freedom over a number of years. Subsequently, countries with persistently low economic freedom ratings are found to be unable to achieve even a middle-income rating.

Consideration of the nature and degree of corrupt practices inherent in an economic system is also central to achieving efficacy. By way of examining the nature of structural elements of government institutions and the political process as they relate to the character and extent of corruption, Schleifer and Vishny (1993) examine the costs and prevalence of corruption within the context of the structural environment in which it takes place. Their findings indicate that economic welfare is strongly associated with a soundly regulated competitive environment and that the decentralization of power, through political competition, drives down the opportunity for theft. The application of these findings within this study lies in that the achievement of favorable health status is argued to be more effective when coupled with sound regulatory coordination and compliance measures in an environment of decentralized power and effective regulatory enforcement (Kamat, 2001; Schleifer & Vishny, 1993).
Decentralization

Differing economic and structural adjustment strategies have produced a myriad of complex outcomes difficult to compare cross-nationally (Twaddle, 1996). As such, the topics of health systems structure, including privatization initiatives, lay beyond the scope of this project. Subsequently, the following discussion of economic decentralization serves merely to describe one aspect of the health services environment, which is key to understanding economic motivations in health care policymaking.

Nations, in an effort to assuage significant financial investments in a single public need, often look to the private sector as a means to provide more cost effective services. In assuming the private sector the capacity and willingness to provide meaningful cost savings, governments often engage in premature, disruptive policy initiatives that neither serve the public good, nor address public health needs for preventive and/or curative treatments. Believing free markets result in significant economic gains and that international trade is key to strategic positioning, many nations have shifted the provision and administration of government owned enterprises to the private sector. Such changes have resulted in the diffusion of governmental responsibility for, and influence over, various industries including health. In its broadest sense, economic decentralization is a concept that covers a

Myriad of transactions, including but not limited to: 1) governmental disengagement from a function, as in the cessation of a program; 2) the sale or lease of assets, such as land, infrastructure, or state-owned enterprises; 3) the replacement of publicly produced services with public payments for private services, through contracts, vouchers, or cost-plus
reimbursement; or 4) some forms of deregulation that open up an industry to private competition, where previously public institutions were the only legal providers (Starr, 1988, p. 37).

Many governments have opted to transfer responsibility for public services to the private sector in an effort to reduce fiscal stress, maximize public choice, and to promote other goals (Gormley, 1991). To adherents, decentralization may reduce the costs of government and introduce new possibilities for better service delivery. Arguments in favor of economic decentralization include: improved allocative or technical efficiency; innovation through adaptation to local conditions; improved quality, transparency, accountability, and legitimacy; and greater equity through distribution of resources toward traditionally marginal regions and groups (Bossert and Beauvais, 2002, p. 14).

For others, efforts to decentralize "... invoke visions of a beleaguered government bureaucracy ceding responsibility for vital public services to unreliable private entrepreneurs," (Gormley, 1991). End users identify a myriad of issues: limited access to care, an increasing individual cost burden, and a lack of control over the decision-making process. In addition, many health service professionals raise questions regarding the ability to manage ever-increasing productivity while maintaining standards for quality care. At its worst, economic decentralization has the potential to undermine important public service values such as equity, quality, and accountability.

Socio-Political Environment

Role of Government

In defense of local autonomy in communal society, Alexis De Tocqueville (1863/2001) argues in favor of local freedom, law, and culture wherein social welfare
exists at the pleasure of its citizens and under which local institutions form the crux of liberty. Particular to this paradigm is the generalized, yet effective, obedience to law; hitherto, the citizenry is charged with remaining proactive. Thus the creation of ceaseless agitation, or political controversy, with the intent of inciting reaction from government is seen as not only necessary, but also essential to the empowerment of the community and the strength of its freedom. Thomas Jefferson (1816/2001) echoed this principle of local government sovereignty, as it is in community participation that citizens retain a voice in governance and remain liberated from dominance.

Conversely, it is James Madison (1788/1979) in the “Federalist Number 10” who warns against the inherent mischief in local rule by majority, stating that factions, “... who are united and actuated by some common impulse of passion, or of interest, adverse to the rights of other citizens, or the permanent and aggregate interests of the community” (p. 55). From this argument, Madison supports two important contributions of the formulation of the Republic. First, he supports the refinement of public opinion through an elected body of citizens. Second, he asserts that it is through this elected body over which the sphere of governance may be extended. Thus, relief from the effects of localized factions: schemes of oppression, injustices, and disparate impact, may be controlled, if not completely eliminated.

Briand and Alstad (1995) caution against the institutionalization of democratic problem-solving and the unwillingness of the public to take on problems and issues, as though government or some other institutional body should bear responsibility for rectifying community ills. That one group, because of its interest, would know best how to solve the problems of another is irresponsible at best; in the absence of proactive civic
engagement, the unwilling and unmotivated fail to participate in local affairs, relinquishing responsibility to the paternalistic well informed or well to do who exert influence over the political process.

Role of Social Arrangements: Civic Engagement and Local Autonomy

Schuler (1996) states that the problems of modern-day communities stem from the segmentation and transient nature of those who live and work within them. Because of this movement toward independent living, or rather, isolationism, people have become increasingly more fearful of each other and, subsequently, less willing to be involved in local problem-solving initiatives. Furthermore, Schuler blames an obsession with material consumption for the disintegration of communities and community involvement in general. His solution is centered on new community consciousness wherein the citizenry is actively involved in principled and equitable community-building efforts. To this end, he presents six core values upon which a community may build its “web of unity”: conviviality and culture, education, strong democracy, health and well being, economic equity, opportunity, and, perhaps the most important, sustainability.

Etzioni (1994) ascribes to a similar notion referred to as the communitarian paradigm, espousing social values in conjunction with individual rights. He concedes that in society individuals hold autonomy in high esteem, especially with regard to individual rights; however, he argues that individuals must live within the context of their membership in society, a fact often overlooked in the pursuit of material wealth. Social order lies at the heart of this ideal. In communitarian social order, moral commitment is aligned with the voluntary willingness of its members’ participation. Essentially, individuals must believe in, and freely abide by, a common set of core values. In the
author's view, autonomy is not discarded, but rather, is situated within malleable framework of social morays, thus providing greater opportunity for individual expression by means of diminished pressure for social conformity. However, Etzioni warns against too little structure, as the "... greatest danger to autonomy arises when the social moorings of individuals are severed," (p. 23) concluding that such a withdrawal of control serves only as a catalyst for increasingly antisocial behavior.

*Application of Civic Engagement to Achieving Favorable Health Status*

Value-laden deliberation is inherent in policy formulation and implementation; though, the process begs the question, which and whose values predominate (Lemay, 2002)? It is the most powerful and influential who are most often victorious in passing legislation (Habermas, 1974; White, 1994). For this reason, it is necessary to understand the values and value systems that have and will influence program implementation and administration, as the contextual focus regarding the applicability of public issues, programs, and policies serves to create an environment in which concern for responsiveness to the polity is central (Habermas, 1974; Lemay, 2002).

Kreuter and Lezin (1998) provide support for proactive civic engagement in achieving clinical objectives and sustaining community health by conducting a sound review of the literature and historic application of community-building efforts geared toward bolstering health status and strengthening health systems. To their credit, they uncover and synthesize both positive and negative forces that support or impede collaborative processes: leadership, motivation, commitment, capacity, design, structure, costs, conflicts, and culture. The authors contend implementation of a successful and sustainable coalition rests squarely on the organization's ability to invoke an
entrepreneurial spirit coupled with responsive leadership. Subsequently, the coalition must possess the capacity to continually assess data, plan activities, and make corrections. To achieve this end, not only is the use of social capital advisable, but critical, to the sustainability and overall success of community focused measures.

Bossert and Beauvais (2002) outline further evidence in support of community involvement and public participation in local decision making with regard to achieving clinical and social objectives. Believing that the rejection of decentralization of health services is often premature or displaced and grounding their work in the principal agent theory, Bossert and Beauvais develop a new approach to designing more effective processes of decentralization called Decision Space Analysis. Under this approach, the governing body, or “principal”, set goals and parameters for health policy. The principal then grants authority and resources to local “agents”, municipal governments, field offices, or autonomous institutions. Of interest is that the principal agent approach acknowledges local agents often have their own preferences for the mix of goods and services provided to local stakeholders and constituents, whose needs may differ from those at the national level.

Using case study data from health sector reforms in Uganda, Ghana, Zambia, and the Philippines, Bossert and Beauvais (2002) offer preliminary findings of the characterization of decision-space range over a number of health systems functions, conceding a lack of sufficient evidence exists to demonstrate the effectiveness of decentralization activities. As such, these authors call for further research regarding the effects of health sector reform on health status. With respect to mechanisms for popular participation, these cases support the observation that participatory institutions are
significantly more effective when greater investments are made in training and
development and that legislating alone does not, “… provide greater oversight,
accountability, and channel for expression of user preferences. . . .” (p. 29).

Demand for equitable resources: education, technology, health services,
employment, and a pleasurable, livable environment, reflects the work of Putnam (2000)
in that he calls for the development and utilization of social capital in the achievement of
truly participatory democracy in which social relationships, the byproducts of common
interest, culminate in the creation of cooperative and collaborative political action. Many
communities have been able to overcome adversity through community-building efforts
heavily rooted in shared values. However, global society is segmented, divided by socio-
demographic and cultural borders defined by individual values, and disproportionate
requirements for autonomy. As such, it is difficult to introduce and sustain broadly
acceptable public policy, which is perceived to be equitable; nonetheless, research
indicates that proactive community involvement results in favorable health outcomes
(Bosser & Beavais, 2002; Kreuter & Lezin, 2000).

International Comparative Research

Exploring the effect of variations in the volume and characteristics of health care
and its systems on mortality, the Organisation for Economic Co-operation and
Development (OECD) conducted a 21 nation study covering a period of 25 years (Or,
2000). Results of a regression model suggest that increasing physician numbers are
positively and significantly related to lower mortality and that the relative importance of
the determinants varies with the type of mortality. Results also indicate that increased
governmental capacity (gross domestic product per capita and governmental support of
health services) is related to decreases in mortality. Applicability of findings is limited, however; the study includes only 21 highly developed, relatively homogeneous nations and incorporates no measures of the socio-political environment.

Decrying a lack of research in the area of political epidemiology and its effects on health, Franco, Alvarez-Dardet, and Ruiz (2004) use multiple regression analysis to establish a statistically significant relationship between measures of democracy, as defined by political rights and civil liberties, and three health indicators: life expectancy, infant mortality, and maternal mortality. The sample comprises 170 countries, stratified by income. Results indicate that democracy is positively and significantly related to life expectancy, even when controlling for economics. Recommendations for further research include longitudinal studies and exploration of associations between pathways to democracy and health.

According to Twaddle (1996), researchers lack a coherent theoretical framework for engaging in comparative health systems inquiry. In an effort to conceptualize such a framework he embarks upon the construction of such a model using broadly based sociological ideas: “... (1) a model of trends leading to fiscal crisis and a crisis of alienation; (2) communities, professions and markets as ideal typical organizational alternatives; (3) global post-Fordist and world systems theories; and (4) hegemonic projects...” (p. 637). The first of these areas reflects common trends in the nature of the professional to patient relationship, as shaped by systemic organizational and delivery activities. The second aspect outlines specific organizational and control modalities, to include primary goals, stakeholders, and regulatory compliance. Another aspect involves the internationalization of economies and the resultant influence of trade organizations
and other powerful stakeholders to impose market-based structuring initiatives. A final, related issue includes the propensity of economic elites to maximize organizational returns.

Suggesting further development of a theoretical statement that can account for the timing, speed, and direction of health services reform, Twaddle (1996) believes these ideas form the basis for international comparisons. However, he stops short of suggesting variables capable of measuring such generalities. In responding to the need for additional research, this dissertation proposes a theoretical framework capable of serving as a baseline for international comparisons, to include country-level data regarding health status and the relative influence of the economic climate and socio-political conditions that serve to promote or impede the achievement of public health objectives.

Development of a Theoretical Model

Social institutions reflect social constructions, its values and expectations (Graig, 1999; Waitzkin et al., 2005). An appreciation of the political and cultural environments in which global health is defined and assessed is key to understanding the development of international health care models and systems, and how resources are allocated and controlled. Of primary concern is that serious global health problems persist (Twaddle, 1996). The search for solutions to shared health problems has been undertaken by nations with markedly different approaches to the finance and delivery of care, methods shaped by the socio-political, economic and historic environments of which the system is part (Anderson, 1989; Graig, 1999; Roemer, 1993). However, differing reform experiences have produced deep structural adjustments of questionable value in promoting public
health and its objectives, thus a reasonable assumption is that much can be done to make
health care more effective and equitable.

Establishment of Health Status Indicators

In answering the call to address global issues, especially with regard to vulnerable
groups, the world community has structured coordinated efforts to set goals, deliver
services and improve the health status of populations. Under the rubric of the
Millennium Project, the United Nations (UN, 2005b) set ambitious goals to reduce
extreme poverty, halt the spread of human immunodeficiency virus (HIV/AIDS), and
provide universal primary education through a series of time-bound targets. Termed the
Millennium Development Goals (MDGs), these targets build on agreements from
previous UN conferences and represent commitments to reduce poverty and hunger, and
to tackle ill health, gender inequality, lack of education, insufficient access to clean
water, and environmental degradation.

Using country-level indicators to measure progress toward targets and objectives,
MDGs are intended “to improve governance, actively engage and empower civil society,
promote entrepreneurship and the private sector, mobilize domestic resources,
substantially increase aid to countries that need it to support MDG-based priority
investments, and make suitable policy reforms at the global level, such as those in trade,”
(UN Millennium Project, 2005b, p.23). To achieve these ends, the UN provides guidance
to countries undertaking program initiatives, the central focus of which is to strengthen
the operational capacity of local governments and nongovernmental organizations
(NGOs), as well as women’s organizations and civic groups, in an effort to formulate
policies of relevance to the population (2005b).
Three of the eight MDGs relate directly to health (WHO, 2006b). Health is also an important contributor to several other goals, thus the significance of the MDGs lies in the linkages between them. According to the WHO, the MDGs and health targets provide for a mutually reinforcing framework to improve human development overall. As such, the MDGs offer a vision of development in which some of the most important outcomes relate directly to health. For this reason, the WHO is proactive in measuring progress toward goals that address problems associated with: women and childbirth; children surviving the early years of life; the devastation of HIV/AIDS; access to life-saving drugs; and better health in all its forms, thus making a major contribution to the attainment of this impressive undertaking.

The World Health Assembly, represented by each of WHO's 192 member nations, uses an extensive body of normative and technical initiatives designed to track progress and measure achievement. Specifically, WHO monitors core national indicators that help explain progress, or lack thereof, in the achievement of specific goals at the country level. These values are known as the World Health Statistics Indicators. Many factors influence health status and a country's ability to provide quality health services for its people, including governmental and donor organizations, civic groups, and even communities themselves (WHO, 2006f). For example, investments in infrastructure may improve access to clean water and health services; regulatory enforcement may improve the quality of services delivered; and civil service reform may promote or impede employment and other opportunities.

There are a total of 39 World Health Statistics Indicators. These indicators are grouped by major headings widely accepted as measures of overall health status:
mortality, morbidity, health services coverage, environmental and behavioral risks, and health systems statistics. For the purpose of this study, it is necessary to reduce data in a manner supportive of producing valid, reliable results while maintaining a comprehensive overview of national health status. The following list of health status variables result from a combined literature review to reduce data, as supported by the international health systems research of Anderson (1972, 1989) and Roemer (1985, 1993), noted authorities in the field (see Table 1):
Table 1

**Dependent Variables: Health Status**

Mortality:
- Life Expectancy
- Under Age Five Mortality Rate (per 1,000)
- Maternal Mortality Rate (per 100,000 live births)

Morbidity:
- HIV prevalence among the population aged 15-49 years
- Incidence of smear positive tuberculosis per 100,000 population

Environmental:
- Population with sustainable access to an improved water source (percentage)

Health Systems:
- Total number of health workers per 10,000 population
- Total number of hospital beds per 10,000 population
Mortality indicators include life expectancy, the under age five mortality rate per 1,000, and the maternal mortality rate per 100,000 live births. Justification for the inclusion of life expectancy as a dependant variable lies in that life expectancy at birth reflects the overall mortality level of a population (WHO, 2006f). It summarizes the mortality pattern that prevails across all age groups, from children and adolescents to adults and the elderly. The inclusion of the under age five mortality rate is justified for inclusion in that this specific mortality rate is considered a leading indicator of the level of child health and overall development in countries; it is also a MDG indicator. Complications during pregnancy and childbirth are cited as a leading cause of death and disability among women of reproductive age in developing countries. As such, the maternal mortality ratio, also a MDG indicator, represents the risks associated with each pregnancy.

Morbidity indicators include the HIV prevalence among the population aged 15 to 49 years and the incidence of smear positive tuberculosis per 100,000 population. According to the WHO (2006f), HIV infection has become a major public health problem in almost every country and monitoring the course of the epidemic is crucial. Both the MDGs and the UN General Assembly Special Session on HIV and AIDS set goals of reducing HIV prevalence. HIV surveillance is obtained from known generalized epidemics, with antenatal clinic attendees as primary sources of information. In concentrated and low level epidemics where HIV prevalence in the general population is below 1%, surveillance among risk populations (e.g., injecting drug users, men who have sex with men and sex workers) is the focus of surveillance. Also included is the incidence of tuberculosis, the rationale being that this dependant variable is an important
measure to monitor the progression of disease at the country level and around the world. This indicator is also formulated in Target Eight of the MDGs, which is to "have halted by 2015 and begun to reverse the incidence of malaria and other major diseases (including TB)," (WHO, 2006).

The single environmental factor examined in this study is represented by percentage of the population with sustainable access to an improved water source. The WHO (2006f) contends access to drinking water and improved sanitation is considered a fundamental need and a human right vital for the dignity and health of all people. The health and economic benefits of improved water supply to households and individuals, especially children, are well documented. This indicator is used to monitor progress towards the MDGs.

Health systems indicators include the total number of health workers per 10,000 population and the total number of hospital beds per 10,000 population. The availability and composition of human resources for health is considered an important indicator of the strength of health, although no consensus exists regarding an optimal level of health workers for a population and higher levels of density are not necessarily considered better (WHO, 2006f). The WHO asserts that service delivery is also considered an important component of health systems. To capture availability, access and distribution of health services delivery must be measured through a range of factors, or through the use of a composite indicator. Because there is no such data for the majority of countries, inpatient bed density is one of the few available indicators able to capture a component level of health service delivery.
The Role of Economics

Economic barriers are generally acknowledged as significant to achieving favorable health status (Ensor, & Witter, 2001; Fuchs, 2004; Grossman, 1972). For many nations, the inability to address increasing health care costs is forcing them into a variety of health care reform initiatives, undertaken in response to rising pressures and driven by the need to increase efficiency while maintaining equity and improving quality (Twaddle, 1996). In abruptly dismantling centralized health systems and transferring control and funding to localities or private investors, governments lay the foundation for remarkable disparities between geographic regions, specifically with regard to urban and rural areas, and undermine national effectiveness against the control of communicable disease (Blumenthal & Hsiao, 2005; Liu, 2004). The resulting reform measures also increase individual private expenditures on health, reduce the financial burden on the public sector, and increase the profitability of service providers and suppliers (De Vos, Dewitte, & Van der Stuyft, 2004). For some, reform measures further exacerbate traditional inequities regarding the access to and use of services, especially with regard to economically vulnerable groups, such as women and children (Giffin, 1994; Kaufman & Jing, 2002). Moreover, economic shifts rooted in policy decisions often cause asymmetrical geographic over-concentrations of providers that result in the absence of even rudimentary public health services in economically disadvantaged regions (Iriart, Merhy, & Waitzkin, 2001). For others, such measures frequently result in the use of a disproportionate amount of resources on high technology and curative care to the exclusion of primary care, thus undermining the overall benefit of preventive services (Iriart, Merhy, & Waitzkin).
Twaddle (1996) contends that the capacity to mobilize economic resources, particularly as a result of the gross size of the economy and the per capita means of financing services, is key to understanding the impact of economic decisions on the welfare of its citizens, including health. Though the mitigating effects of variables such as age, presence of disease, and others may complicate measures of health status, strong relationships between income and health are clearly established in the literature, predominantly with regard to countries with below average income levels (Fuchs, 2004). The assertion that there exists an association between national-level economic indicators and health leads to two research hypotheses, the first of which corresponds with a country’s potential capacity to address health care needs and the second of which may indicate market conditions:

H1: There is a significant positive relationship between gross domestic product (GDP) per capita and health status.

H2: There is a significant positive relationship between per capita total expenditure on health at international dollar rate and health status.

Differing social and historic constructions of health and medical care shape the development of national and sub-national health systems; subsequently, the nature of service delivery reflects the scope of its definition (Twaddle, 1996). Such conceptualizations are of consequence in that they reflect society’s values and indicate how much support a society may provide in the pursuit of health among its members (Longest, 1998). This contention provides support for the following research hypothesis, which is considered an indicator of the value placed on the provision of health services at the country level:
H3: There is a significant positive relationship between total expenditure on health, as a percentage of GDP, and health status.

The relevance of health economics in affecting positive health policy is evidenced in its ability to predict market activity with regard to wealthy industrialized nations; however, the applicability of standard assumptions used in established market economies is less appreciable in low and middle income countries (Ensor & Witter, 2001). In stable developed economies, the following assumptions apply:

- Government is a dominant player in financing and providing health services.
- Providers are self-regulating, and espouse some degree of professional ethics.
- There exist effective channels for protecting the vulnerable from the costs of illness.
- There is a fair amount of market stability.
- Institutional regulation, property rights, accreditation, and the rule of law exist.
- The macro-economy and employment structures are stable (Ensor & Witter, p.2).

In low and middle income countries, however, governments’ share of health expenditures is diminishing and costs are increasingly being borne by individuals. In Viet Nam, Uruguay, Pakistan, India, and Nigeria, private contributions for the provision of health currently exceed 70% of total health expenditures (The World Health Report, 2006e). Because a government’s capacity to act as effective market regulator is
diminished in such cases, informal suppliers and providers of health care services adopt entrepreneurial features seeking to maximize individual profits (Ensor & Witter, 2001). As a result, the provision of care rests squarely on the individual ability to pay; therefore, benefits are rarely effective in reaching the most vulnerable populations. These findings point to the following hypothesis, an indicator of the burden shouldered by individuals in obtaining health care:

H4: There is a significant inverse relationship between private health expenditures and health status.

The economic environment includes measures of gross GDP per capita, per capita total expenditure on health at international dollar rate, total expenditures on health as percentage of GDP, and private health expenditures as percentage of total health expenditures because they demonstrate levels of national capacity and willingness to leverage resources in support of health policy initiatives. As the literature demonstrates, both capacity and willingness are extensions of social constructions that serve as a basis for health's definition and its ensuing support (Longest, 1998; Twaddle, 1996); thus, the following model is derived (see Figure 1):
Figure 1. Independent Variables: Economic Environment

GDP per capita +

Per Capita Total Expenditure on Health at International Dollar Rate +

Total Expenditure on Health as Percentage of GDP +

Private Health Expenditures as Percentage of Total Health Expenditures -

Health Status
The Role of the Socio-Political Environment

Legislation and policy formulation, the products of value-laden deliberation, are reflections of the most powerful and influential, whose values predominate (Habermas, 1974; Lemay, 2002; White, 1994). Consequently, it is necessary to understand the effects of socio-political disparities on value systems that influence program implementation and administration, the importance of which lies in the creation of an environment in which the public agenda is responsive to the polity for which it is created (Habermas; Lemay).

Of particular interest is the dedication to rectifying unjust features that perpetuate the disenfranchisement of vulnerable populations: women, children, ethnic minorities, and others (Giffin, 1994; Homer, 2002; Kaufman & Jing, 2002). In struggling against economic exploitation, cultural domination, or individual oppression, an integrative approach is required, one that challenges stakeholders and decision-makers to rectify those elements of policy development and implementation, which impede proactive societal inclusion and economic regionalization (Putnam, 2000; Soja, 2000).

Illustrative of differing societal values and civic engagement in health policymaking is the structure and function of health systems organization, specifically with regard to a system’s ability to meet public expectations. Though structural considerations lay beyond the scope of this research, a brief discussion of dominant systemic features is necessary to provide contextual background for socio-political leveraging that serves to promote or impede health and health services delivery, the groundwork for which is laid by various authorities in international health, specifically Anderson (1972, 1989) and Roemer (1993) whose work with health systems include a number of cross-national descriptive case analyses.
Twaddle (1996) describes three major health system constructions, each with a unique set of dominant actors, goals, and modes of control: community, professional, and market-based systems. A community-based system allows for decision-making by citizens or representatives accountable to the citizenry; dominant actors include political parties, politicians, and civil servants. Its primary goal is the preservation of democracy, the crux of which lies in promoting equitable conditions in the distribution of public resources. Threats to this system lay in the over-concentration of power, wealth, and control. Specially trained or credentialed experts who seek to improve techniques and capacity within the domain of their expertise govern the professional system. Regulation and control of this system stems from informal and formal sanctions and through socialized acceptance of authority. Undermining factors include an overextension of claims, professional threats to democratic ideals, and market interference in the professional sphere. The market-based system is controlled by consumer preferences. In this system, providers act independently with the primary goal of making profits. Business interests dominate and competition creates conditions that favor efficiency and effective modalities. However, economic power is often concentrated, professionals tend to influence and control the market, and democratic ideals of equity and access serve to undermine market-based constructions (see Table 2).
<table>
<thead>
<tr>
<th>Facet</th>
<th>Community</th>
<th>Professional</th>
<th>Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Decision-making by citizens or representatives accountable to the citizenry</td>
<td>Decision-making by experts with special training and credentials based on abstract knowledge</td>
<td>Decision-making by consumers under conditions where there are a large number of providers acting independently and perfect knowledge of price and quality</td>
</tr>
<tr>
<td>Dominant Actors</td>
<td>Political parties, politicians, civil servants</td>
<td>Professionals</td>
<td>Business interests</td>
</tr>
<tr>
<td>Dominant Goals</td>
<td>Preservation and extension of democracy; influence in decision-making</td>
<td>Enhancement of knowledge, improvement of technique and capacity, application to problems within domain of expertise</td>
<td>Profit</td>
</tr>
<tr>
<td>Mode of Regulation</td>
<td>Elections; opposition parties</td>
<td>Socialization; ethical standards; informal sanctions; formal sanctions imposed by colleagues</td>
<td>Competition</td>
</tr>
<tr>
<td>or Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhancing factors</td>
<td>Tradition of democracy; equality of power; constitutional limits</td>
<td>Public trust; absence of exploitation</td>
<td>Newness of market; absence of hegemony; trust busting</td>
</tr>
<tr>
<td>Undermining factors</td>
<td>Concentration of power, wealth, and control</td>
<td>Overextension of claims; professional threats to democracy; market imposition into professional sphere</td>
<td>Concentration of economic power; strength of professional ideologies; strength of democracy</td>
</tr>
</tbody>
</table>

As outlined above, socio-political constructions regarding health care point to the values and expectations which serve as the basis for the development of international health care models and systems and how applicable resources are allocated and controlled. However, in seeking to understand the relevance of values to the institutionalization of health systems composition, it is imperative to address the effects of the social and political environments on decision-making. Ensor and Witter (2001) state:

It is becoming apparent that factors other than simple inferences about individual behavior – such as moral hazard and adverse selection – will contribute to a scheme’s success or failure. Increasingly, in both high and low income countries, there is a recognition that simple assumptions about individual welfare may not account for the revealed preferences of consumers within a health care market (Rice, 1998). It is also likely that the extent to which individuals reveal risk-pooling preferences that reflect altruism rather than selfishness will be dependent on whether a scheme commands support from within a community or sub-group of the community. This notion is embodied in social capital theories, which attempt to summarize the extent to which communities develop a shared sense of ‘value’ that enables them to resolve local social problems. These theories suggest that the extent to which communities build up social capital may help explain why some community schemes are able to succeed while others fail. (p. 5)

The assertion that the level active community involvement is important in determining a system’s success provides the basis for the inclusion of socio-political variables designed to measure civic engagement, to include political rights and civil
liberties. According to Piano and Puddington (2005), “Political rights enable people to participate freely in the political process, including the right to vote, compete for public office, and elect representatives who have a decisive impact on public policies and are accountable to the electorate,” (p.775). These authors also describe civil liberties in the following manner: “Civil liberties allow for the freedoms of expression and belief, associational and organizational rights, rule of law, and personal autonomy without interference from the state,” (p. 775). Each nation may be measured in terms of how well its government meets defined criteria for the achievement of both political rights and civil liberties, as outlined in the text, Freedom in the World 2005 (Piano & Puddington, 2005). An average of political rights and civil liberties ratings may also be obtained. This average, known as country status, is then used to determine an overall classification: free, partly free, or not free.

From the assertion that active community involvement is important in determining the success of a system, as measured by health status indicators, the following hypotheses are derived:

H5: There is a significant positive relationship between political rights and health status.

H6: There is a significant positive relationship between civil liberties and health status.

H7: There is a significant positive relationship between the country status classification of Free and health status.

Certain demographic variables are also significant correlates of health. Such variables include education, population, and median age, as substantiated in large part by
the work of Grossman (1972, 2003) and confirmed by others (Fuchs, 2004). The
following provides individual justification for the inclusion of these variables and their
corresponding hypotheses.

The inclusion of the demographic variable of education is supported by the work
of Grossman (2003), whose research led to the conclusion that “... years of formal
schooling completed is the most important correlate of good health,” (p. 32). In
comparisons across low income countries, women’s education is found to be highly
correlated with the health of infants and children; however, in high income societies, the
effects of education are less straightforward, owing to the complicating factors of
occupation, job-related stress, and genetics (Fuchs, 2004). However, the United Nations
(2006a) cautions against utilizing a standard indicator of the years of formal education
completed in attempting international comparisons because a year or grade completed in
one country is may not reflect similar content or quality as a year or grade completed in
another country. Moreover, the number of years completed does not necessarily coincide
with the expected number of grades completed, because of the possibility of repeating
grades. The Central Intelligence Agency (2006) asserts information on literacy, while not
a perfect measure of educational results, is the most easily available and valid for
international comparisons, owing to the same argument that the content and intensity of
formal education differs from country to country. For the purpose of this study, adult
literacy is used as an improvised indicator of education, which is considered a necessary
correlate of health (Fuchs). This contention serves as the basis for the following research
hypothesis:
H8: There is a significant positive relationship between adult literacy and health status.

Distribution of the world’s resources is dependent on the forces of supply and demand. The provision of care is contingent on the demand for services, which is influenced by the factors of population and ability to pay (Twaddle, 1996). Governments must make allocative decisions regarding the distribution and rationing of care, especially within the confines of budgetary requirements. Rudimentary arithmetic demonstrates that, for larger populations, the GDP per capita is less than for smaller populations of the same financial standing, thus the ability to leverage capital in support of good health is dependent on the demand for that capital and the willingness of government to make such capital available (Bossert & Beauvais, 2002). Further complicating matters is that the costs associated with service delivery are accelerating at an alarming rate, due in part to increases in rates related to technology and professional reimbursement. It is from this framework that the following hypothesis is derived:

H9: There is a significant inverse relationship between total population and health status.

Though issues of economics and population are important, they alone do not account for socio-political considerations that favor definable groups. Rather, disparities resulting from discriminatory practices also play a part in decision making, the results of which are well documented. In answering a call to address the asymmetrical distribution of the world’s resources, the international community has made a series of commitments to protect the rights of vulnerable populations, especially with regard to survival, health, education, protection, and participation; yet, millions each year suffer deleterious effects.
resulting from a lack of basic services and societal exclusion (UN, 2006b; UN, 2006c). UNICEF and its parent organization, the United Nations (2006c), argue that the world’s most vulnerable group is that of children.

Fuchs (2004) asserts health decreases with age, a fundamental fact of biology. Age is frequently correlated with income and education, as interactions between age and these two variables are often quite important. In particular, the correlation between health and income varies over the life cycle, and not monotonically (Fuchs). Though the previous justification serves as adequate for the inclusion of age as an independent variable within this study, it is the purpose of the study that alters its particular emphasis: the role of civic engagement in defining health. It is children who are hardest to reach because they often lack a formal identity in society, thus addressing issues pertaining to children is dependent on the actions of those responsible for their well being (UN, 2006c).

According to the CIA (2006):

The age structure of a population affects a nation's key socioeconomic issues. Countries with young populations (high percentage under age 15) need to invest more in schools, while countries with older populations (high percentage ages 65 and over) need to invest more in the health sector. The age structure can also be used to help predict potential political issues. For example, the rapid growth of a young adult population unable to find employment can lead to unrest. (World Factbook, 2006)

The idea that a lower median age may be illustrative of unfavorable socio-political or economic conditions leads to the following hypothesis:
H10: There is a significant positive relationship between median age and health status.

The socio-political environment includes measures of political rights, civil liberties, country status: free, partly free, or not free, adult literacy, total population, and median age because they demonstrate major determinants of civic engagement in support of health policy initiatives. As the literature demonstrates, socio-political conditions influence program implementation and administration, the importance of which lies in the creation of an environment in which the public agenda is responsive to the polity for which it is created (Habermas, 1974; Lemay, 2002); thus, the following model is derived (see Figure 2):
Figure 2. Independent Variables: Socio-Political Conditions.

Political Rights +
Civil Liberties +
Country Status: Free, Partly Free, or Not Free (F +)
Adult Literacy +
Total Population -
Median Age +

Health Status
Summary

This study proposes an expansion of the OECD (Or, 2000) and Franco, Alvarez-Dardet, and Ruiz (2004) models to include measures of the socio-political environment, political rights, civil liberties, country status, median age, total population, and adult literacy, consistent with the assertion that such measures contribute significantly to improved health. This study further expands these models through the inclusion of 192 developed and developing nations whose individual health care structures, capabilities, and requirements vary greatly. To achieve cross-national comparisons, this dissertation first outlines, then justifies the inclusion of national-level data from three distinct areas: health status, economic conditions, and the socio-political environment. Taken together, these ideas suggest a potential for a theoretical statement that can account for the impact of social, political, and economic leveraging on health status.

The purpose of this research is to address a cross-national gap in the literature, by answering the proposed research question: What is the relationship between socio-political and economic factors and major determinants of health? Corollary questions serve to illustrate the individual and combined effects of socio-political and economic conditions that serve to promote or impede health status: (1) Is there a positive and significant relationship between economic indicators and health status? (2) What is the relationship of socio-political conditions, with regard to civil liberties and political rights, to health status? (3) Do distinct combinations of socio-political and economic variables significantly promote or impede health? (4) Can the socio-political and economic environment explain standard indicators of health? Of particular interest is the determination of the role civic engagement plays in fulfilling public health objectives.
The following hypotheses are tested in this dissertation:

H1: There is a significant positive relationship between gross domestic product (GDP) per capita and health status.

H2: There is a significant positive relationship between per capita total expenditure on health at international dollar rate and health status.

H3: There is a significant positive relationship between total expenditure on health, as a percentage of GDP, and health status.

H4: There is a significant inverse relationship between private health expenditures and health status.

H5: There is a significant positive relationship between political rights and health status.

H6: There is a significant positive relationship between civil liberties and health status.

H7: There is a significant positive relationship between the country status classification of Free and health status.

H8: There is a significant positive relationship between adult literacy and health status.

H9: There is a significant inverse relationship between total population and health status.

H10: There is a significant positive relationship between median age and health status.

Chapter Three presents an overview of data collection and the construction of the methods used in data analysis presented for all research hypotheses. Constructed as
Hypotheses 1 through 4 (H1-H4), these variables are representative of relationships between economic conditions and health status. Hypotheses 6 through 9 (H6-H9) define the socio-political environment and its relationship to health status. The final hypothesis, H10, serves to illustrate the effects of socio-political conditions on the health status of an historically vulnerable population. Factors are examined individually and collectively using a variety of statistical techniques designed to produce the sound results required.
CHAPTER III

Introduction

Research in the field of international health policy, overwhelmingly qualitative in design, pays scant attention to socio-political and economic data, other than to decry problems of access, quality, or cost; even fewer studies attempt multiple-country comparisons. This research fulfills a need for multiple country analyses that address specifically the interplay of socio-political forces, such as political rights and civil liberties, and health status to determine the degree to which democratic institutions and civic participation are relevant in fulfilling public health objectives, as outlined by the World Health Organization (WHO).

Using a broadly based cross-national comparison of socio-political, economic, and health data, this study is intended to determine the relationship between socio-political and economic forces to health status in an effort to answer the fundamental research question (adapted from Bossert & Beauvais, 2002): To what degree is civic engagement relevant to the fulfillment of public health objectives? Constructs proposed to measure civic engagement, political rights, and civil liberties, are applied to cross-national health care research. In addition, mitigating factors associated with economic and social conditions are taken into account, thus revealing the effects of economic leveraging with regard to civic engagement and health.

The project relies solely on secondary data analyses, a method containing both advantages and disadvantages. Of foremost benefit is the ability to capitalize on efficiencies in data collection. In addition, using secondary data renders comparative
examinations more readily available; though, much care is taken to ensure that secondary
data sources are reliable and that comparable measures may be achieved. Furthermore, to
close for researcher bias, it is imperative to ensure which data, if any, are missing and
whether or not modifications are needed that may affect research outcomes.

This study employs phased statistical methods, including a correlation matrix and
factor analysis followed by linear regression and discriminant analyses. Phasing allows
for the careful examination of both individual and collective associations of independent
variables, economics and socio-political characteristics, with the dependent variable,
health status. Ten directional hypotheses are proposed concerning the predicted
relationships between variables, with the null hypothesis stating no significant
relationship(s) is confirmed. Acceptance of alternative hypotheses requires supportive
evidence in an effort to establish causality, thus eliminating competing alternative
hypotheses, and reducing replication (O'Sullivan & Rassel, 1995). Additional support, in
the form of disconfirming evidence illustrated by data, demonstrates the probability that
the null hypothesis may be rejected as false. This occurs when the statistical tool verifies
that relationships exist, which are not random, between the dependent variable and
exogenous variables, for which alternative hypotheses may then be accepted.

Data Sources

A total of 18 variables are included in the database for statistical analysis and are
discussed in the following sections (see Tables 1 and 2). Of the variables, eight are
constructed as dependent variables, with four subsections representing differing aspects
of health status: mortality, morbidity, environmental, and health systems. Each variable is
analyzed for its individual relationship to independent variables to determine the effects
of the independent variables on overall health status. The remaining ten independent
variables represent those associated with economic and socio-political circumstances,
four of which comprise the economic environment and six outline socio-political
conditions.

Dependent Variables

Health Status. Data for the dependent variables (DV), which relates to health status, are
taken from World Health Statistics Indicators, as set forth by the World Health
Organization (WHO, 2006), and include mortality, morbidity, environmental, and health
systems data. Specific variables consist of: life expectancy at birth, under age five
mortality rate (per 1,000); maternal mortality rate (per 100,000 live births); HIV
prevalence among the population aged 15-49 years; incidence of smear positive
tuberculosis (per 100,000 population); population with sustainable access to an improved
water source (percentage); total number of health workers per 10,000 population; and
total number of hospital beds per 10,000 population.

Selection of health status variables is first achieved by identifying indicators
compatible with the Millennium Development Goals, ambitious goals to reduce extreme
poverty through a series of time-bound targets, established during the United Nations
Millennium Summit in September 2000. A comprehensive literature review then
validates the selection of these health indicators with further justification supported by
the international health systems research of Anderson (1989). Indicators reflect the major
subheadings of mortality, morbidity, environment, and health systems and include life
expectancy, under age five mortality rate, maternal mortality rate, HIV prevalence,
incidence of tuberculosis, population with sustainable access to an improved water
source, number of health workers, and number of hospital beds (see Table 1). Combined, these indicators represent a comprehensive health index representative of each major heading, which may be used as a general measure of health status.

**Independent Variables**

Definitions for the independent variables (IV) that relate to economic conditions are taken from World Health Statistics Indicators, as set forth by the World Health Organization within the WHO Statistical Annex (2006f). Health financing is considered a critical component of health systems consisting of a wide range of indicators that need to be monitored; as such, selected indicators summarize national expenditures on health. Health expenditure data are based on National Health Accounts (NHA), which synthesize financing and spending flows recorded in the operation of a health system; however, only a limited number of countries produce full NHA. Other national sources include public expenditure reports, statistical yearbooks and other periodicals, budgetary documents, national account reports, statistical data on official web sites, nongovernmental organization reports, academic studies and reports, and data provided by government ministries and offices. United Nations National Account Statistics are the main source for GDP for most countries. General government expenditures are obtained from national accounts of Organization for Economic Cooperation and Development (OECD) countries and International Monetary Fund (IMF) government finance statistics. Economic data include the variables: gross domestic product (GDP) per capita at the international dollar rate, total expenditures on health as a percentage of GDP, per capita total expenditure on health at the international dollar rate, and private health expenditures as percentage of total health expenditures (see Table 3).
Socio-political data are taken from *Freedom in the World 2005: The Annual Survey of Political Rights and Civil Liberties* (Piano & Puddington, 2005), a compilation of research conducted by Freedom House, a United States based nonprofit and nongovernmental organization established in 1941 by Eleanor Roosevelt and others to promote and defend democracy and freedom worldwide, whose purpose is to “evaluate the state of global freedom as experienced by individuals” (p. 775). Obtained in large measure from the Universal Declaration of Human Rights (see Appendix B), standards used by Freedom House apply “to all countries and territories, irrespective of geographical location, ethnic or religious composition, or level of economic development” (p. 775). Survey measures reflect the interplay of a variety of actors, both governmental and nongovernmental, including terrorists and/or armed groups, whose activities affect the rights and freedoms enjoyed by individuals.

First developed in 1972 by Raymond Gastil, a Harvard-trained specialist in regional studies, the current survey methodology is reviewed by an advisory committee, who has made a number of modest changes over the years to adapt the instrument to evolving ideas about political rights and civil liberties. Time series data are not revised retroactively and changes are incorporated incrementally to ensure the validity of comparisons and ratings from year to year (p. 776-777). The research and ratings process employed by Freedom House involves the use of 23 analysts/writers and thirteen senior-level academic advisors using a broad range of information including foreign and domestic news reports, academic analyses, nongovernmental organizations, think tanks, individual professional contacts, and visits to the regions. Each rating is reviewed on a comparative basis in a series of six regional meetings, to include Sub-Saharan Africa,
Asia-Pacific, Central and Eastern Europe and the Former Soviet Union, Middle East and North Africa, Latin America and the Caribbean, and Western Europe. Ratings are compared with the previous year’s findings and are followed by cross-regional assessments to ensure the comparability and consistency of data. Data used in this dissertation cover the period from December 1, 2003 through November 30, 2004.

For the purpose of this study, the variables political rights, civil liberties, and country status (free, partly free, or not free), adult literacy, total population, and median age define the socio-political environment, as outlined in Table 3.
Table 3

*Independent Variables*

<table>
<thead>
<tr>
<th>Economic Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Domestic Product (GDP) per capita</td>
</tr>
<tr>
<td>Total expenditure on health as percentage of GDP</td>
</tr>
<tr>
<td>Per capita total expenditure on health at international dollar rate</td>
</tr>
<tr>
<td>Private health expenditures as percentage of total health expenditures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Socio-Political Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political rights - measured on a scale from 1-7</td>
</tr>
<tr>
<td>Civil liberties - measured on a scale from 1-7</td>
</tr>
<tr>
<td>Country status: Free, Partly Free, or Not Free</td>
</tr>
<tr>
<td>Adult literacy</td>
</tr>
<tr>
<td>Total population</td>
</tr>
<tr>
<td>Median age</td>
</tr>
</tbody>
</table>
Variable Definitions

Health Status

The following terms and definitions representative of dependent variables are obtained verbatim from the list of World Health Statistics Indicators (WHO Statistical Annex 2006f).

Mortality.

Life expectancy at birth. This value represents the average number of years that a newborn is expected to live if current mortality rates continue to apply. Data sources include vital registration, census and surveys. Age-specific mortality rates are required to compute life expectancy at birth.

Under five mortality rate (per 1,000). This factor represents the probability of a child born in a specific year or period dying before reaching the age of five, if subject to age-specific mortality rates of that period. It is does not represent a standard rate but a probability of death derived from a life table and expressed as a rate per 1,000 live births.

Maternal mortality rate (per 100,000 live births). Maternal death is defined as the death of a woman while pregnant or within 42 days of the termination of a pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. To facilitate the identification of maternal deaths in circumstances in which cause of death attribution is inadequate, a new category is introduced: Pregnancy-related death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death.
Note: Live birth refers to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breaths or shows any other evidence of life (e.g., beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles, whether or not the umbilical cord is cut or the placenta is attached). Each product of such a birth is considered “live born.” Data sources include vital registration, health service records, household surveys, and census information.

**Morbidity.**

*HIV prevalence among the population aged 15-49 years.* This value represents the percentage of people with HIV infection among all people aged 15-49 years. Data sources include household surveys, as the inclusion of HIV testing has been increasingly adopted by countries through Demographic and Health Surveys (DHS).

*Incidence of smear positive tuberculosis per 100,000 population.* Estimated numbers of smear positive new tuberculosis (TB) cases (including HIV sero-positive) per 100,000 population per year. Estimates of incidence are taken from notifications to WHO that are coupled with assumptions about the proportion of incident cases reported; from disease prevalence surveys that are coupled with assumptions about the duration of disease; or from surveys of the prevalence of infection in children, used to calculate the annual risk of TB infection (ARTI). Estimates of incidence, prevalence, and deaths are based on a consultative and analytical process in WHO and published annually in the global TB report.

*Environment.*
Population with sustainable access to an improved water source (percentage). Access to improved water source is the percentage of population with access to an improved drinking water source in a given year. Data are obtained from household surveys and assessment questionnaires to complement survey data or to provide estimates where survey data are not available. The latter also captures information related to the usage and breakdown of self-built water facilities of which service providers may be unaware.

Health systems.

Total number of health workers per 10,000 population. The total number of health workers per 10,000 population is equal to the total number of physicians, nurses and midwives present. Physicians, nurses and midwives are included on the basis of education, regulation, activities and tasks criteria, as outlined in the combined WHO and International Labor Organization classification system. This does not include auxiliary nurses; however, in some country statistics, midwives are included in the reported numbers, in others they are not. Data sources include country reports to WHO regional offices or headquarters, based on administrative records such as databases of registered physicians/nurses in the country. In some countries, data are obtained from the census, labor force or other surveys that include questions about occupations of household members. Data on physicians and nurses are generally considered the best human resource information available. In the WHO Region of the Americas, the indicator "Number of nurses and midwives per 10,000" refers to nurses and nurse-midwives per 10,000 population, and does not include midwives.

Total number of hospital beds per 10,000 population. Number of in-patient beds per 10,000 population. Hospital beds include in-patient and maternity beds, while cots and
delivery beds are excluded. Data sources include administrative records, based on
reported data by in-patient facilities, and census information regarding health facilities.

**Economic conditions.**

*Gross Domestic Product (GDP) per capita.* GDP is the value of goods and services
provided in a country by residents and non-residents without regard to their allocation
among domestic and foreign claims. This corresponds to the total sum of expenditure
(consumption and investment) of private and government agents of the economy during
the referenced year. GDP per capita is achieved by dividing the GDP by total population

*Total expenditure on health as percentage of GDP.* The percentage of total general
government expenditures spent on health, as taken from the sum of Public Health

*Per capita total expenditure on health at international dollar rate.* Total health
expenditure per capita is the per capita sum of Public Health Expenditures and Private
Expenditures on Health. The international dollar is considered a common currency unit
that takes into account differences in the relative purchasing power of various currencies.
Figures expressed in international dollars are calculated using purchasing power parities,
which are rates of currency conversion constructed to account for differences in price
levels between countries (WHO Statistical Annex, 2006).

*Private health expenditures as percentage of total health expenditures.* Private
expenditures on health comprises the outlays of insurers and third-party payers other than
social security, mandated employer health services and other enterprise provided health
services, non-profit institutions and non-governmental organizations’ financed health

Socio-political environment.

Political rights. As defined by Piano & Puddington (2005), political rights enable people to participate freely in the political process, including the right to vote, compete for public office, and elect representatives who have a decisive impact on public policies and are accountable to the electorate. To determine political rights, Freedom House considers the opportunity to choose freely among political candidates, to what extent candidates are chosen independently of the state, the relative influence of power wielded by a single entity (such as the military or monarchy) over the electoral process, and the levels of accountability, openness, and transparency exhibited by government between elections. This variable is measured on a scale of 1-7 with 1 representing the highest and 7 representing the lowest level of freedom.

Civil liberties. According to Piano and Puddington (2005), civil liberties allow for the freedoms of expression and belief, associational and organizational rights, rule of law, and personal autonomy without interference from the state. Both laws and actual practices are factored into measuring human rights. This variable is measured on a scale of 1-7 with 1 representing the highest and 7 representing the lowest level of freedom.

Country Status. Each pair of political rights and civil liberties ratings is averaged to determine an overall status of “free,” “partly free,” or “not free” (Piano & Puddington, 2005).
Adult literacy. A person is literate who can, with understanding, both read and write a short simple statement on his or her everyday life. An adult is defined as a person 15 years old or older (CIA World Factbook, 2006).

Total population. The estimate of population size refers to the actual resident population, and not the de jure population in each nation. Population figures are derived from the WHO Statistical Annex 2006.

Median age. This entry represents the age that divides a country’s population into two numerically equal groups; that is, half the people are younger than this age and half are older. As such, it is a single index that summarizes the age distribution of a population.


Unit of Analysis

Nations serve as the unit of analysis for this study, as national-level data for the 192-member nations of the WHO are analyzed with the purpose of answering questions regarding the relationship of socio-political and economic conditions (IV) to health status (DV). In an effort to achieve cross-national comparisons of health status, economic conditions, and the socio-political environment, this research seeks to establish individual and combined associations of related variables within the aforementioned framework.

Data Analysis

Using the Statistical Package for the Social Sciences (SPSS) version 12.0, data are coded and entered and then verified for accuracy. Univariate statistical analyses are completed and the extent of missing data is identified. Data is then examined using descriptive statistical analysis providing means, standard deviations, and ranges of scores. Initial statistical analyses include a correlation matrix followed by factor analysis,
methods employed to reduce data and confirm relationships. Linear regression is then used to examine relationships between dependent variables associated with health status and independent variables, economic conditions and the socio-political environment. Basic assumptions for a linear regression are assessed: linear, normally distributed, interval data. The assumption of an acceptable case-to-independent variable ratio is also met.

A discriminant analysis is conducted last, as it serves the dual purposes of confirming individual regression analyses and gauging the relative importance of civic engagement (democracy) to achieving health, which is of particular interest. To account for the relationships between study variables and measures of democracy, a multiple discriminant analysis using country status (free, partly free, not free) as a classification variable is employed. This procedure is used because it yields a classification table of correct and incorrect estimates based on cases and variables included in the data set. Subsequently, results of the analysis test whether or not cases are classified as predicted. Results also reveal the relative importance of the independent variables in classifying the dependent variable. Alpha levels are set at p<.05.

Summary

This study proposes to answer the research question: What is the combined role of economics and civic engagement in health status? Corollary questions include: What is the relationship between economics and health status? What role does the socio-political environment play in health status? Do distinct combinations of economic and socio-political variables affect health status? Can the socio-political environment explain standard indicators of health? Most research dealing with international health looks at
various aspects of health, cost quality, efficiency, or access; however, scholarly work often addresses only one aspect of health status or another, such as an epidemiological issue in a specific region or a policy decision and its effect on a particular group. This research fills a gap in the literature by including broadly based cross-national comparisons of health care indicators that seek to discern the role civic engagement plays in achieving internationally acknowledged public health goals. Additionally, this dissertation employs the use of economic data in an effort to uncover linkages between a country’s ability and willingness to leverage resources and its effectiveness in meeting a population’s health care needs. This research intends to analyze cross-national data in an effort to provide a comprehensive predictive framework of socio-political and economic conditions and their relationship to the dependent variable of health status. Factor analysis is deemed appropriate in this setting, as it allows for the reduction of data and confirms relationships between variables. In addition, linear regression is used to clarify individual relationships and discriminant analysis satisfies the need for a predictive element.

Limitations

A limiting factor within this study is determined to be the reporting of accurate health status data with regard to international morbidity, mortality, environmental, and health systems figures. While the WHO has made significant efforts to reduce discrepancies and account for information, it is a widely known fact that public health reporting in many nations remains problematic. Data collection is often inhibited by institutional shortcomings or through the imposition of harsh socio-political or environmental conditions; nonetheless, data published by the WHO is considered by-and-
large the most accurate, comprehensive information available. For the purpose of this study, it is understood that the data represent the most accurate portrayal of international public health circumstances available.

The inherent complexity of health and health status poses a second limiting factor of this study. The determination of variables is rooted in previous research and accounts for broad measures of socio-political, economic, and health conditions. However, the model proposed may omit variables of significance with regard to causal factors that influence health status; therefore, additional testing of this model is recommended.
CHAPTER IV

Introduction

Using membership within the World Health Organization (WHO) as the sole criterion for inclusion, 192 nations comprised the research cohort. This study employed phased statistical methods, including summary statistics, a correlation matrix and factor analysis, followed by linear regression and discriminant analysis, to determine the individual and collective associations of independent variables, economics and socio-political characteristics, with the dependent variable, health status. A total of ten directional hypotheses were proposed concerning the predicted relationships between variables, with the null hypotheses stating no significant relationships exist. Variables included in the database for statistical analysis totaled 18, eight of which were constructed as dependent variables with four subsections representing differing aspects of health status: mortality, morbidity, environmental, and health systems. The remaining ten factors represented independent variables associated with economic and socio-political circumstances. Four variables described the economic environment: gross domestic product (GDP) per capita at the international dollar rate, total expenditures on health as a percentage of GDP, per capita total expenditure on health at the international dollar rate, and private health expenditures as percentage of total health expenditures. The remaining six variables outlined the socio-political environment: political rights, civil liberties, and country status (Free, Partly Free, or Not Free), adult literacy, total population, and median age. Each dependent variable was analyzed for its individual relationship to independent variables to determine the strength and direction of the relationships between them.
Descriptive Statistics

A database for this study was created using the Statistical Package for the Social Sciences (SPSS) program, version 12.0. Data from secondary sources were entered into the database, coded, and examined for accuracy. Summary statistical analysis with emphasis on the extent of missing was completed. Of the 18 variables, complete data for three dependent variables were confirmed, life expectancy, under age five mortality rate, and TB prevalence, as well as for the independent variable of total population. Ten additional variables contained complete data at a rate of 98% or better, with another three noted to contain complete data of at least 85%. A single variable contained only 73% complete data.

Missing data for dependent variables consisted of the following: maternal mortality rate, (11.9%, \(n=23\)), HIV prevalence (14.6%, \(n=28\)), sustainable access to an improved water source (15.1%, \(n=29\)), total number of health workers per 10,000 population (2.1%, \(n=4\)), and total number of hospital beds per 10,000 population (26.6%, \(n=51\)). HIV prevalence rates were recorded as percentages. Upon further examination, most were found to be very small. Though the variable contained 86.4% complete data, 21 cases were simply listed as less than 0.1% with no further explanation. Another 29 cases were listed as 0.1%, with an additional 28 cases missing. Together, these numbers accounted for 41% of the data. The lack of variability and extent of the incomplete or missing data raised concerns about the suitability of this variable for analyses; therefore, it was determined that HIV prevalence would be excluded from further consideration. Another variable of concern was that of the total number of hospital beds per 10,000
population. The size and regional concentration of the missing data with regard to total number of hospital beds was believed to reflect a simple lack of health systems infrastructure (institutionalized medicine), which was considered most closely associated with developing nations, as within Africa. Because the total number of healthcare workers was believed appropriate to serve as a proxy for health services capabilities regardless of setting, this variable was removed from further consideration.

To account for the remaining missing data, individual nations were divided into six regions, as defined and categorized by the WHO: (1) African Region; (2) Region of the Americas; (3) South-East Asia Region; (4) European Region; (5) Eastern Mediterranean Region; and the (6) Western Pacific Region. Regional demographic and health information was examined, thus allowing for meaningful comparisons of national-level data. Unless otherwise noted, longevity or total population served as benchmarks to calculate ratios for substitute data points. In the African Region, Mauritius was used to calculate ratios for Seychelles and Sao Tome and Principe. For the Region of the Americas, Saint Vincent was used to calculate ratios with regard to Caribbean nations. In the South-East Asian Region, Timor-Leste was compared with Indonesia to calculate a single missing data point. Luxembourg served as a benchmark to calculate ratios for Monaco, Andorra, and San Marino (European Region). For additional comparisons, however, Eastern European nations were compared with one another and Western European nations served as proxies for their neighboring counterparts, an exercise that was used only in calculating missing data with regard to sustainable access to water. In the Eastern Mediterranean Region, the level of development, including GDP and
longevity were used as indicators for appropriateness of comparisons; the only variable containing missing data was percent of population with sustainable access to water.

As stated previously, missing data for all independent variables was found to be minimal. For the independent variables associated with economics, missing data were attributed to a single case, Somalia (0.5%, n=1), and included: gross domestic product (GDP) per capita, per capita total expenditure on health, total expenditure on health as a percentage of GDP and private health expenditures as a percentage of total health expenditures. Because Somalia was categorized as belonging to the Eastern Mediterranean Region and was similar to Afghanistan in terms of available data, ratios of longevity and GDP were used to compute missing data. Missing data for the independent variables of political rights, civil liberties, country status, and median age were attributed to two cases (1.0%, n=2), the Western Pacific nations of Niue and Cook Islands. Data for New Zealand, close in proximity and historically significant to the development of the region, were used as a proxy for these four variables, thus yielding the following scores: political rights - 7, civil liberties - 7, country status - 2, and a median age of 29 for both nations. Missing data for the independent variable percent adult literacy (2.1%, n=4) was ascribed to four islands within the same region, the Western Pacific Region: Kiribati, Nauru, Tuvalu, and Solomon Islands. Comparisons with data such as longevity and total population, from the neighboring nations of Fiji, Marshall Islands, Tonga, and Palau were examined and data from like countries were applied in the following manner: Kiribati - 93, Nauru - 99, Tuvalu - 95, and Solomon Islands - 77.

Data were examined for extreme outliers using Mahalanobis' distance tests (Mertler & Vannatta, 2005). Corresponding stem-and-leaf and box plot examinations
revealed a total of 14 cases were identified as outliers, with three cases representing extreme outliers: China, India, and Tanzania. Further investigation showed China and India were classified as outliers due to extreme values with regard to total population. The combined value of total population for China and India, 2 billion individuals, constituted a significant proportion of the world population; therefore, it was determined that the cases should remain and the variable total population should be deleted from further analyses. Further support for this decision lay in the underlying principle that fiscal data may represent a more accurate indicator of fiscal strength or weakness than total numbers, as economic viability per capita could account for the capacity and willingness of government to assume responsibility for the provision of health services. To test the value of this decision, the variable was removed and Mahalanobis’ distance test was again conducted. The second test revealed twelve outliers, with one extreme: Tanzania.

The reasons for Tanzania being labeled an outlier were much less straightforward than for China and India. Tanzania, although boasting an adult literacy rate of 78 percent, presented indicators that reflected conditions far worse than in less educated and even poorer nations. For example, Tanzania had a maternal mortality rate of 1500 per 100,000 live births, sustainable access to an improved water source of 73%, and a GDP per capita of $732 (international dollars). Nations with similar mortality indicators differed in that their adult literacy rates, access to an improved water source, and economic data were much lower, approximately half, that of Tanzania; however, their maternal mortality rates were lower as well. Ethiopia was one such case: adult literacy 43%; maternal mortality 850 per 100,000 live births; sustainable access to an improved water source of 22%; and
GDP per capita of $381 (international dollars). Consequently, in keeping with the spirit of the study, which was to conduct a cross-national comparison of nations, it was believed that this particular case reflected the mixture of conditions necessary to achieve valid comparisons. In this particular case, the data were not expected to significantly alter results. A total of 192 cases were, therefore, retained.

Excluding HIV prevalence and the number of hospital beds, remaining in the study were the variables: life expectancy at birth, under age five mortality rate, maternal mortality ratio, tuberculosis prevalence, access to a sustainable water source, total number of healthcare workers, gross domestic product (GDP) per capita, per capita total expenditure on health at international dollar rate, total expenditures on health as percentage of GDP, private health expenditures as percentage of total health expenditures, political rights, civil liberties, country status, adult literacy, and median age. As a variable of consideration, total population was not utilized in either the stepwise or discriminant analyses due to the magnitude of two outliers, as outlined above; however, descriptive, correlation, and individual regression analyses were included for informational purposes only. Descriptive statistics for all 16 variables, including the range, mean, and standard deviation, are displayed in Table 4.
Table 4

**Descriptive Statistics: Cell Size, Range, Mean, and Standard Deviation**

<table>
<thead>
<tr>
<th>Health Status</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>V01 Life Expectancy</td>
<td>192</td>
<td>36</td>
<td>82</td>
<td>65.91</td>
<td>11.814</td>
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<tr>
<td>V02 Under Age Five Mortality Rate (per 1,000)</td>
<td>192</td>
<td>3</td>
<td>296</td>
<td>64.06</td>
<td>69.146</td>
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<tr>
<td>V03 Maternal Mortality Rate (per 100,000 live births)</td>
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<td>0</td>
<td>2000</td>
<td>294.98</td>
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<td>V04 TB prevalence, all forms (per 100,000 population per year)</td>
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<td>2</td>
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<td>V06 Total Number of Health Workers Per 10,000 Population</td>
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<td>1.25</td>
<td>253.84</td>
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<td>47.03157</td>
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</table>

*(table continues)*
<table>
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<th>Economic Conditions</th>
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<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
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<td>V07 Gross Domestic Product (GDP) per Capita International Dollars</td>
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<td>381</td>
<td>57938</td>
<td>9892.15</td>
<td>10983.810</td>
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<tr>
<td>V08 Per Capita Total Expenditure on Health at International Dollar Rate</td>
<td>192</td>
<td>14</td>
<td>5711</td>
<td>683.54</td>
<td>977.447</td>
</tr>
<tr>
<td>V09 Total Expenditure on Health as Percentage of GDP</td>
<td>192</td>
<td>1.5</td>
<td>15.2</td>
<td>6.214</td>
<td>2.3912</td>
</tr>
<tr>
<td>V10 Private Health Expenditures as Percentage of Total Health Expenditures</td>
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<td>1.6</td>
<td>83.4</td>
<td>41.240</td>
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<table>
<thead>
<tr>
<th>Socio-Political Environment</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard deviation</th>
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</thead>
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<tr>
<td>V11 Political Rights</td>
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<td>7</td>
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<td>2.163</td>
</tr>
<tr>
<td>V12 Civil Liberties</td>
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<td>4.78</td>
<td>1.840</td>
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<tr>
<td>V13 Country Status</td>
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<td>2</td>
<td>1.20</td>
<td>.822</td>
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<tr>
<td>V14 Percent Adult Literacy</td>
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<td>18</td>
<td>100</td>
<td>82.48</td>
<td>19.691</td>
</tr>
<tr>
<td>V15 Total Population (000)</td>
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<td>1315409</td>
<td>33217.93</td>
<td>126906.610</td>
</tr>
<tr>
<td>V16 Median Age</td>
<td>192</td>
<td>15.0</td>
<td>45.4</td>
<td>26.836</td>
<td>8.2530</td>
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</table>
Correlation Matrix

A correlation matrix for the 16 variables that comprised the study was employed using a Pearson Correlation Coefficient, a summary of which is outlined below. To simplify directional correlations, data for the variables political rights and civil liberties were recoded to reverse measures of democracy, with zero (0) being the least free score and seven (7) the most free. Country status was recoded to reflect zero (0) as the least free and two (2) as most free.

Mortality

Life expectancy. The strongest correlations with life expectancy in general were found to include: an environmental variable, sustainable access to an improved water source (.747, p<.01); two demographic variables, median age (.765, p<.01) and percent adult literacy (.678, p<.01); one economic variable, GDP per capita (.655, p<.01); and followed by the single systems variable of total number of health workers per 10,000 (.604, p<.01). These results demonstrated that economic capacity and investments in infrastructure, both environmentally and socially, were closely associated with improved life expectancy, as expressed in the literature (Ensor, & Witter, 2001; Fuchs, 2004; Grossman, 1972). Results further demonstrated that environmental stability, as measured by median age, was closely related to attaining longevity.

Secondarily, one additional economic variable correlated positively and strongly with life expectancy, per capital total expenditures on health (.590, p<.01), while all three measures of democracy were identified as significantly correlated as well: political rights (.469, p<.01), civil liberties (.473, p<.01), and country status (.429, p<.01). These findings indicated support for Putnam’s (2000) contention that civic engagement results
in measures that benefit the polity as a whole; in this case, it appeared that the leveraging of economic resources in support of governmental health policy and its programs was significantly related to increased life expectancy. The strong correlations between measures of democracy and life expectancy further supported the previous findings of Franco, Alvarez-Dardet, and Ruiz (2004).

*Under age five and maternal mortality rates.* Under age five mortality and maternal mortality were most closely associated with each other (.901, $p<.01$), as expressed in the literature: If mothers died during or shortly after childbirth, the chances of death resulting from the absence of continued care significantly increased for both infants and surviving young children (UN, 2006c). The control of infectious disease through environmental improvements, such as clean water, and the management of TB were found to be significantly important in abating these two mortality rates in particular, information supported by research that led to the formulation of the UN Millennium Development Project and its goals. Furthermore, support for arguments against disparate impact with regard to vulnerable populations was found in the significant, inverse relationships between measures of economic development (i.e., GDP per capita and total number of health workers) and all measures of democracy (political rights, civil liberties, and country status) with both the under age five and maternal mortality rates, as demonstrated in previous research (Franco, Alvarez-Dardet, & Ruiz, 2004).

*Morbidity*

*TB prevalence.* TB prevalence was closely associated with mortality rates in every category: life expectancy ($-.835$, $p<.01$), under age five mortality ($.785$, $p<.01$), and maternal mortality ($.741$, $p<.01$). Increased TB prevalence was also closely associated
with decreases in access to improved water (\(-0.704, p<0.01\)). This variable was also prevalent in cases with increased private health expenditures, decreased political rights and civil liberties, and decreases in adult literacy. These findings indicated that infectious disease was prevalent in cases wherein the populace had little access to clean water, were inclined to shoulder the burden of paying for health services, and were given little autonomy or control over institutional processes. The same populations also lacked the ability to read or write and were inclined toward instability, as measured by decreases in median age. Results pointed to deleterious effects of infectious disease in populations who lacked stability, infrastructure, and self governance.

**Environment**

*Percent population with sustainable access to an improved water source.*

Sustainable access to clean water was strongly associated with decreased mortality rates and the control of communicable disease, as measured by TB prevalence. Clean water was found to be more closely associated with increases in adult literacy and median age than for each economic indicator. Measures of democracy, though important in access to an improved water source, were subordinate to those of literacy, median age, and economics. Findings indicated that, while democracy was important to the achievement of this preventative measure, more closely aligned was the ability of the populace and its government to process and economically engage conditions.

**Health systems**

*Total number of health workers per 10,000.* Health systems structure, as measured by the total number of health workers per 10,000, was most closely associated with economic capacity (\(0.683, p<0.01\)), demonstrating that the employment of health care
workers, a feature of infrastructure and capability, was most closely associated with
developed nations. This finding supported the previous research by the OECD in which
the number of physicians was found to be significantly and inversely related to mortality
rates within developed nations (Or, 2000).

The correlation matrix is detailed in Table 5.
Table 5

Pearson Correlations Between Dependent and Independent Variables, Sig. (2-tailed)

<table>
<thead>
<tr>
<th>V01: Life Expectancy</th>
<th>V02: Under Age Five Mortality Rate (per 1,000)</th>
<th>V03: Maternal Mortality Rate (per 100,000 live births)</th>
<th>V04: TB prevalence, all forms (per 100,000)</th>
<th>V05: Percent Population With Sustainable Access to an Improved Water Source</th>
<th>V06: Total Number of Health Workers (per 10,000)</th>
<th>V07: Gross Domestic Product (GDP) per Capita</th>
<th>V08: Per Capita Total Expenditure on Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>V01</td>
<td>V02</td>
<td>V03</td>
<td>V04</td>
<td>V05</td>
<td>V06</td>
<td>V07</td>
<td>V08</td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>1</td>
<td>.927(**)</td>
<td>-.836(**)</td>
<td>.901(**)</td>
<td>1</td>
<td>.747(**)</td>
<td>.751(**)</td>
</tr>
<tr>
<td>Under Age Five Mortality Rate (per 1,000)</td>
<td>.901(**)</td>
<td>1</td>
<td>-.797(**)</td>
<td>.785(**)</td>
<td>1</td>
<td>.741(**)</td>
<td>1</td>
</tr>
<tr>
<td>Maternal Mortality Rate (per 100,000 live births)</td>
<td>-.836(**)</td>
<td>.741(**)</td>
<td>-.730(**)</td>
<td>-.704(**)</td>
<td>1</td>
<td>.560(**)</td>
<td>.558(**)</td>
</tr>
<tr>
<td>TB prevalence, all forms (per 100,000)</td>
<td>.747(**)</td>
<td>-.797(**)</td>
<td>-.730(**)</td>
<td>-.704(**)</td>
<td>1</td>
<td>.560(**)</td>
<td>.558(**)</td>
</tr>
<tr>
<td>Percent Population With Sustainable Access to an Improved Water Source</td>
<td>.747(**)</td>
<td>.747(**)</td>
<td>.560(**)</td>
<td>.556(**)</td>
<td>.560(**)</td>
<td>.683(**)</td>
<td>.556(**)</td>
</tr>
<tr>
<td>Total Number of Health Workers (per 10,000)</td>
<td>.604(**)</td>
<td>-.560(**)</td>
<td>-.556(**)</td>
<td>-.517(**)</td>
<td>.560(**)</td>
<td>1</td>
<td>.476(**)</td>
</tr>
<tr>
<td>Gross Domestic Product (GDP) per Capita</td>
<td>.655(**)</td>
<td>-.555(**)</td>
<td>-.476(**)</td>
<td>-.498(**)</td>
<td>.558(**)</td>
<td>.683(**)</td>
<td>.495(**)</td>
</tr>
<tr>
<td>Per Capita Total Expenditure on Health</td>
<td>.590(**)</td>
<td>-.484(**)</td>
<td>-.406(**)</td>
<td>-.437(**)</td>
<td>.495(**)</td>
<td>.661(**)</td>
<td>.933(**)</td>
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Note. ** Correlation is significant at the 0.01 level (2-tailed). Listwise N=192
(table continued)
Table 5 (continued)

<table>
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<tr>
<th></th>
<th>V01</th>
<th>V02</th>
<th>V03</th>
<th>V04</th>
<th>V05</th>
<th>V06</th>
<th>V07</th>
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<tr>
<td>V09</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total Expenditure on Health as Percentage of GDP</td>
<td>.360(***)</td>
<td>-.345(***)</td>
<td>-.294(***)</td>
<td>-.281(***)</td>
<td>.320(***)</td>
<td>.412(***)</td>
<td>.413(***)</td>
<td>.599(***)</td>
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<td>V10</td>
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<tr>
<td>Private Health Expenditures</td>
<td>-.381(***)</td>
<td>.387(***)</td>
<td>.352(***)</td>
<td>.377(***)</td>
<td>-.330(***)</td>
<td>-.391(***)</td>
<td>-.388(***)</td>
<td>-.330(***)</td>
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<tr>
<td>Political Rights</td>
<td>.469(***)</td>
<td>-.467(***)</td>
<td>-.374(***)</td>
<td>-.387(***)</td>
<td>.454(***)</td>
<td>.323(***)</td>
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<tr>
<td>Civil Liberties</td>
<td>.473(***)</td>
<td>-.466(***)</td>
<td>-.386(***)</td>
<td>-.401(***)</td>
<td>.468(***)</td>
<td>.361(***)</td>
<td>.499(***)</td>
<td>.540(***)</td>
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<td>V13</td>
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<td>Country Status</td>
<td>.429(***)</td>
<td>-.444(***)</td>
<td>-.363(***)</td>
<td>-.352(***)</td>
<td>.447(***)</td>
<td>.288(***)</td>
<td>.423(***)</td>
<td>.463(***)</td>
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<td>V14</td>
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<tr>
<td>Percent Adult Literacy</td>
<td>.678(***)</td>
<td>-.757(***)</td>
<td>-.757(***)</td>
<td>-.589(***)</td>
<td>.665(***)</td>
<td>.625(***)</td>
<td>.516(***)</td>
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<td>V15</td>
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<td></td>
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<tr>
<td>Total Population (000)</td>
<td>0.025</td>
<td>-0.027</td>
<td>-0.006</td>
<td>0.036</td>
<td>-0.003</td>
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<td>-0.031</td>
<td>0.006</td>
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<td>V16</td>
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<tr>
<td>Median Age</td>
<td>.765(***)</td>
<td>-.717(***)</td>
<td>-.639(***)</td>
<td>-.620(***)</td>
<td>.679(***)</td>
<td>.770(***)</td>
<td>.756(***)</td>
<td>.714(***)</td>
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Note. ** Correlation is significant at the 0.01 level (2-tailed). Listwise N=192
Table 5 (continued)

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<th></th>
<th>V09</th>
<th>V10</th>
<th>V11</th>
<th>V12</th>
<th>V13</th>
<th>V14</th>
<th>V15</th>
<th>V16</th>
</tr>
</thead>
<tbody>
<tr>
<td>V09 Total Expenditure on Health as Percentage of GDP</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V10 Private Health Expenditures</td>
<td>-.245(**)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V11 Political Rights</td>
<td>.487(**)</td>
<td>-.390(**)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V12 Civil Liberties</td>
<td>.516(**)</td>
<td>-.433(**)</td>
<td>.952(**)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V13 Country Status</td>
<td>.465(**)</td>
<td>-.366(**)</td>
<td>.955(**)</td>
<td>.919(**)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V14 Percent Adult Literacy</td>
<td>.365(**)</td>
<td>-.380(**)</td>
<td>.432(**)</td>
<td>.449(**)</td>
<td>.409(**)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V15 Total Population (000)</td>
<td>-.022</td>
<td>.205(**)</td>
<td>-.071</td>
<td>-.096</td>
<td>-.045</td>
<td>-.036</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>V16 Median Age</td>
<td>.444(**)</td>
<td>-.353(**)</td>
<td>.498(**)</td>
<td>.525(**)</td>
<td>.463(**)</td>
<td>.690(**)</td>
<td>0.054</td>
<td>1</td>
</tr>
</tbody>
</table>

Note. ** Correlation is significant at the 0.01 level (2-tailed). Listwise N=192
Factor Analysis

A factor analysis was conducted to determine what, if any, underlying structure existed for measures on the following 15 variables that comprised the study: life expectancy at birth, under age five mortality rate, maternal mortality ratio, tuberculosis prevalence, access to a sustainable water source, total number of healthcare workers, gross domestic product (GDP) per capita, per capita total expenditure on health at international dollar rate, total expenditures on health as percentage of GDP, private health expenditures as percentage of total health expenditures, political rights, civil liberties, country status, adult literacy, and median age. For the purpose of this study, factor analysis was used to reduce data.

Principal components analysis was conducted utilizing a varimax rotation, as it maximized the effect of differentiating the original variables by the extracted factor. According to Bryant and Yarnold (1995, as cited in Grimm & Yarnold, 1995), this orthogonal solution, the most common rotation option, made identifying each variable within a factor relatively simple. Four criteria were used to determine the appropriate number of components to retain: eigenvalue, variance, scree plot, and residuals. Kaiser’s stopping rule was used to determine that only eigenvectors with eigenvalues greater than one (1) would be retained (Kaiser, 1960, in Grimm & Yarnold, 1995). The analysis revealed three components (plausible factors) with eigenvalues greater than one; all components with eigenvalues less than one were excluded from further consideration, as per the Kaiser criterion (Lance, Butts, & Michels, 2006). Thus, principal components analysis was conducted to retain three components and apply varimax rotation; inclusion...
of three components increased the model fit as it decreased the number of residuals exceeding the .05 criteria (Mertler & Vannatta, 2005).

After rotation, the first component accounted for 57.21%, the second for 13.17%, and the third for 8.42% of the total variance (see Table 6).

Table 6

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial Total</th>
<th>Initial Percent Variance</th>
<th>Initial Percent</th>
<th>Rotation Total</th>
<th>Rotation Percent Variance</th>
<th>Rotation Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8.582</td>
<td>57.212</td>
<td>57.212</td>
<td>5.203</td>
<td>34.688</td>
<td>34.688</td>
</tr>
<tr>
<td>2</td>
<td>1.976</td>
<td>13.172</td>
<td>70.384</td>
<td>3.352</td>
<td>22.350</td>
<td>57.038</td>
</tr>
<tr>
<td>3</td>
<td>1.263</td>
<td>8.42</td>
<td>78.806</td>
<td>3.265</td>
<td>21.768</td>
<td>78.806</td>
</tr>
</tbody>
</table>

Eigenvalue criteria for communalities were set at greater than .7 (Mertler & Vannatta, 2005). Three factors were identified and categorized under the following subheadings: (1) Quality of Life; (2) Measures of Democracy; and (3) Economics. Table 6.1 presents loadings for each component.
Table 6.1

*Component Loadings*

<table>
<thead>
<tr>
<th>Component 1: Quality of Life</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal Mortality (per 100,000 live births)</td>
<td>-.905</td>
</tr>
<tr>
<td>Under Age Five Mortality (per 1,000)</td>
<td>-.904</td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>.846</td>
</tr>
<tr>
<td>TB prevalence, (per 100 000 population per year)</td>
<td>-.827</td>
</tr>
<tr>
<td>% Population with Sustainable Access to an Improved Water Source</td>
<td>.777</td>
</tr>
<tr>
<td>% Adult Literacy</td>
<td>.736</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component 2: Measures of Democracy</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country Status</td>
<td>.933</td>
</tr>
<tr>
<td>Political Rights</td>
<td>.932</td>
</tr>
<tr>
<td>Civil Liberties</td>
<td>.910</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component 3: Measures of Economic Prosperity</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per Capita Total Expenditure on Health at International Dollar Rate</td>
<td>.883</td>
</tr>
<tr>
<td>Gross Domestic Product (GDP) per Capita at International Dollar Rate</td>
<td>.827</td>
</tr>
<tr>
<td>Total Number of Health Workers Per 10,000 Population</td>
<td>.714</td>
</tr>
</tbody>
</table>
Quality of life issues comprised Component 1 and indicated both negative and positive loadings for six variables. Positive loadings included life expectancy (.846); percent population with sustainable access to an improved water source (.777); and percent adult literacy (.736). Negative loadings consisted of: maternal mortality (-.905), under age five mortality (-.904), and TB prevalence (-.827). This factor reflected the combined positive effects, as measured by life expectancy, of clean water, the control of infectious disease, and the ability of a population to provide, obtain, and synthesize information relevant to improving health status. Further examination of the results yielded the determination that life expectancy could serve as a proxy measure for health status in testing research hypotheses; however, percent adult literacy, constructed as an independent variable, would remain separate.

Component 2 signified measures of democracy, as defined by country status (.933), political rights (.932), and civil liberties (.910) whose combined associations were expected. Due to the strength of the component loadings among these variables, it was determined that country status could serve as a proxy for measures of democracy in testing full model analyses, but would remain separate for the purposes of testing individual research hypotheses, as outlined by the research questions.

Included in Component 3 were measures of economic prosperity: per capita total expenditure on health (.883); GDP per capita (.827); and total number of health workers per 10,000 (.714). This factor reflected the presence of economic resources and the willingness to leverage such resources in support of health. The strength of the economic loadings within this component and the total number of health workers indicated that infrastructure was a function of prosperity, thus further supporting the assertion that...
institutionalized medicine was characteristic of more developed nations. Interestingly, neither total expenditures on health as a percentage of GDP (.555) nor private health expenditures (-.223) were found to meet the criteria for inclusion within the factor loading for economic measures. Essentially, per capita total expenditure on health could serve as a proxy only for GDP per capita and itself.

Initially, these measures were structured as independent variables under the single heading of economic conditions; though, fundamental differences in their applicability persisted. It was determined that per capita total expenditures on health and total expenditure on health as a percentage of GDP measured conscious decisions on the part of government to leverage financial resources in direct support of health. Total expenditures on health as percentage of GDP also demonstrated that political will and the probability that the populace could influence government expenditures in support of health, a separate issue but one of import. Consequently, key differences within variable constructs resulted in the decision that economic variables should remain separate, as prescribed by the research questions that guided this study.

Linear Regression Analysis

The purpose of this research was to address a cross-national gap in the literature, by answering the proposed research question: What is the relationship between socio­political and economic factors and major determinants of health? Corollary questions included: (1) Is there a positive and significant relationship between economic indicators and health status? (2) What is the relationship of socio-political conditions, with regard to civil liberties and political rights, to health status? (3) Do distinct combinations of socio-political and economic variables significantly promote or impede health? (4) Can
the socio-political and economic environment explain standard indicators of health? Of particular interest was the determination of the role democracy, measured by political rights and civil liberties, played in fulfilling public health objectives. To answer these questions, ten directional hypotheses were proposed, four of which focused on the role of economic conditions and the remaining six addressed the socio-political environment. As per the results of the factor analysis, it was determined that life expectancy would serve as a proxy measure for the dependent variables that comprised health status in testing research hypotheses.

Economic Conditions

Four variables comprised economic conditions: gross domestic product (GDP) per capita; total expenditure on health as percentage of GDP; per capita total expenditure on health at international dollar rate; and private health expenditures as a percentage of total health expenditures. From the list of variables, four directional hypotheses were derived (see Figure 3):

H1: There is a significant positive relationship between gross domestic product (GDP) per capita and health status.

H2: There is a significant positive relationship between per capita total expenditure on health at international dollar rate and health status.

H3: There is a significant positive relationship between total expenditure on health, as a percentage of GDP, and health status.

H4: There is a significant inverse relationship between private health expenditures and health status.
Figure 3. Economic Environment.

GDP per capita +

Per Capita Total Expenditure on Health at International Dollar Rate +

Total Expenditure on Health as Percentage of GDP +

Private Health Expenditures as Percentage of Total Health Expenditures -

Health Status
Four regression analyses were conducted to test the hypotheses associated with economic conditions. In an effort to reflect conditions as constructed in the real world, it was determined that violations of linearity and homoscedasticity would be ignored, as violations merely weakened the regression analyses, but do not invalidate it (K. Finstuen, personal communication, October 23, 2006; Tabachnick & Fidell, 1996, 2001). Furthermore, moderate violations of the normality assumption were tolerated, as no adverse effects were noted within the analysis (Tate, 1992, in Mertler & Vannatta, 2005).

Hypothesis 1 stated that there was a significant positive relationship between gross domestic product (GDP) per capita and health status. According to Fuchs (2004), strong relationships between income and health were clearly established in the literature, principally with regard to countries with below average income levels. Supported by the literature, this hypothesis was upheld: Life expectancy is positively and significantly related to gross domestic product (GDP) per capita at the international dollar rate, $R^2 = .429$, $R^2_{adj} = .426$, $F(1, 190) = 142.83, p < .001$. See Tables 7 through 7.1 and Figure 4.
### Table 7

**Hypothesis 1: Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>$r$</th>
<th>$R^2$</th>
<th>$\hat{R}^2$</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
<th>Sig. $F$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$R^2$</td>
<td>$F$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Change</td>
<td>df1</td>
</tr>
<tr>
<td>1</td>
<td>.655(a)</td>
<td>0.429</td>
<td>0.426</td>
<td>8.949</td>
<td>0.429</td>
<td>142.827</td>
</tr>
</tbody>
</table>

Note. Predictors: (Constant), V08 Gross Domestic Product (GDP) per Capita, International Dollars

### Table 7.1

**Hypothesis 1: Coefficients**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
<th>Correlations</th>
<th>Zero-order</th>
<th>Partial</th>
<th>Part</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Beta</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Std. Error</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>58.937</td>
<td>0.87</td>
<td>67.727</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V08 Gross Domestic Product (GDP) per Capita</td>
<td>0.001</td>
<td>0</td>
<td>0.655</td>
<td>11.951</td>
<td>.000</td>
<td>0.655</td>
</tr>
</tbody>
</table>

Note. Dependent Variable: V01 Life Expectancy
The resulting curvilinear relationship between GDP per capita and life expectancy demonstrated support for the theory of diminishing returns, most often used to describe economic conditions (see Figure 4). For about 60% of cases within this study, mostly developing nations, populations were receiving tremendous returns on their initial investments in health. Preliminary investments in health were known to be geared toward the control of infectious disease through improvements in infrastructure: clean water and sanitation. The curve itself showed a slowing of infectious disease and a distinct shift to the management of chronic disease. Shifting from the management of infectious to chronic disease highlighted a major distinction between developing and developed nations. The plateau that appeared demonstrated that, after a certain point, the doubling or tripling of expenditures produced a less dramatic return with regard to life expectancy. Essentially, there was a point at which the human body simply wore out, despite the availability of resources.
Figure 4.

Life Expectancy by GDP per Capita.
Hypothesis 2 stated that there was a significant positive relationship between per capita total expenditure on health at the international dollar rate and health status. This variable measured a very similar construct as that of GDP per capita in terms of total dollars; however, the fundamental difference lay in per capita total expenditures on health reflected a conscious decision by government to leverage financial resources in direct support of health. These findings upheld the following research hypothesis: Life expectancy is positively and significantly related to per capita total expenditure on health at the international dollar rate, $R^2=.348$, $R^2_{\text{adj}}=.345$, $F(1, 190)=101.52$, $p<.001$. See Tables 8 through 8.1 and Figure 5.

Table 8

<table>
<thead>
<tr>
<th>Hypothesis 2: Model Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

Note. Predictors: (Constant), V09 Per Capita Total Expenditure on Health, International Dollar Rate

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Table 8.1

**Hypothesis 2: Coefficients**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized</th>
<th>Standardized</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>61.031</td>
<td>.843</td>
<td>72.412</td>
</tr>
<tr>
<td>V09 Per Capita Total Expenditure on Health, International Dollar Rate</td>
<td>.007 .001 .590</td>
<td>10.076 .000 .590 .590 .590</td>
<td></td>
</tr>
</tbody>
</table>

Note. Dependent Variable: V01 Life Expectancy

Per capita total expenditure on health demonstrated a similar curvilinear relationship to life expectancy, as outlined in the analysis of GDP per capita (see Figure 5). Results demonstrated that the two variables were measuring similar constructs; however, GDP per capita demonstrated the endowment of resources and per capita total expenditure on health reflected governmental decisions to allocate resources in favor of health services. Again, investments in health produced the most dramatic results in developing nations whose primary concerns were known to be associated with infectious disease (Fuchs 2004).
Figure 5.

Life Expectancy by Per Capita Total Expenditure on Health, International Dollar Rate.
Hypothesis 3 stated that there was a significant positive relationship between total expenditure on health, as a percentage of GDP, and health status. Constructions of health and medical care shape the development of national and sub-national health systems, reflecting society’s values and indicating how much support a society may provide in the pursuit of health among its members (Longest, 1998; Twaddle, 1996). As such, the following hypothesis was tested and upheld: Life expectancy is positively and significantly related to the total expenditure on health as a percentage of GDP, $R^2=.130$, $R^2_{adj}=.125$, $F(1, 190)=28.33, p<.001$. See Tables 9 through 9.1 and Figure 6.

Table 9

<table>
<thead>
<tr>
<th>Model</th>
<th>$r$</th>
<th>$R^2$</th>
<th>$R^2_{adj}$</th>
<th>$\Delta R^2$</th>
<th>$F$</th>
<th>$dfl$</th>
<th>$df2$</th>
<th>Sig. $F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.360(a)</td>
<td>.130</td>
<td>.125</td>
<td>11.050</td>
<td>.130</td>
<td>28.331</td>
<td>1</td>
<td>190</td>
</tr>
</tbody>
</table>

Note. Predictors: (Constant), V10 Total Expenditure on Health as Percentage of GDP

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### Table 9.1

**Coefficients(a)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>Std. Error</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>54.847</td>
<td>2.226</td>
<td></td>
</tr>
<tr>
<td>V10 Total Expenditure on Health as Percentage of GDP</td>
<td>1.780</td>
<td>.334</td>
<td>.360</td>
</tr>
</tbody>
</table>

Note. Dependent Variable: V01 Life Expectancy

The resulting significant, positive relationship between total expenditure on health as percentage of GDP and life expectancy indicated that nations who valued health and coupled such principles with the capacity to leverage resources were capable of increasing the life expectancy among their members (see Figure 6). Nonetheless, there persisted a ceiling within the measure of life expectancy that reflected a fundamental truth: humans age and eventually die, despite the presence of resources.
Figure 6.

Life Expectancy by Total Expenditure on Health as Percentage of GDP.
Hypothesis 4 stated that there was a significant inverse relationship between private health expenditures and health status. Studies suggested that increases in private health expenditures reflected reduced governmental capacity available to support health and other public services (Ensor & Witter, 2001). As a result, individuals left to shoulder the burden of care were faced with potentially significant barriers to access based solely on the ability to pay. The results of this study indicated support for the argument that increases in out-of-pocket expenses resulted in the asymmetrical distribution of resources. The following hypothesis was upheld: Life expectancy is inversely and significantly related to private health expenditures as a percentage of total health expenditures, $R^2 = .145, R^2_{\text{adj}} = .141, F(1, 190) = 32.27, p < .001$. See Tables 10 through 10.1 and Figure 7.

<table>
<thead>
<tr>
<th>Model</th>
<th>$r$</th>
<th>$R^2$</th>
<th>$R^2_{\text{adj}}$</th>
<th>Std. Error of the Estimate Change</th>
<th>Change</th>
<th>$df_1$</th>
<th>$df_2$</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.381(a)</td>
<td>.145</td>
<td>.141</td>
<td>10.951</td>
<td>.145</td>
<td>32.266</td>
<td>1</td>
<td>190</td>
</tr>
</tbody>
</table>

*a Predictors: (Constant), V11Private Health Expenditures as Percentage of Total Health Expenditures*
Hypothesis 4: Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>Std. Error</td>
<td>Beta</td>
</tr>
<tr>
<td>(Constant)</td>
<td>0</td>
<td>1.795</td>
<td></td>
</tr>
<tr>
<td>V11</td>
<td>75.06</td>
<td>41.8</td>
<td></td>
</tr>
<tr>
<td>Private Health Expenditures as Percentage of Total Health</td>
<td>-1</td>
<td>.039</td>
<td>-.381</td>
</tr>
<tr>
<td>1</td>
<td>-222</td>
<td>.039</td>
<td>-.381</td>
</tr>
</tbody>
</table>

a Dependent Variable: V01 Life Expectancy
Figure 7.

Life Expectancy by Private Health Expenditures as Percentage of Total Health Expenditures.
Socio-Political Conditions

Six variables addressed socio-political conditions: political rights; civil liberties; country status (Free, Partly Free, or Not Free); adult literacy; total population; and median age. Although the strength of the correlations between political rights, civil liberties, and country status within the factor analysis supported the use of country status as a proxy for the three measures of democracy, it was determined that each measure would be tested as a separate research hypothesis. From the list of variables, six directional hypotheses were derived (see Figure 4.6):

H5: There is a significant positive relationship between political rights and health status.

H6: There is a significant positive relationship between civil liberties and health status.

H7: There is a significant positive relationship between the country status classification of Free and health status.

H8: There is a significant positive relationship between adult literacy and health status.

H9: There is a significant inverse relationship between total population and health status.

H10: There is a significant positive relationship between median age and health status.
Socio-political conditions were illustrated as follows:

Figure 8. Socio-Political Conditions.

Political Rights +
Civil Liberties +
Country Status: Free, Partly Free, or Not Free (F +)
Adult Literacy +
Total Population -
Median Age +

Health Status
Six regression analyses were conducted to test the hypotheses associated with the socio-political environment. As with economic variables, it was determined that violations of linearity and homoscedasticity would be ignored so as to reflect conditions as they are in reality, not simply to create a statistical best fit for the data. Such violations were noted to merely weaken the regression analyses, not invalidate it (K. Finstuen, personal communication, October 23, 2006; Tabachnick & Fidell, 1996). Furthermore, moderate violations of the normality assumption could be tolerated, since there are no adverse effects on the analysis (Tate, 1992 in Mertler & Vannatta, 2005). The results follow.

Hypothesis 5 stated that there was a significant positive relationship between political rights and health status. Political rights enabled the citizenry to participate freely in the political process, including the right to vote and compete for public office. Political rights included the ability to elect representatives who shape and influence public policies and are accountable to the electorate (Piano & Puddington, 2005). Active community involvement, therefore, was considered key to the success of a health system in meeting its objectives (Ensor & Witter, 2001).

As per the results of this analysis, the following hypothesis was upheld: Life expectancy is positively and significantly related to political rights, $R^2=.220$, $R^2_{adj}=.216$, $F(1, 190)=53.53$, $p<.001$. See Tables 11 through 11.1 and Figure 9.
### Table 11

**Hypothesis 5: Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>$r$</th>
<th>$R^2$</th>
<th>$R^2$ Estimate Change</th>
<th>$R^2$ Change</th>
<th>$F$</th>
<th>$df_1$</th>
<th>$df_2$</th>
<th>Sig. $F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.469(a)</td>
<td>.220</td>
<td>.216</td>
<td>10.462</td>
<td>.220</td>
<td>53.529</td>
<td>1</td>
<td>190</td>
</tr>
</tbody>
</table>

Note. Predictors: (Constant), V12 Political Rights

### Table 11.1

**Hypothesis 5: Coefficients**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>Std. Error</td>
<td>Beta</td>
</tr>
<tr>
<td>(Constant)</td>
<td>53.981</td>
<td>1.796</td>
<td>30.052</td>
</tr>
<tr>
<td>V12 Political Rights</td>
<td>2.561</td>
<td>.350</td>
<td>.469</td>
</tr>
</tbody>
</table>

Note. Dependent Variable: V01 Life Expectancy
Figure 9.

Life Expectancy by Political Rights.
Hypothesis 6 stated that there was a significant positive relationship between civil liberties and health status. Civil liberties allowed for freedom of expression and belief. They included associational and organizational rights, the rule of law, and personal autonomy devoid of interference from the state (Piano & Puddington, Eds., 2005).

Consequently, civil liberties paved the way for social capital theories that maintained the relative success or failure of any public undertaking was a function of the extent to which communities rallied for its support (Ensor & Witter, 2004).

As a result of this analysis, the following hypothesis was upheld: Life expectancy is positively and significantly related to civil liberties, $R^2=.224$, $R^2_{adj}=.220$, $F(1, 190)=54.83$, $p<.001$. See Tables 12 through 12.1 and Figure 10.

<table>
<thead>
<tr>
<th>Model</th>
<th>r</th>
<th>$R^2$</th>
<th>$R^2_{adj}$</th>
<th>Std. Error of the Estimate</th>
<th>Change</th>
<th>Change</th>
<th>df1</th>
<th>df2</th>
<th>Sig. F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.473(a)</td>
<td>.224</td>
<td>.220</td>
<td>10.434</td>
<td>.224</td>
<td>54.833</td>
<td>1</td>
<td>190</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note. Predictors: (Constant), V13 Civil Liberties
Table 12.1

Hypothesis 6: Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Std. Error</td>
<td>Beta</td>
<td>t</td>
</tr>
<tr>
<td>(Constant)</td>
<td>51.380</td>
<td>2.101</td>
<td>24.453</td>
</tr>
<tr>
<td>V13 Civil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Liberties</td>
<td>3.038</td>
<td>.410</td>
<td>.473</td>
</tr>
</tbody>
</table>

Note. Dependent Variable: V01 Life Expectancy
Figure 10.

Life Expectancy by Civil Liberties.

Life Expectancy by Civil Liberties 2005

R Sq Linear = 0.224

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Hypothesis 7 stated that there was a significant positive relationship between the country status classification of Free and health status. Coinciding with the results of the previous analyses for Hypotheses 5 and 6, and supportive of the factor analysis, results of this regression upheld the following hypothesis: Life expectancy is positively and significantly related to the country status classification of Free $R^2 = .184$, $R^2_{adj} = .180$, $F(1, 190) = 42.84, p < .001$. See Tables 13 through 13.1 and Figure 11. These findings indicated that nations who espoused greater measures of democracy, as measured by the combined averages of political rights and civil liberties, experienced increased life expectancy.

Table 13

**Hypothesis 7: Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>$r$</th>
<th>$R^2$</th>
<th>$R^2_{adj}$</th>
<th>Change Statistics</th>
<th>Adjusted Std. Error of $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$F$</td>
<td>Change $df1$ $df2$ Change</td>
</tr>
<tr>
<td>1</td>
<td>.429(a)</td>
<td>.184</td>
<td>.180</td>
<td>10.700</td>
<td>.184</td>
</tr>
</tbody>
</table>

Note. Predictors: (Constant), V14 Country Status
### Table 13.1

**Hypothesis 7: Coefficients**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Std. Error</td>
<td>Beta</td>
<td>t</td>
</tr>
<tr>
<td>(Constant)</td>
<td>58.490</td>
<td>1.371</td>
<td>42.657</td>
</tr>
<tr>
<td>V14 Country</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>6.164</td>
<td>.942</td>
<td>.429</td>
</tr>
</tbody>
</table>

Note. Dependent Variable: V01 Life Expectancy

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Figure 11.

Life Expectancy by Country Status.

R Sq Linear = 0.184
Hypothesis 8 stated that there was a significant positive relationship between adult literacy and health status, as supported by the previous work of Grossman (2003) wherein education was found to be the single best predictor of good health. Further, in comparisons across low income countries, women’s education was found to be highly correlated with the health of infants and children (Fuchs, 2004). This hypothesis was upheld: Life expectancy is positively and significantly related to adult literacy, $R^2=.460$, $R^2_{adj}=.457$, $F(1, 190)=161.69, p<.001$. See Tables 14 through 14.1 and Figure 12.

<table>
<thead>
<tr>
<th>Model</th>
<th>$r$</th>
<th>$R^2$</th>
<th>$R^2_{adj}$</th>
<th>$F$</th>
<th>Sig. $F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.678(a)</td>
<td>.460</td>
<td>.457</td>
<td>8.706</td>
<td>.460</td>
</tr>
</tbody>
</table>

Note. Predictors: (Constant), V15 Percent Adult Literacy

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Table 14.1

_Hypothesis 8: Coefficients_

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>32.352</td>
<td>2.713</td>
<td></td>
</tr>
<tr>
<td>V15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent Adult</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Literacy</td>
<td>.407</td>
<td>.032</td>
<td>.678</td>
</tr>
</tbody>
</table>

Note. Dependent Variable: V01 Life Expectancy
Figure 12.

Life Expectancy by Adult Literacy.
Hypothesis 9 stated that there was a significant inverse relationship between total population and health status. This variable was found to contain two extreme outliers; therefore, it was determined that the variable could be excluded from further analyses, rather than omit two cases representative of a significant proportion of the world population. In the interest of testing whether or not the decision to drop the variable was indeed a sound one, a regression analysis was run. Perhaps owing to the influence of extreme outliers, China and India (as identified using Mahalanobis' distance tests), the following hypothesis was not upheld: Life expectancy is neither positively nor significantly related to total population, $R^2 = .001$, $R^2_{adj} = -.005$, $F(1, 190) = .121$, $p < .05$.

See Tables 15 through 15.1 and Figure 13.

| Table 15 |

| Hypothesis 9: Model Summary |

<table>
<thead>
<tr>
<th>Adjusted</th>
<th>Std. Error of Estimate</th>
<th>Change Statistics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>$r$</td>
<td>$R^2$</td>
<td>$R^2_{adj}$</td>
</tr>
<tr>
<td>1</td>
<td>.025(a)</td>
<td>.001</td>
<td>-.005</td>
</tr>
</tbody>
</table>

Note. Predictors: (Constant), V16 Total Population
### Table 15.1

**Hypothesis 9: Coefficients**

<table>
<thead>
<tr>
<th>Model</th>
<th>β</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
<th>Zero-order</th>
<th>Partial</th>
<th>Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>65.828</td>
<td>.883</td>
<td></td>
<td>74.510</td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V16 Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>2.345E-06</td>
<td>.000</td>
<td>.025</td>
<td>.347</td>
<td>.729</td>
<td>.025</td>
<td>.025</td>
<td>.025</td>
</tr>
</tbody>
</table>

Note. Dependent Variable: V01 Life Expectancy
Figure 13.

Life Expectancy by Total Population.
Hypothesis 10 stated that there was a significant positive relationship between median age and health status. Median age, according to the CIA (2006), was considered a measure of country stability and was used to gauge political activity and the relative importance of age-related expenditures borne by the populace: older nations would be more likely to reflect stable populations and to invest more heavily in health than younger nations. Interestingly, within the factor analysis, life expectancy and median age did not load into the same component, as eigenvalue criteria for communalities of were set at greater than .7 (Mertler & Vannatta, 2005). Therefore, these two variables were confirmed to measure differing constructs and the following hypothesis was upheld: Life expectancy is positively and significantly related to median age, $R^2=.586$, $R^2_{adj}=.584$, $F(1, 190)=268.82$, $p<.001$. See Tables 16 through 16.1 and Figure 14.

<table>
<thead>
<tr>
<th>Model</th>
<th>$r$</th>
<th>$R^2$</th>
<th>$R^2_{adj}$</th>
<th>Std. Error of the Estimate</th>
<th>Change $R^2$</th>
<th>Change $F$</th>
<th>$df1$</th>
<th>$df2$</th>
<th>Change $Sig. F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.765(a)</td>
<td>.586</td>
<td>.584</td>
<td>7.622</td>
<td>.586</td>
<td>268.816</td>
<td>1</td>
<td>190</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note. Predictors: (Constant), V17 Median Age
### Hypothesis 10: Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized</th>
<th>Standardized</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>coefficients</td>
<td>coefficients</td>
<td>Zero-order</td>
</tr>
<tr>
<td>(Constant)</td>
<td>36.502</td>
<td>19.459</td>
<td></td>
</tr>
<tr>
<td>V17 Median</td>
<td>1.096</td>
<td>.765</td>
<td></td>
</tr>
<tr>
<td>1 Age</td>
<td>1.096</td>
<td>.765</td>
<td></td>
</tr>
</tbody>
</table>

Note. Dependent Variable: V01 Life Expectancy
Figure 14.

Life Expectancy by Median Age.
Stepwise Regression

To determine the accuracy of the independent variables (GDP per capita, per capita total expenditures on health, total expenditure on health as percentage of GDP, private health expenditures as percentage of total health expenditures, country status, and median age) in predicting life expectancy, a stepwise regression was employed. Data screening showed one extreme outlier, Tanzania. However, to account for a complete cross-sectional comparison of all 192 nations, no cases were eliminated. Evaluations of linearity resulted in no data transformation, as violations of linearity and homoscedasticity merely weakened the regression analysis, but did not invalidate it (K. Finstuen, personal communication October 23, 2006; Tabachnick & Fidell, 1996, 2001).

Stepwise regression was selected because it is customarily used to compute a best fit regression line, also known as computing ordinary least squares (OLS), in stages. Alpha levels were set at p<.05. In stage one, the independent variable that best accounted for the variance in the dependent variable was found to be median age. The variance of median age accounted for about 59% of the variance in the criterion of life expectancy, $R^2 = .586$, $R^2_{adj} = .584$, $F(1, 190) = 268.82$, $p < .001$. In the second stage, the remaining independent variable with the highest partial correlation with the dependent variable, controlling for the first, was entered: percent adult literacy. The coefficient of multiple determination indicated that the variances of median age and adult literacy accounted for about 63% of the variance in the criterion of life expectancy, $R^2 = .629$, $R^2_{adj} = .625$, $F(2, 189) = 160.09$, $p < .001$. In the third and final stage, this process was repeated, controlling for the first two independent variables, with GDP per capita in international dollars determined to be the third predictor. The coefficient of multiple determination indicated...
that the variances of median age, adult literacy, and GDP per capita accounted for about 64% of the variance in the criterion of life expectancy, $R^2=.643$, $R^2_{adj}=.637$, $F(3, 188)=112.89$, $p<.01$.

This model accounted for 64.3% of variance in life expectancy overall. A summary of the regression model is presented in Table 17. In addition, bivariate and partial correlation coefficients between each predictor and the dependent variable are presented in Table 17.1.

<table>
<thead>
<tr>
<th>Model</th>
<th>$r$</th>
<th>$R^2$</th>
<th>$R^2_{adj}$</th>
<th>$R^2_{est}$</th>
<th>$F$</th>
<th>Sig. $F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.765a</td>
<td>.586</td>
<td>.584</td>
<td>7.622</td>
<td>.586</td>
<td>268.816</td>
</tr>
<tr>
<td>2</td>
<td>.793b</td>
<td>.629</td>
<td>.625</td>
<td>7.235</td>
<td>.043</td>
<td>21.853</td>
</tr>
<tr>
<td>3</td>
<td>.802c</td>
<td>.643</td>
<td>.637</td>
<td>7.114</td>
<td>.014</td>
<td>7.493</td>
</tr>
</tbody>
</table>

a Predictors: (Constant), V17 Median Age  
b Predictors: (Constant), V17 Median Age, V15 Percent Adult Literacy  
c Predictors: (Constant), V17 Median Age, V15 Percent Adult Literacy, and V08 Gross Domestic Product (GDP) per Capita, International Dollars
Table 17.1

*Stepwise Regression: Coefficients*

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>36.502</td>
<td>1.876</td>
</tr>
<tr>
<td>1 V17 Median Age</td>
<td>1.096</td>
<td>.067</td>
</tr>
<tr>
<td>(Constant)</td>
<td>29.925</td>
<td>2.270</td>
</tr>
<tr>
<td>V17 Median Age</td>
<td>.813</td>
<td>.088</td>
</tr>
<tr>
<td>V15 Percent Adult Literacy</td>
<td>.172</td>
<td>.037</td>
</tr>
<tr>
<td>(Constant)</td>
<td>33.232</td>
<td>2.538</td>
</tr>
<tr>
<td>V17 Median Age</td>
<td>.614</td>
<td>.113</td>
</tr>
<tr>
<td>V15 Percent Adult Literacy</td>
<td>.173</td>
<td>.036</td>
</tr>
<tr>
<td>V08 GDP per Capita</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>
Discriminant Analysis

Of particular interest to this study was consideration for the relative importance of democracy in achieving favorable health status, a concept for which scant attention was paid within the literature (Franco, Alvarez-Dardet, and Ruiz, 2004). A discriminant analysis was conducted to determine whether six variables, life expectancy, per capita total expenditure on health, total expenditure on health as a percentage of GDP, private health expenditures as a percentage of total health expenditures, adult literacy, and median age could predict country status (free, partly free, not free). To ensure that sample size \( N \) was large relative to the number of variables, proxy variables discovered in the factor analysis were employed, resulting in six variables used (Stevens, 1992).

Substitutions included the use of country status as a proxy measure for democracy, life expectancy as a proxy for health status, and per capita total expenditure on health as a proxy for GDP per capita (see Table 6.1).

As per the Mahalanobis' distance test, one outlier was identified, yet included in the analysis; therefore, complete data \( \bar{N}=192 \) was used to calculate the discriminant analysis. Scatter plot analysis revealed non-normality with regard to per capita total expenditure on health; however, only in terms of its relationship to literacy and life expectancy. Thus, no transformations were computed. Descriptive statistics revealed that the single majority of nations were coded as free (45.8%, \( n=88 \)). However, the plurality of nations (54%, \( n=104 \)) were coded as either partly free (28.6%, \( n=55 \)) or not free (25.5%, \( n=49 \)), as displayed in Table 18.
<table>
<thead>
<tr>
<th>Country Status</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid percent</th>
<th>Cumulative percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Free</td>
<td>49</td>
<td>25.5</td>
<td>25.5</td>
<td>25.5</td>
</tr>
<tr>
<td>Partly Free</td>
<td>55</td>
<td>28.6</td>
<td>28.6</td>
<td>54.2</td>
</tr>
<tr>
<td>Free</td>
<td>88</td>
<td>45.8</td>
<td>45.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>192</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Results indicated that two functions were generated, with only the first being significant, \(\Lambda=.589, \chi^2(12, N=192)=98.79, p<.001\), indicating that the function of predictors significantly differentiated between countries that were free and partly free. The canonical correlation (\(r=.631\)) indicated that the function was highly related to levels in the DV, country status. Squaring this value produced the effect size, which revealed that 39.8% of function variance was accounted for by country status. Standardized function coefficients and correlation coefficients (see Table 18.1) revealed that the variables of per capita total expenditure on health, median age, total expenditure on health as percentage of GDP, and adult literacy were most closely associated with the function. Based upon these results, the function was labeled *Quality of Life and Economic Well-Being*. 

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Table 18.1

Correlation Coefficients and Standardized Function Coefficients

<table>
<thead>
<tr>
<th></th>
<th>Correlation Coefficients</th>
<th>Standardized Function Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>with Discriminant Function</td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>.622</td>
<td>.038</td>
</tr>
<tr>
<td>Per Capita Total Expenditure on</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td>.742</td>
<td>.263</td>
</tr>
<tr>
<td>Total Expenditure on Health as</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of GDP</td>
<td>.682</td>
<td>.425</td>
</tr>
<tr>
<td>Private Health Expenditures as</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of Total Health</td>
<td>-.520</td>
<td>-.335</td>
</tr>
<tr>
<td>Expenditures as Percentage of Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Expenditures as Percentage</td>
<td>.638</td>
<td>.246</td>
</tr>
<tr>
<td>Median Age</td>
<td>.731</td>
<td>.219</td>
</tr>
</tbody>
</table>

Original classification results revealed that 80.7% of free countries were correctly classified, while only 45.5% of partly free and 36.7% of not free countries were correctly classified (see Table 18.2). For the overall sample, 59.4% were correctly classified. Cross-validation derived 55.2% accuracy for the total sample. The means of the discriminant functions were consistent with these results. Free countries had a function mean of .874, while partly free and not free countries had function means of -.663 and -.826, respectively. These results suggested that countries with high quality of life (stability, literacy, life expectancy) and economic indicators were more likely to be
classified as *free*. Results also suggested a less straightforward set of variables capable of predicting *partly* or *not free* as distinguishable classifications.

Table 18.2

<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
<th>Predicted Group Membership</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Not Free</td>
<td>Partly Free</td>
</tr>
<tr>
<td>Original Count</td>
<td>Not Free</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Partly Free</td>
<td>16</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Free</td>
<td>6</td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Not Free</th>
<th>Partly Free</th>
<th>Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>36.7</td>
<td>46.9</td>
<td>16.3</td>
</tr>
<tr>
<td></td>
<td>29.1</td>
<td>45.5</td>
<td>25.5</td>
</tr>
<tr>
<td></td>
<td>6.8</td>
<td>12.5</td>
<td>80.7</td>
</tr>
</tbody>
</table>

Note. 59.4% of original grouped cases correctly classified
A total of 14 nations were substantially misclassified based on the variables included in this model. Table 18.3 displays the results.

Table 18.3

*Misclassified Nations*

<table>
<thead>
<tr>
<th>Country Name</th>
<th>Actual</th>
<th>Predicted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belarus</td>
<td>not free</td>
<td>free</td>
</tr>
<tr>
<td>Belize</td>
<td>free</td>
<td>not free</td>
</tr>
<tr>
<td>Botswana</td>
<td>free</td>
<td>not free</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>not free</td>
<td>free</td>
</tr>
<tr>
<td>Cuba</td>
<td>not free</td>
<td>free</td>
</tr>
<tr>
<td>North Korea</td>
<td>not free</td>
<td>free</td>
</tr>
<tr>
<td>Ghana</td>
<td>free</td>
<td>not free</td>
</tr>
<tr>
<td>Lebanon</td>
<td>not free</td>
<td>free</td>
</tr>
<tr>
<td>Lesotho</td>
<td>free</td>
<td>not free</td>
</tr>
<tr>
<td>Maldives</td>
<td>not free</td>
<td>free</td>
</tr>
<tr>
<td>Phillipines</td>
<td>free</td>
<td>not free</td>
</tr>
<tr>
<td>Qatar</td>
<td>not free</td>
<td>free</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>not free</td>
<td>free</td>
</tr>
<tr>
<td>Thailand</td>
<td>free</td>
<td>free</td>
</tr>
</tbody>
</table>
Chapter Four presented detailed empirical analyses of health, economic and sociopolitical data. Employing the use of factor analysis to reduce data and confirm relationships, variables related to health status were reduced to a single measure. Those related to measures of democracy were identified to bear strong relationships to one another as well, thus one measure (country status) could represent all three. Independent variables, excluding HIV prevalence, number of hospital beds, and total population, were included in a stepwise regression, thus satisfying a predictive analysis. To account for the classification of data by country status, a discriminant analysis was then conducted.

The final chapter contains interpretation and summarization of the data, the intent of which is to provide insights of chief importance to the field of international health policy and restructuring initiatives. Included are sections pertaining to the results, discussion, conclusion, policy implications, and suggestions for further research. Development of a theoretical framework capable of describing national-level features that contribute substantially to increasing health status is the intended result.
CHAPTER V

Introduction

Over the past two decades, financial and political leveraging by international organizations and powerful foreign governments produced fundamental shifts in the provision and delivery of healthcare services worldwide. As a result, systemic modifications were often undertaken in the absence of epidemiological, political, or social considerations associated with adoption and implementation. Differing liberalization experiences produced varying socio-political and economic structural modifications resulting in inconsistent and divergent outcomes with regard to health status. Presuming powerful stakeholders manipulated outcomes to serve their own interests, the environment in which health policies and programs were developed and evaluated was dubious at best, devastating at worst. The question of whether or not such arrangements served to fulfill public health objectives appeared to be one of the most critical.

International health policy literature was found to address problems of health access and equity, as researchers discerned the impact of economic restructuring in terms of service delivery, funding, and regulation. More specifically, with regard to restructuring initiatives international health research was found to be limited both geographically and empirically. The bulk of data were generated by single case studies. Few assumed multiple country empirical analyses, wherein much of the research was limited to a number of homogenous, developed countries whose results were generalizable only in terms of like nations boasting similar systems under analogous
conditions. Even fewer studies were found to address explicitly the interplay of socio-political forces in fulfilling public health objectives. The result of the literature review, therefore, revealed a gap at the multiple-country empirical comparison level, to include socio-political and economic data, concerning individual and collective relationships to health status.

In an effort to inform the debate regarding health status and the environment in which policy is developed and implemented, this exploratory study provided some new evidence concerning the role of economic conditions and the socio-political environment in determining health status. To achieve cross-national comparisons, this dissertation examined national-level data from three distinct areas: health status, economic conditions, and the socio-political environment. Collectively, these ideas represented a solution capable of accounting for the impact of social, political, and economic leveraging on health status and provided the impetus for a theoretical framework suitable for cross-national comparative research.

Incorporated within this broadly based study of socio-political, economic, and health data were the variables of life expectancy at birth, under age five mortality rate, maternal mortality ratio, HIV prevalence, incidence of tuberculosis, access to a sustainable water source, number of physicians, number of hospital beds, gross domestic product (GDP) per capita, per capita total expenditure on health at international dollar rate, total expenditures on health as percentage of GDP, private health expenditures as percentage of total health expenditures, political rights, civil liberties, and country status, adult literacy, total population, and median age to gauge their importance in explaining the associations between economics, the socio-political environment, and health status.
The proposed research question was: *What is the relationship between socio-political and economic factors and major determinants of health?* Corollary questions included: (1) *Is there a positive and significant relationship between economic indicators and health status?* (2) *What is the relationship of socio-political conditions, with regard to civil liberties and political rights, to health status?* (3) *Do distinct combinations of socio-political and economic variables significantly promote or impede health?* (4) *Can the socio-political and economic environment explain standard indicators of health?*

This complementary research was intended to analyze cross-national data in an effort to provide a comprehensive and predictive theoretical framework of socio-political and economic conditions and their relationship to the dependent variable of health status. Member nations of the World Health Organization (N=192) comprised the research cohort. To achieve results, employed were phased statistical methods. These methods included descriptive statistics, a correlation matrix, and factor analysis. Further analyses incorporated individual and stepwise regression models to determine individual and collective associations of independent variables, economics and socio-political characteristics, with the dependent variables of health status. A discriminant analysis was then used to determine if the classification of nations by country status could be accomplished.

Initially, secondary data for a total of 18 variables were included in the database for statistical analyses. Eight variables were constructed as dependent variables with four subsections representing differing aspects of health status: mortality, morbidity, environmental, and health systems. The remaining ten variables represented independent variables associated with economic and socio-political circumstances, four of which
denoted the economic environment and six outlined socio-political conditions. Missing data were entered according to the procedures outlined in Chapter 4. As a result of the extent of incomplete and/or missing data for the variable of HIV prevalence, it was excluded from further consideration. The total number of hospital beds was thought to represent institutionalized medicine, a feature of more developed nations, as the extent of missing data was concentrated in the developing nations of Africa; thus, this variable was also eliminated from further analyses. Further support for this decision was determined by a lack of sufficient evidence in the literature for the use of number of beds as a proxy for health services infrastructure. Deleted from the analyses was a third variable, total population, due to the type and extent of influence exerted by two outliers, China and India, whose populations comprised two billion individuals. Rather than delete these outliers and the significant numbers they represented in terms of the world’s population, the decision was made to remove the variable from further consideration. Support for this decision lay in the rationale that fiscal data may represent a more accurate indicator of fiscal strength than total numbers, as economic viability could account for the capacity and willingness of government to assume responsibility for the provision of health services. Consequently, a total of 15 variables were included in the statistical database.

A factor analysis was employed to reduce the large number of variables for the purpose of creating a subset of variables to be used in regression analyses. Results revealed four components that were categorized under the subheadings of Quality of Life, Measures of Democracy, and Economics. Quality of Life measures included factor loadings associated with public health measures and infrastructure designed to improved life expectancy - clean water and adult literacy. These results coincided with assertions in
the literature that environmental and social support through education and infrastructure provided a mutually reinforcing framework suitable for achieving longevity (Fuchs, 2004; Grossman, 2003; WHO, 2006a, b). Because there also existed within this factor significant, negative correlations between life expectancy and other measures of health status, mortality rates and TB prevalence specifically, it was determined that life expectancy could serve as a proxy for health status; the use of this proxy was employed only when conducting regression analyses.

Measures of democracy and economics loaded into separate factors, as expected. However, only two of the four economic measures loaded into a single factor, per capita total expenditure on health at international dollar rate and gross domestic product (GDP) per capita, and included a measure that bore a positive association with developed nations, total number of health workers per 10,000. This finding leads to further consideration of the underlying constructs that led to their initial and separate inclusion within the study. It was determined that per capita total expenditures on health and total expenditure on health as a percentage of GDP measured conscious decisions on the part of government to leverage financial resources in direct support of health. The variable total expenditures on health as percentage of GDP was also considered demonstrative of the relative value placed on health by government. Because measures of economic conditions and the socio-political environment were considered integrally important to the development of an overarching framework suitable for model formulation, all measures were considered independently for regression analyses. Then, life expectancy and country status served as proxy variables for the stepwise regression. The discriminant
analysis was conducted using proxy measures of life expectancy, country status, and per capita total expenditure on health, as identified from the factor analysis.

Economic Conditions

The assertion that there existed an association between national-level economic indicators and health led to research question, *What is the relationship between economics and health status?* At the outset of the study, economic variables were identified using Twaddle’s (1996) broadly based theoretical framework for achieving cross-national comparisons in health. Further support was identified in the work of Fuchs (2004) and from the World Health Organization (2006). These variables measured a nation’s capacity to mobilize economic resources, particularly as a result of the gross size of the economy and the per capita means of financing services. This idea was considered key to understanding the impact of economic decisions on the welfare of its citizens, including health. The economic environment included measures of GDP per capita, per capita total expenditures on health at international dollar rate, total expenditures on health as percentage of GDP, all of which were positively and significantly (p<.001) related to life expectancy. Only one economic variable found to bear a significant negative relationship to health status was that of private expenditures on health.

Support for consideration of private expenditures on health was derived from the work of Ensor and Witter (2001) wherein the notion that a government’s decreased capacity to provide care resulted in the asymmetrical distribution of benefits based solely on the ability to pay out-of-pocket, an assertion supported by this research. In looking further, private health expenditures was inversely and significantly related to other measures of health status: life expectancy (-.381. p<.01), percent population with
sustainable access to an improved water source (-.330, p<.01), and total number of healthcare workers (-.391, p<.01), thus pointing to a lack of health services infrastructure. Furthermore, in the absence of infrastructure wherein the citizenry were left to pay expenses out-of-pocket, there were significantly strong correlations between private health expenditures and mortality for those under age five (.387, p<.01), with maternal mortality (.352, p<.01), and for TB prevalence (.377, p<.01). Also inversely correlated with private health expenditures were the other three economic variables: GDP per capita (-.388, p<.01), per capita total expenditure on health (-.330, p<.01), and total expenditure on health as a percent of GDP (-245, p<.01).

These findings provided support for the contention that, when the populace assumed the preponderance of health care costs, the result was an asymmetrical distribution of resources (Blumenthal & Hsiao, 2005; Liu, 2004). Furthermore, these findings underscored the characteristic shifting to private citizens the burden of health expenses in instances of decreased governmental capacity. Private health expenditures as percentage of total health expenditures was negatively and significantly (R²=.145, p<.001) related to life expectancy. This finding supported the contention that the assumption of individual expenditures on health posed a significant barrier to achieving increases in life expectancy, the proxy measure for health status.

Socio-Political Environment

Ensor and Wittier (2001) asserted that the level active community involvement was important in building social capital capable of resolving community problems. While Twaddle (1996) declared that socio-political constructions regarding health care pointed to the values and expectations, which served as the basis for the development of
international health care models. These studies provided the foundation for the inclusion of three variables designed to measure the civic engagement through democratic practices: political rights, civil liberties, and country status. The results of this study supported the assertion that proactive democratic involvement was significantly related to favorable health status (Franco, Alvarez-Dardet, and Ruiz, 2004).

Certain demographic variables were also found within the literature to be significant correlates of health. Such variables included adult literacy and median age, as supported in large part by the work of Grossman (1972, 2003) and confirmed by others (Fuchs, 2004). With the exception of total population, the demographic variables tested in Hypotheses 6 through 10 were significantly related to health status. Clearly, these results supported the assertion that adult literacy and environmental stability, as measured by median age, were central to the creation of the favorable health status of its citizenry. Less important appeared to be the size of the total population for which health status was measured, as the relationship between total population and health status was not significant as tested.

The results of this study confirmed that the range of socio-political aspects presented influenced significantly and positively the determination of favorable health status, as measured by life expectancy, thus answering the research question: What role does the socio-political environment play in health status?

The Combined Role of Economics and the Socio-Political Environment

To account for each of the independent variables, ten directional hypotheses were proposed. Linear regression analyses computed for each variable showed statistical significance for each of the economic variables and for all of the socio-political variables...
except total population. The results demonstrated that the preponderance of independent variables, with the exception of total population, were significantly and positively related to the achievement of favorable health status: GDP per capita, per capita total expenditures on health at international dollar rate, total expenditures on health as percentage of GDP, political rights, civil liberties, country status, adult literacy, and median age. Findings indicated that only one variable showed a significant, inverse relationship with the dependent variable of life expectancy, private health expenditures as percentage of total health expenditures. This result was expected, as it supported the assertions of researchers who pointed to disparities, which resulted from the implementation of health policies designed to increase the financial burden born by the citizenry (Blumenthal & Hsiao, 2005; De Groote, De Paepe, & Unger, 2005; De Vos et al., 2004; Fiedler & Wright, 2003; Giffin, 1994; Liu, 2004; Segal, 2004). In considering the combined effects of the distinct variables that served to bolster health status, a stepwise regression was employed.

Pearson correlations demonstrated significant, positive relationships between life expectancy and the independent variables of GDP per capita, per capita total expenditures on health, total expenditure on health as percentage of GDP, political rights, civil liberties, country status, percent adult literacy, and median age ($p<.01$). Private health expenditures represented the sole variable with a significant, inverse relationship to life expectancy ($p<.01$). Only one variable was not significantly related to life expectancy, total population; this variable, due to the significance of outliers, was eliminated from further analyses. Within the correlation matrix, the variables of median age, adult
literacy, GDP per capita, and total expenditure on health as a percentage of GDP bore the strongest relationships with life expectancy.

Results of the stepwise regression suggested that the individual variable most responsible for achieving favorable health status was median age ($R^2 = .586, p < .001$), a measure of country stability. The contribution of education, as measured by adult literacy ($R^2 = .629, p < .001$), was found to represent the second best predictor of health status, a finding that supported the research of Grossman (2003). Combined, these two variables indicated that country stability and education were integral components of improved health status. Lastly, economic capacity, GDP per capita ($R^2 = .643, p < .01$), was found to be the third best predictor to achieving favorable health status. Taken together, these findings suggested that both the socio-political and economic environments contained key mechanisms for the achievement of health. Consequently, measures of democracy, while important, were not the best predictors of favorable health status, as measured by life expectancy. This was an important finding in that it underscored the need to expand the previous research of Franco, Alvarez-Dardet, and Ruiz (2004) to include underlying measures which may account for the formulation of democracy and improved health status concurrently.

Owing to a lack of sustained research between measures of democracy and health status, cases within this study were tested to determine if they could be classified by country status using life expectancy, per capita total expenditure on health, total expenditure on health as a percentage of GDP, private health expenditures as a percentage of total health expenditures, adult literacy, and median age as independent measures. Results of the discriminant analysis revealed that the variables of per capita
total expenditure on health, median age, total expenditure on health as percentage of GDP, and adult literacy were most closely associated with the first of two functions, the only one found to be significant. Based upon these results, the function was labeled “Quality of Life and Economic Well-Being.”

Classification results revealed that 80.7% of free countries were correctly classified, while only 45.5% of partly free and 36.7% of not free countries were correctly classified. These results suggested that countries with high quality of life and economic indicators were more likely to be classified as free. Less straightforward, however, was a set of predictive variables capable of classifying nations as partly or not free. These findings concurrently supported and challenged the effects of political epidemiology on health, as reported by Franco, Alvarez-Dardet, and Ruiz (2004). Using multiple regression analysis to establish a statistically significant relationship between measures of democracy, as defined by political rights and civil liberties, and health status, Franco, Alvarez-Dardet, and Ruiz employed three health indicators: life expectancy, infant mortality, and maternal mortality. Results indicated that democracy was positively and significantly related to life expectancy, even when controlling for economics, a finding not fully supported in this research. Consequently, the results did not tell the whole story; rather, it was in the exploration of classifications (free, partly free, or not free) that pathways to democracy were uncovered. Democratic nations were classified according to their higher rates of stability, literacy, and life expectancy as well as through higher economic indicators; however, economic indicators not only measured wealth, they also measured the relative value placed on health by nations. Suggestive of these findings, therefore, was the assertion that free countries were more likely to provide opportunities
for education within a secure, orderly environment and to include provisions for health services. Free environments fostered additional opportunities to engage in liberalized trade, a fundamental premise to increasing economic wealth (Shichor, 1995). In essence, a free unfettered economy would allow individuals to pursue their own interests and contribute to the common good, thus resulting in greater income for everyone (McKay, Hill, & Buckler, 1983).

Certainly, the ability to correctly classify nations as partly or not free would be hampered by questions as to the degree to which such nations espoused efforts to broaden literacy, to control rogue factions, and to create infrastructure capable of supporting health measures. Underlying the degree to which these measures were attained would be the capacity of nations to provide requisite funding.

Conclusion

*Theoretical Model Development*

The impact of institutions and informal organizations on health status requires contemplative consideration of economic inconsistencies on the control and leveraging of resources in support of health and health services delivery. Governments are often slow to respond to public demands to right problems, especially in developing regions, as many do not possess the capacity to address complex health issues. Though, insufficient service delivery is not exclusively a Third World problem. Rapid demographic changes, such as urbanization and globalization, have combined disastrously with diminished governmental capacity to respond to health care crises (Islam & Tahir, 2002). As a result, many nations look to foreign direct investors to address structural and capacity shortfalls believing that private investors are better equipped to respond efficiently to health care.
demands. Unfortunately, market-based entities are neither held accountable to measures of performance nor, in many cases, even regulatory compliance. When health services are shifted to the private sector, the result is a public forced to pay out-of-pocket expenses associated with clinically based interventions (Ensor & Witter, 2001). This issue poses a further dilemma: the ability to pay. Individual expenditures on health pose significant barriers to health care access and result in the asymmetrical distribution of services (Falkingham, 2004).

Results of this study support the assertion that both capacity and willingness serve as extensions of social constructions regarding health, thus defining the provision of care at the national level. Taken together, economic variables demonstrate that national efforts to leverage resources in support of health policy initiatives are related substantially to favorable health status. However, economic measures, though essential, do not comprise the most important contributing factors to improved health status. Rather, country stability and adult literacy are more critical, owing to the contention that a secure environment and an educated populace result in a significant increase in health, as measured by life expectancy. These results support the research of Grossman (2003), whose investigations led to the assertion that years of formal schooling comprised an important correlate of good health. Yet, formal schooling may be accomplished only when environmental circumstances are conducive to the organization and maintenance of an education mechanism, an additional finding of this study.

In the absence of a straightforward theoretical framework applicable to cross-national comparisons, but rather working from the compilation of individual studies and their results, the conclusions of this research most closely align with the ideals of
economic liberalism wherein socio-political stability, as provided by institutional structure, allows for human cooperation that results economic prosperity (North, 1990). As applied to this research, stability is created when organizations wield power and influence effectively shaping the formal environment so that the citizenry may take advantage of opportunities, as with improving educational and economic status. These opportunities, as they apply to health, are created when governmental structure and capacity lead to the provision of health in an environment capable of sustaining equitable regulatory and enforcement practices, by controlling corruption, and through the decentralization of authority.

Development of a theoretical model capable of achieving cross-national comparisons would include measures of country stability and adult literacy, followed by measures of economic capacity and the willingness of government to leverage financial resources in support of health. Further considerations include the extent to which individuals are forced to pay out-of-pocket for care. Measures of democracy, consequently, are considered secondary to the aforementioned variables, as broad classifications are less capable of revealing underlying causative mechanisms which promote or impede health.

Accordingly, the first of these areas reflects common trends in the nature of governance, as shaped by historic, cultural, and control activities. A simple measure of median age may not adequately reflect societal nuances which contribute to stability, a potential weakness of this model. The second aspect outlines educational modalities, to include primary goals, but which lack specificity in that adult literacy rates do not include measures of quality or content with regard to information conveyed. The final aspect
measures simply present economic conditions without specifically addressing the internationalization of economies and the resultant influence of trade, non-governmental organizations, and other powerful stakeholders to impose restructuring initiatives that maximize organizational returns potentially injurious to national health status.

This exploratory research indicates that broad policy initiatives geared toward the promotion of equitable governance is the most important indicator of improved health status, as measured by life expectancy. Secondarily, but perhaps no less important, are initiatives that lead to high percentages of adult literacy, regardless of group status or affiliation. Capacity to leverage resources, as measured by GDP per capita, comprises the third most important variable in predicting improved health status. Subsequently, central to the development of a theory capable of cross-national comparisons of health status is consideration for the balance of power between government and the citizenry wherein the perpetuation of civil liberties and individual rights is paramount (Bell, 1976; North, 1990). As such, the polity is capable of engaging government and its institutions in ways that promote environmental hospitality, thus affecting the degree to which citizens achieve and maintain improved health status.

Policy Implications

Results of this study indicate that policy formulation and implementation must espouse the values and value systems of the polity, as the contextual focus regarding the applicability of programs serves to create an environment in which concern for responsiveness is central (Habermas, 1974; Lemay, 2002). Specifically, as it relates to health care, policymaking requires thoughtful consideration of forces that influence health and health services delivery with particular emphasis on the correction of unjust
features that perpetuate disenfranchisement, exploitation, or cultural domination.

Underscored by this research is the critical importance of effective national planning, public policy, and implementation practices that contribute to localized decision-making strategies effective in bolstering the specific needs of the populace: stability, education, and financial resources.

Under the rubric of globalization, implementation of restructuring initiatives, as undertaken by the World Bank, World Trade Organization (WTO), and others, involves political and economic leveraging by the most powerful stakeholders who seek to create conditions that reinforce their own organizational interests in survival and growth. However, non-governmental and private organizations would be better served to require the implementation structural features that promote cooperation between government and its populace under mutually beneficial terms. The transfer of authority for services formerly provided in the public sector as a condition for new or renegotiated loans should be less heavily weighted in support of features that bolster national and local transparency, control corruption, and promote infrastructure. Necessary features include government accountability, regulatory compliance, and enforcement that provide for institutionalized stability and make available conditions amenable to furthering national endowments, as with an educated citizenry.

Opting to transfer responsibility for public services to the private sector in an effort to reduce fiscal stress or promote other goals may reduce short-term costs of government and introduce new possibilities for better service delivery. However, efforts to decentralize may be viewed as the ceding of governmental responsibility for vital public services to unreliable private entrepreneurs in the absence of contextual and other
considerations. Research in the field indicates a myriad of issues persist: limited access to care, an increasing individual cost burden, and a lack of control over the decision-making process (Gormley, 1991), thus raising questions as to whether or not economic decentralization undermines important public service values.

An obvious policy implication lies in the consideration of epidemiological and contextual factors when considering restructuring initiatives geared toward privatization and/or for-profit health care mechanisms. Restructuring initiatives must not be taken lightly. Thoughtful consideration of contextual issues must precede action. Supported by this and previous research, a shift in the burden from public to private financing of health services resulting in fee-for-service arrangements leads to an asymmetrical distribution of resources and places to the fore the fundamental question of whether or not the provision of health should lie within the public or private realm. The question is not simply whether or not a service will be provided, but to what extent the government is willing to shoulder the health services burden through funding, regulation, and promotion.

Further policy implications lay in the consideration of root variables that serve to promote health status: stability, literacy, and GDP per capita. To the extent that countries are willing to develop and implement policies relevant to the endorsement of these public issues is the extent to which government can rely on its polity to be actively engaged in assuming a level of personal responsibility for the establishment of good health and longevity. Further, governments, in their pursuit to develop economic policies that provide competitive advantage on the global stage, must also consider the extent to which they are capable of supporting the populace. Do these policies support stability, educational, and infrastructure initiatives within the region, or are they destructive to core
issues that will ultimately lead to disease and a decline in overall health? Further questions include: To what extent does the government exert control over corruption, enforce the rule of law, and represent the will of its people? What is the relative influence of powerful stakeholders and in what ways does their activity impact health status?

Results of this study demonstrate that a healthy populace is one that lives in a secure environment created by communities of the educated who enjoy the benefits of material wealth. However, divided by socio-demographic and cultural boarders defined by individual values and disproportionate requirements for autonomy, people have become less willing to be involved in local problem-solving initiatives (Schuler, 1996). As such, it is difficult to introduce and sustain broadly acceptable public policy. This research underscores the need for community conscious activity wherein the citizenry is actively involved in principled, equitable governance and policy development efforts.

Though simplistic in ideology, active community engagement in the creation of a stable socio-political environment is probably the most difficult to attain given that history and culture reap consequences far detached from time and place. Rather, it is through the inclusion of differing values by way of civic engagement that all voices may be heard. Through education the voices representing a citizenry capable of independently synthesizing information of value and relevance to their individual predicaments are developed. It is recommended that the advancement of education policy and coupled with infrastructure initiatives to facilitate education comprise the core of development and restructuring efforts.
Recommendations for Further Research

The present research addresses economic conditions and socio-political forces that serve to promote or impede health and the exploration of predictive elements suitable for cross-national comparisons of health status. Findings suggest several additional lines of research.

The first includes the determination of variables that account for broad measures of socio-political, economic, and health conditions. While this goal has been accomplished, further testing of the model is needed to identify additional or alternative variables of significance and to improve interpretation of results. Research may include consideration of socio-political differentials that result in the asymmetrical distribution of health care thereby leading to the problem of disparate impact with regard to a definable group. These clusters may include, but are not limited to, women, children, ethnic minorities, or any other axis by which the access, quality, or cost of health services is thwarted as compared to the general population. Further exploration of geographic or density considerations may also be of benefit, as the ratio of resources to infrastructure is often a product of the aforementioned variables, thus resulting in limited availability for those living in rural, as opposed to urban, regions.

Secondly, replication of the research question and application to a single case, within a geographic region, or through the comparison of several regions, may also yield interesting and meaningful results. While case study methods have often been employed in international health care literature, careful consideration of the predictive variables uncovered in this research may lead to more insightful analyses when applied to specific situations, as within a country or defined region. Additionally, comparisons between
regions comprised of differing cultural and socio-political characteristics may produce results that further the body of knowledge concerning the effects of such features on health status and/or the underlying constructs which define stability.

The third line of research includes an examination of cultural features and the extent to which associated issues relate to gender and health status. This research may include, but is not limited to, the exploration of social features, such as organized religion, tribal membership, or a specific trait that results in disenfranchisement by gender. Of particular interest may be that of women’s health and access to care, as studies have shown direct correlations linking education, the health of women, and the survival of infants and children (Fuchs, 2004). Literature demonstrates scant attention has been paid to these specific issues and that much research is needed in this particular area.

A final recommendation for research lies in the determination of whether public or private mechanisms serve best the health care needs of the polity. Studies indicate the single dominant authority of national government may provide an effective source for the equitable distribution of health care resources (De Vos, 2005; Mooney, 2002). In some instances, centralized control has resulted in the achievement of model health and health practices (De Vos, 2005; Mooney, 2002). Among developing nations, major improvements in life expectancy, infant mortality, and a shift in morbidity rates from infectious to chronic disease can be linked directly to investments in public health mechanisms (Blumenthal & Hsiao, 2005). Yet, socio-political upheaval, urbanization, and globalization reduce governmental capacity to provide even basic health care services (Islam & Tahir, 2002). Differing economic and structural adjustment strategies produce a multitude of complex outcomes difficult to classify and compare cross-
nationally (Twaddle, 1996). Consequently, consideration for the impact of health systems structure, including decentralization initiatives, is vital to understanding core motivations in health care policymaking. At issue is the ability to define and empirically measure such initiatives, tasks that fall beyond the scope of this study; however, these findings provide a useful framework from which to consider the efficacy of structure as it relates to a national stability, the degree to which systems are supported by an educational agenda, and to gauge the relative importance of funding sources in achieving beneficial health outcomes.
BIBLIOGRAPHY


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APPENDIX A

Constitution of the World Health Organization

THE STATES Parties to this Constitution declare, in conformity with the Charter of the United Nations, that the following principles are basic to the happiness, harmonious relations and security of all peoples:

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.

The health of all peoples is fundamental to the attainment of peace and security and is dependent upon the fullest co-operation of individuals and States.

The achievement of any State in the promotion and protection of health is of value to all.

Unequal development in different countries in the promotion of health and control of disease, especially communicable disease, is a common danger.

Healthy development of the child is of basic importance; the ability to live harmoniously in a changing total environment is essential to such development.

The extension to all peoples of the benefits of medical, psychological and related knowledge is essential to the fullest attainment of health.

Informed opinion and active co-operation on the part of the public are of the utmost importance in the improvement of the health of the people.

Governments have a responsibility for the health of their peoples which can be fulfilled only by the provision of adequate health and social measures.

ACCEPTING THESE PRINCIPLES, and for the purpose of co-operation among themselves and with others to promote and protect the health of all peoples, the Contracting Parties agree to the present Constitution and hereby establish the World Health Organization as a specialized agency within the terms of Article 57 of the Charter of the United Nations.
APPENDIX B

Universal Declaration of Human Rights

On December 10, 1948 the General Assembly of the United Nations adopted and proclaimed the Universal Declaration of Human Rights the full text of which appears in the following pages. Following this historic act the Assembly called upon all Member countries to publicize the text of the Declaration and "to cause it to be disseminated, displayed, read and expounded principally in schools and other educational institutions, without distinction based on the political status of countries or territories."

PREAMBLE

Whereas recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world,

Whereas disregard and contempt for human rights have resulted in barbarous acts which have outraged the conscience of mankind, and the advent of a world in which human beings shall enjoy freedom of speech and belief and freedom from fear and want has been proclaimed as the highest aspiration of the common people,

Whereas it is essential, if man is not to be compelled to have recourse, as a last resort, to rebellion against tyranny and oppression, that human rights should be protected by the rule of law,

Whereas it is essential to promote the development of friendly relations between nations,

Whereas the peoples of the United Nations have in the Charter reaffirmed their faith in fundamental human rights, in the dignity and worth of the human person and in the equal rights of men and women and have determined to promote social progress and better standards of life in larger freedom,

Whereas Member States have pledged themselves to achieve, in co-operation with the United Nations, the promotion of universal respect for and observance of human rights and fundamental freedoms,

Whereas a common understanding of these rights and freedoms is of the greatest importance for the full realization of this pledge,

Now, Therefore THE GENERAL ASSEMBLY proclaims THIS UNIVERSAL DECLARATION OF HUMAN RIGHTS as a common standard of achievement for all peoples and all nations, to the end that every individual and every organ of society, keeping this Declaration constantly in mind, shall strive by teaching and education to

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promote respect for these rights and freedoms and by progressive measures, national and international, to secure their universal and effective recognition and observance, both among the peoples of Member States themselves and among the peoples of territories under their jurisdiction.

Article 1.

All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.

Article 2.

Everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status. Furthermore, no distinction shall be made on the basis of the political, jurisdictional or international status of the country or territory to which a person belongs, whether it be independent, trust, non-self-governing or under any other limitation of sovereignty.

Article 3.

Everyone has the right to life, liberty and security of person.

Article 4.

No one shall be held in slavery or servitude; slavery and the slave trade shall be prohibited in all their forms.

Article 5.

No one shall be subjected to torture or to cruel, inhuman or degrading treatment or punishment.

Article 6.

Everyone has the right to recognition everywhere as a person before the law.

Article 7.

All are equal before the law and are entitled without any discrimination to equal protection of the law. All are entitled to equal protection against any discrimination in violation of this Declaration and against any incitement to such discrimination.
Article 8.

Everyone has the right to an effective remedy by the competent national tribunals for acts violating the fundamental rights granted him by the constitution or by law.

Article 9.

No one shall be subjected to arbitrary arrest, detention or exile.

Article 10.

Everyone is entitled in full equality to a fair and public hearing by an independent and impartial tribunal, in the determination of his rights and obligations and of any criminal charge against him.

Article 11.

(1) Everyone charged with a penal offence has the right to be presumed innocent until proved guilty according to law in a public trial at which he has had all the guarantees necessary for his defence.

(2) No one shall be held guilty of any penal offence on account of any act or omission which did not constitute a penal offence, under national or international law, at the time when it was committed. Nor shall a heavier penalty be imposed than the one that was applicable at the time the penal offence was committed.

Article 12.

No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks.

Article 13.

(1) Everyone has the right to freedom of movement and residence within the borders of each state.

(2) Everyone has the right to leave any country, including his own, and to return to his country.

Article 14.

(1) Everyone has the right to seek and to enjoy in other countries asylum from persecution.
(2) This right may not be invoked in the case of prosecutions genuinely arising from non-political crimes or from acts contrary to the purposes and principles of the United Nations.

Article 15.

(1) Everyone has the right to a nationality.

(2) No one shall be arbitrarily deprived of his nationality nor denied the right to change his nationality.

Article 16.

(1) Men and women of full age, without any limitation due to race, nationality or religion, have the right to marry and to found a family. They are entitled to equal rights as to marriage, during marriage and at its dissolution.

(2) Marriage shall be entered into only with the free and full consent of the intending spouses.

(3) The family is the natural and fundamental group unit of society and is entitled to protection by society and the State.

Article 17.

(1) Everyone has the right to own property alone as well as in association with others.

(2) No one shall be arbitrarily deprived of his property.

Article 18.

Everyone has the right to freedom of thought, conscience and religion; this right includes freedom to change his religion or belief, and freedom, either alone or in community with others and in public or private, to manifest his religion or belief in teaching, practice, worship and observance.

Article 19.

Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.

Article 20.

(1) Everyone has the right to freedom of peaceful assembly and association.
(2) No one may be compelled to belong to an association.

**Article 21.**

(1) Everyone has the right to take part in the government of his country, directly or through freely chosen representatives.

(2) Everyone has the right of equal access to public service in his country.

(3) The will of the people shall be the basis of the authority of government; this will shall be expressed in periodic and genuine elections which shall be by universal and equal suffrage and shall be held by secret vote or by equivalent free voting procedures.

**Article 22.**

Everyone, as a member of society, has the right to social security and is entitled to realization, through national effort and international co-operation and in accordance with the organization and resources of each State, of the economic, social and cultural rights indispensable for his dignity and the free development of his personality.

**Article 23.**

(1) Everyone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment.

(2) Everyone, without any discrimination, has the right to equal pay for equal work.

(3) Everyone who works has the right to just and favourable remuneration ensuring for himself and his family an existence worthy of human dignity, and supplemented, if necessary, by other means of social protection.

(4) Everyone has the right to form and to join trade unions for the protection of his interests.

**Article 24.**

Everyone has the right to rest and leisure, including reasonable limitation of working hours and periodic holidays with pay.

**Article 25.**

(1) Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical
care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.

(2) Motherhood and childhood are entitled to special care and assistance. All children, whether born in or out of wedlock, shall enjoy the same social protection.

**Article 26.**

(1) Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.

(2) Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace.

(3) Parents have a prior right to choose the kind of education that shall be given to their children.

**Article 27.**

(1) Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.

(2) Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.

**Article 28.**

Everyone is entitled to a social and international order in which the rights and freedoms set forth in this Declaration can be fully realized.

**Article 29.**

(1) Everyone has duties to the community in which alone the free and full development of his personality is possible.

(2) In the exercise of his rights and freedoms, everyone shall be subject only to such limitations as are determined by law solely for the purpose of securing due
recognition and respect for the rights and freedoms of others and of meeting the just requirements of morality, public order and the general welfare in a democratic society.

(3) These rights and freedoms may in no case be exercised contrary to the purposes and principles of the United Nations.

Article 30.

Nothing in this Declaration may be interpreted as implying for any State, group or person any right to engage in any activity or to perform any act aimed at the destruction of any of the rights and freedoms set forth herein.
VITA

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PROFESSIONAL EXPERIENCE

Health Administration, United States Navy

Assistant Professor/Navy-Coast Guard Program Director, United States Army-Baylor University Program in Health and Business Administration, Fort Sam Houston, TX (7/06-present). Graduate level instructor in International Business, Health Care Marketing, and the Advanced Practicum in Marketing. Students derive from the Department of Defense, Veteran's Administration, and Department of Transportation.

After-Hours Administrator, Naval Medical Center, Portsmouth (10/03 – 7/06): Appointed to serve on behalf of the Commander, entrusted with the after-hours administrative functioning of this 350-bed acute, primary, and tertiary care hospital, one of the largest in the United States Navy.

Director of Administration and Department Head, Three Primary Care Clinics (6/04-7/06): Directed the activities of 30 employees in providing administrative and logistical support to three multi-service primary care services clinics with 230 employees and a consumables budget of $300,000. Areas of responsibility included Administration, Medical Records, Consumables Budget, and Patient/Guest Relations.

Optimization Program Administrator, Bone and Joint/Sports Medicine Institute (11/03-05/04): Provided administrative, logistical, and management support multi-specialty orthopedic practice consisting of 150 military and civilian staff personnel with an annual budget of $6.4 million.

Administrator, Managed Care (3/03-10/03): Provided administrative and statistical support in developing Managed Care business plans and reporting tools to include the quantification of productivity standards, delineation of access and usage patterns, and related data.

GRADUATE RESEARCH/TEACHING ASSISTANT

Old Dominion University, Norfolk, Virginia (8/01-03/03)

- Conducted statistical analysis and contributed administrative support for the preparation of written materials to be used in strategic planning and program improvement regarding various types of university-related research projects to include, but not limited to, focus groups, surveys, and publications.

- Graduate Teaching Assistant and Academic Advisor for over 900 undergraduate students in traditional, non-traditional, and distance learning settings. Provided administrative and lecture support for health management and related topics, organized and arranged course materials, such as examinations and syllabi, and prepared and delivered three lectures on health topics to undergraduate and graduate students. Areas of interest: leadership and strategic management.
OTHER EXPERIENCE

Health Care Technician, Supervisory and Administrative Responsibilities (03/91-06/99), United States Navy, Various Locations

EDUCATION

- **Doctor of Philosophy**, December, 2006, Public Administration and Urban Policy, Old Dominion University, Norfolk, VA

- **Master of Science in Community Health Administration**, August, 2001, Old Dominion University, Norfolk, VA (GPA - 4.00)

- **Bachelor of Science in Health Sciences**, concentration in Management, May, 2000, Old Dominion University, Norfolk, VA (GPA - 3.97)

INTERNSHIPS

- CEO, Patriot’s Colony Retirement Community, Williamsburg Virginia, 2001 – Internship with CEO of multi-level private, for-profit retirement community, to include independent and assisted living, as well as long-term care facilities.

PUBLICATIONS AND PRESENTATIONS

- Dissertation: *The Politics and Economics of Health: A Cross-National Comparison of Civic Engagement and Health Status*

- Article submission and professional series presentation, Pastoral Care, Naval Medical Center, Portsmouth: *Transformational Leadership: A New Military Leadership Paradigm*

- Poster presentation, 2002 American Public Health Association annual conference, Philadelphia, PA: *Children's Fear of Victimization*

- Seminar: *Ethics and Professional Identity* – a two-day course for licensed substance abuse counselors regarding the integration of ethical decision-making in providing services

PROFESSIONAL ORGANIZATIONS AND CERTIFICATIONS

- American College of Healthcare Executives (ACHE)
- American Public Health Association (APHA)
- Healthcare Management, Certified 2001, Old Dominion University
- Secret Clearance - U.S. Navy
- Certified, AHA Cardiopulmonary Resuscitation (CPR), level C

RECOGNITION

- Medical Service Corps Officer of the Quarter, Naval Medical Center, Portsmouth, VA
- Outstanding Military Leadership Award, Officer Indoctrination School, Newport, RI
- Meredith Construction Company Scholarship ($8,800), Old Dominion University
- Alpha Eta Honor Society, President, Old Dominion University
- The Honor Society of Phi Kappa Phi
- Golden Key National Honor Society
- Junior Sailor of the Year, Branch Medical Clinic, Naval Station, Norfolk, VA
- Junior Sailor of the Quarter, Naval Medical Center, Portsmouth, VA
- Awarded Navy Commendation Medal - 1
- Awarded Navy Achievement Medal - 4