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# Adaptation of Balanced Scorecard and Multiple Criteria Decision-Making Methodologies to Measure Nation-State Power

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The University of Southern Mississippi

ADAPTATION OF BALANCED SCORECARD AND MULTIPLE CRITERIA  
DECISION-MAKING METHODOLOGIES TO MEASURE NATION-STATE POWER

by

Gregg Eric Lassen

Abstract of a Dissertation  
Submitted to the Graduate School  
of The University of Southern Mississippi  
in Partial Fulfillment of the Requirements  
for the Degree of Doctor of Philosophy

December 2010

## ABSTRACT

### ADAPTATION OF BALANCED SCORECARD AND MULTIPLE CRITERIA DECISION-MAKING METHODOLOGIES TO MEASURE NATION-STATE POWER

by Gregg Eric Lassen

December 2010

The objective of this research was to develop a model for nation-state power. People interested in international relations, including scholars, diplomats, and analysts, need to understand relative power among nation-states, but the unit of comparison, power, remains an elusive concept. This research utilized a Balanced Scorecard approach from business and organizational behavior literature to develop a more comprehensive model of nation-state power based on international relations literature. The model was then further developed into a ranking tool which utilized multiple criteria decision-making theory. The combination of these approaches provided a tool that was used to measure nation-state power based on a model containing four components, each defined by three measures. The four components of power in the model were: military, political economy, territory and population. The measures included a standard measure for each component and two additional measures intended as leading indicators. In this manner, the model endeavored to provide a more comprehensive measure of power than previous models while remaining manageable from a data collection and analysis perspective.

The interactive aspect of the tool provided insights into the nature of nation-state power as well as a ranking capability. Through sensitivity analysis, the importance of each measure was examined. In addition to ranking existing nation-states, the tool was used to

measure power for regional groups of nation-states. This model and ranking tool may be useful to practitioners and scholars of international relations to provide a better understanding of the relative power of individual nation-states currently, to consider what effect changes in specific components of power may have on the ranking, and to consider the relative power relations that would exist under alternative structures of world organization.

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A Dissertation  
Submitted to the Graduate School  
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## CHAPTER I

### INTRODUCTION

This research effort addresses a challenge that exists for people engaged in the work of international relations, including scholars, diplomats and analysts. All are interested in relative power among nations but the unit of comparison, power, remains an elusive concept. The goal of this effort is to provide a tool by which to quantify power in International Relations. The literature review focuses on realist theory and homes in more precisely on one of the fundamental tenants of realism, a concern with nation-state power. The purpose of this research effort is to determine whether a Balanced Scorecard approach can provide a better understanding of power than has historically existed in the literature.

In the literature, there is a grand theory of realism that has developed since 400 B.C.E., and associated with it are scholars trying to move beyond realism or even reject it. These efforts are most appropriately understood as critiques of realism rather than alternatives, especially to someone grounded with a practitioner orientation. Therefore, this research begins with the foundational assumption that the realist perspective cannot be discarded, as it reflects the world as it is rather than the world as we would wish it to be. As Italian diplomat and philosopher Niccolo Machiavelli (1532/1961) advised in *The Prince* in 1513, “Many have dreamed up republics and principalities that have never in truth been known to exist; the gulf between how one should live and one does live is so wide that a man who neglects what is actually done for what should be done learns the way to self-destruction rather than self-preservation.” The effort here will be to develop a tool that is useful to realists engaged in the practice of international relations.

In a realist world view, the study of international relations is comprised of nation-states as the key actors in an anarchical setting where the relations between them are defined in terms of power (Morgenthau, 1946). Of the three main points, two are clear. The very title of the sub-discipline, international relations, would have changed if the first point were not true. For if nations are not the key actors on the world stage, what other organizational unit could compete for the role? International or Supra-national organizations are an inferior choice due to the lack of enforcement capability. Powerful nations cooperate when they can but if the stakes are high enough, they can simply refuse to participate, and there are many examples of that in recent history. Are the major corporations of the world legitimate contenders? No. Despite the size of the world's largest multinational corporations, they are citizens of a nation-state and subject to the laws of the states in which they operate. What of the role of the individual? There are powerful individuals, but their influence changes the management structure of a nation-state which remains the principal actor on the world stage. As citizens they are subject to the laws of a nation whether those laws are just or not, and are limited to effecting change within that framework. Political theory has progressed over time, but not all nations are yet managed under a framework that a nation derives its powers from the consent of the governed. In a match between the nation and the individual, on a world scale, the nation wins. The iconic image of the man standing in front of the tank in Tiananmen Square is the exception that proves the rule (Life Magazine, 2003). While there may be scores of influential individuals that could be identified, their numbers relative to the six billion people in the world make the point that the individual is not the key actor on the world stage.

The steadfast notion of national sovereignty provides the explanation of an anarchical system (Morgenthau, 1946). While it is obvious that all nations are not created equal, that façade remains the controlling constraint on world organization to this day. Nations may try to resolve disputes with each other amicably, but if they cannot reach agreement, no arbiter exists and history is replete with examples of states resorting to war as a method to resolve conflict.

Finally, the notion that relations between nations are defined by power is not surprising to even the most uncritical student of history. Perhaps the best known structural theory of world affairs is known as the Balance of Power (Kaplan, 1976). That classical realist theory has continued to evolve into neorealist and structural realist theories that seek to define and link state actor behavior to system structure. Almost inevitably the mind conjures power as a military concept and that has been both the starting point, and the source of confusion and frustration, for an understanding of power. Rather than deny the importance of power in international relations, the critiques of realism focus on the weaknesses and limitations of the existing definitions of power. Relations between nation-states are defined in terms of power.

Power has been a fundamental concept of International Relations since the discipline began. As Thucydides (trans. 1980) wrote in 400 B.C.E., “What made war inevitable was the growth of Athenian power and the fear which this caused in Sparta” (1.23). Such important philosophers as Machiavelli, Thomas Hobbes, and David Hume viewed power as crucial in human behavior and thus important to the understanding of relations between states. These scholars helped create the foundation for realist theory, the

development of which can be attributed to Hans J. Morgenthau. Per Morgenthau, political leaders think and act in terms of “interest defined as power” (1946, p. 4).

Yet a useful definition of power remains elusive. According to Gilpin, the “number and variety of definitions (of power) should be an embarrassment to political scientists” (1975, p. 24). There are numerous definitions of power within the realist school and more outside of it. According to *Merriam-Webster’s Online Dictionary*, one definition of power is simply “political control or influence” (Power, n.d., entry 3c). From that, it can be deduced that power is a unit of measurement for the performance of a nation.

The purpose of this research effort is to determine whether a Balanced Scorecard approach can provide a better understanding of power. The Balanced Scorecard is a tool that was developed in and for the corporate world which has gained wide acceptance (Kaplan & Norton, 1992). It is designed to provide a more comprehensive understanding of the drivers of performance in a corporation, and does that by incorporating more than just the typical perspective on corporate performance, the financial results. Further, the research will utilize multi criteria decision making theory to enhance the conversion of the balanced scorecard concept into a ranking model. This effort will examine whether that tool can be successfully adapted to do two things: first, better understand the concept of power of a nation-state; and second, provide a mechanism to measure power of nation-states for comparison purposes.

The scope of this dissertation is broad. It is designed to address all four of the functions of scholarship described in *Scholarship Reconsidered: Priorities of the Professoriate*: the scholarship of discovery, the scholarship of integration, the scholarship of application, and the scholarship of teaching (Boyer, 1990). The fundamental element of

basic research into realist theory, understanding the importance of power, and creating an improved definition of it is the scholarship of discovery. Making connections across disciplines to improve the definition of power and develop a model to rank nation-state power requires the scholarship of integration. Given that international relations is both academic discipline and professional vocation, the scholarship of application is necessary to render a model that has utility. Finally, the scholarship of teaching is addressed by creation of a tool that will assist students in developing a more thorough understanding of realist theory and the power relationships between nations (Boyer).

Important, fundamental policy issues are addressed using the concept of power as a basis for comparing nation-states commonly in the literature as well as in the popular press, but the term is rarely defined and even rarer is an attempt at measurement. The United States is or isn't a dominant power. China has emerged as equally powerful or more powerful or less powerful than the United States, or Russia, or Japan. For example, in the Spring 2010 issue of *International Security*, Larson and Shevchenko discuss "Chinese and Russian Responses to U.S. Primacy" by stating that "China's ascendance creates expectations of an uncertain power transition in the Asia-Pacific region and potentially in world politics, one that could be accompanied by dangerous competition. Then there is Russia, a former superpower and...most recently a resurgent power...a power that has not yet found a place in world politics" (2010, p. 64). This dissertation begins with the stipulation that there is a need for the concept of power in such context to be better defined and measurable. The hypothesis is that measurement of nation-state power can be improved and analytical utility gained by development of a model of power that applies methods developed in other disciplines; specifically the balanced scorecard concept and

multi criteria decision making theory. This hypothesis will be tested by developing such a model based upon the existing literature in international relations with these two concepts incorporated, and evaluating the model through a series of sensitivity analyses. In this manner, a new quantitative tool will be created and evaluated using both quantitative and qualitative methods. A review of the results of testing the model through sensitivity analysis will seek to reveal whether any insights are gained in its use.

## CHAPTER II

### LITERATURE REVIEW

#### Realist Theory

Realism is an old, practical tradition, one that can be traced back to ancient Chinese and Indian writings of Confucius and Kautilya (Creel, 1960; Modelski, 1964). Kautilya developed a mathematical model in the fourth century B.C. that was based on a core power identified as the conqueror who engaged four kings representing the ally, the mediatory power, the enemy state and the neutral state (Sastry, 1915). During that same time period, Sun Tzu's *The Art of War* developed a strategic approach to managing conflict between nations (trans. 1963). The best known realist theory in international politics is the idea of Balance of Power (Kaplan, 1976). It was recognized at least implicitly in ancient India and Greece although never formally articulated (Creel, 1960; Modelski, 1964). David Hume noted that although the term balance of power was associated with the state system of Europe, "the maxim of preserving the balance of power is founded so much on common sense and obvious reasoning that it is impossible that it could altogether have escaped antiquity," (Hume, 1742/1953, p. 331) and he suggested that it had been practiced from ancient times to his present day. Edward Gulick (1955) explained the balance of power concept through a case history of Europe as a multinational society in which the state actors preserve their integrity and independence through a balancing process. Members of the system threatened by the emergence of a party intent on disturbing the existing distribution of power will act rationally and for a countervailing coalition to restore balance.

At its most simple construction, realist theory captures the basic facts of the real, practical world that human beings live in. The fundamental tenets of realist theory are implicit in the terminology of the balance of power. There is a common theme through history of an anarchic system of states where no overarching legal authority exists (Kaplan, 1976). Thus, those states, whose size and structure has varied over time, are the key players in the balance of power system, making and altering alliances to keep power balanced. Power is the fundamental variable describing the relations between them. As Thucydides wrote in 400 B.C., “the strong do what they have the power to do and the weak accept what they have to accept” (trans. 1980, p.402).

Machiavelli (1532/1961) analyzed interstate relations in the Italian system of the sixteenth century. He is a forefather of realist theory given his emphasis on the ruler’s need to adopt moral standards different from those of the individual in order to ensure the state’s survival, his concern with power, his assumption that politics is characterized by a clash of interests, and his pessimistic view of human nature. This last point has saddled realist theory with the misguided notion that all realists are pessimistic.

Hobbes viewed power as crucial in human behavior. “Man has a perpetual and restless desire of power after power that ceaseth only in death.” “Covenants, without the sword, are but words and of no strength to secure a man at all” (Hobbes, 1946, p. 109). Without a strong sovereign, chaos and violence will follow. “If there be no power erected, or not great enough for our own security, man will and may lawfully rely on his own strength and are for caution against all other men” (Hobbes, p. 109). Hobbes concerned himself with what he understood to be the underlying forces of politics and with the nature of power in political relationships. Hobbes believed that a strong sovereign was necessary

for maintaining order within the political system and saw little basis for changing human behavior or the anarchic setting (Hobbes).

George Hegel (1942) developed the belief that the state's highest duty was in its own preservation and added that component to realist theory. Hegel held that the state has an individual totality – it exists separately from its citizens. The state has moral standards different from and superior to those of the individual. Realist theory does not go that far, but does accept that behavior on behalf of the state may require conduct that would not be acceptable by an individual in society.

Max Weber's (1947) main contribution to realist theory was to posit that the principal characteristic of politics is a struggle for power. The power element of political life is especially evident at the international level because every political structure naturally prefers to have weak rather than strong neighbors. Among the dimensions of politics as a struggle for power is economics. Economic policy is a subordinate relationship to politics because the power political interests of nations encompass an economic struggle for existence.

Other realists including Arnold Toynbee, Alfred Mahan, and Halford Mackinder identified the importance of geographical location. Geography was understood as shaping the options available to states. The classical realists prepared the theoretical groundwork that allowed for understanding world affairs (Kissinger, 1994).

International Relations theory has been affected by events, or reality, since the Peace of Westphalia in 1648 – the inception of the modern state. The modern theory of the balance of power was developed more by practitioners than scholars, and focused on diplomacy and alliances in a state system with war as a common, if not constant, factor. It

might be safe to suggest that almost all international theory was realist theory until the frustration with the horrifying consequences of technological enhancements leading to incredible efficiencies in killing humans in war in the twentieth century led to a desire to create, or revive, an alternative - idealist thinking. In the aftermath of World War I, the League of Nations was created under the auspices of the 1919 Treaty of Versailles as an attempt to break with the existing structure of world affairs (Carr, 1939/1964).

World War II shifted thinking away from the flirtation with the idealism of the League of Nations period toward a resurgence of realism (Mearsheimer, 1994/1995). Idealists were required to confront the reality of a world based on nations pursuing their own interests and began to recognize that the only effective approach would be to work idealist thought into that framework.

Academic scholars including Morgenthau, Robert Strausz-Hupe, A.F.K. Organski, and Harold and Margaret Sprout produced analyses suitable to the postwar reality. Their work in the late 1940s and early 1950s emphasized a power approach to the study of international relations. Included among these is Martin Wight, who discussed “the predominance of the idea of power over the idea of right; the very term ‘power’ to describe a state in its international aspect is significant; and the view of the man in the street, who is perhaps inclined to take it for granted that foreign politics are inevitably power politics, is not without a shrewd insight” (Wight, 1946, p. 11).

Textbooks in international relations published during the 20 years after World War II recognized power as a central concept in the field (Organski, 1968; Sprout & Sprout, 1965). Most notable was *Politics Among Nations: The Struggle for Power and Peace* by Hans J. Morgenthau. This scholar had the greatest impact on the development of modern

realist theory. The realist concepts related to rationally determined national interest, power, balance of power, and the management of power in an anarchic world were most fully developed in his work (Morgenthau, 1946).

Essential to Morgenthau's work are six basic principles. First, he suggested that political relationships are governed by objective rules deeply rooted in human nature. Because these rules are impervious to individuals' preferences, they can be challenged only at the risk of failure. If these rules themselves cannot be changed, Morgenthau held that society can be improved by first understanding the laws that govern society and then by basing public policy on that knowledge. In theorizing about international politics, moreover, it is necessary to employ historical data for examining political acts and their consequences. In evaluating and assimilating these vast amounts of historical data, the student of politics should attempt to view the issue from the position of a statesman (Morgenthau, 1946).

Second, he posited that political leaders think and act in terms of interest defined as power and that historical evidence proves this assumption. This concept, central to his realist theory, gives continuity and unity to the seemingly diverse foreign policies of the widely separated nation-states. Moreover, the concept of interest defined as power makes it possible to evaluate actions of leaders at different points in history. In such a view, international politics is a process in which national interests are accommodated or resolved on the basis of diplomacy or war. "The concept of the national interest presupposes neither a naturally harmonious, peaceful world nor the inevitability of war as the consequence of the pursuit by all nations of their national interests. Quite to the contrary, it assumes

continuous conflict and threat of war to be minimized through the continuous adjustment of conflicting interest by diplomatic action” (Morgenthau, 1951, p. 961).

Third, Morgenthau acknowledged that the meaning of interest as defined by power is not easily determined. However, in a world in which sovereign nations compete for power, survival constitutes the minimum goal of foreign policy and the core national interest. All nations are compelled to protect “their physical, political, and cultural identity against encroachments by other nations” (Morgenthau, 1951, p. 961). Thus, national interest is identified with national survival. As long as the world is divided into nations in an anarchic global setting, Morgenthau asserted, the national interest is indeed the last word in world politics. Interest, then is the essence of politics, which is defined as a struggle for power (Morgenthau, 1946).

Fourth, Morgenthau (1946) stated that universal moral principles cannot be applied to the actions of states in their abstract, universal formulation, but that they must be filtered through the concrete circumstance of time and place. In pursuit of the national interest, nation-states are governed by a morality that differs from the morality of individuals in their personal relationships.

Fifth, Morgenthau (1946) asserted that political realism does not identify the moral aspirations of a particular nation with the moral laws that govern the universe. In fact, if international politics is placed within a framework of defining interests in terms of power, we are able to judge other nations as we judge our own.

Finally, sixth, Morgenthau stressed the autonomy of the political sphere. Political actions must be judged by political criteria. The realist asks “how does this policy affect the power of the nation?”(Morgenthau, 1946, p. 12). “A political policy seeks either to

keep power, to increase power, or to demonstrate power” (Morgenthau, 1946, p. 36). The Monroe Doctrine is an example cited by Morgenthau of a nation seeking to preserve the existing distribution of power, whereas imperialism in either military or economic form is designed to increase power.

Realist theory can thus be traced from the ancient world up to the present. Further, some scholars suggest realist theory held the dominant position in the study of international relations from the end of World War II into the 1980s. Since 1979, with the publication of Kenneth Waltz’s *Theory of International Politics*, the world has witnessed the development of neorealism and structural realism as efforts to reformulate classical realist theory.

To summarize, realist theory as understood today contains several assumptions:

- 1) The international system is based on nation-states as the key actors;
- 2) International politics is characterized by a struggle for power in an anarchic setting in which nation-states rely on their own capabilities to ensure their survival;
- 3) States exist in a condition of legal sovereignty in which nevertheless there are gradations of capabilities, with greater and lesser states as actors;
- 4) States are unitary actors and that domestic politics can be separated from foreign policy;
- 5) States are rational actors characterized by a decision making process leading to choices based on maximizing the national interest; and
- 6) Power is the most important concept in explaining, as well as predicting, state behavior. (Morgenthau, 1946)

The two essential interests of realism are explaining state behavior in general and explaining the dynamics of the international system (Morgenthau, 1946).

As Morgenthau identified, a defining characteristic of realist theory is anarchy, by which is meant the absence of legal authority. As the definition of sovereignty is autonomy, or freedom from external control, the essence of sovereignty is the legal equality of states (Sovereignty, n.d.). Since states exist in a condition of sovereignty, there is no higher legal authority than the state. However, states are not equal in their capabilities – some are weak and some are powerful. Therefore, whatever hierarchy exists in the international system is the result of differentiation among states based upon their relative capabilities. Thus, the international system leads states to engage in self-help. The most extreme means by which states achieve security based on self-help is development and use of a military.

Neorealist, including structural realist, theory can be understood as an effort at continuous improvement or evolution of fundamental realist theory. This involves the development of a systems approach, focusing on the structure of the international system which is linked to state-actor behavior. It has also acknowledged a need to better define and measure power.

Realism is so extensive and has had such a long history of contribution, criticism, and renewal that it is difficult for any one scholar to accept all of it. Many researchers who would consider themselves realists would fault certain aspects or traits of the theory. However, there are a few fundamental ideas that are shared by all realists, including the anarchic nature of the international system, the primacy of the state in international affairs, and the importance of power as a key variable in relations between states.

So the question asked by two critics, “Is Anyone Still a Realist?” (Legro & Moravcsik, 1999) is easily answered in the affirmative by anyone with any practical experience in the world. The better question is not “Is Anyone Still a Realist?” but how is it possible that any student of the actual world is not a realist? This is not to suggest that realist theorists should ignore the criticisms of realism – for it certainly requires continuous improvement – but for as long as we have had international relations, useful contributions to the discipline have been subsumed under the umbrella of realism.

This leads one to consider Kenneth Waltz’s contribution to neorealist theory (Waltz, 1979). Neorealist theory has worked to improve the rigor of the realist tradition by defining the concepts more clearly and consistently, and develop a series of propositions that could be subjected to empirical testing and investigation. Neorealism has embraced work that is termed structural realism identified with the writings of Waltz as well as other efforts explicitly to build on classical realism, especially upon the works of the last classic realist, Morgenthau (Waltz). For neorealists, power remains a key variable, although it exists less as an end in itself than as a necessary and inevitable component of a political relationship.

While an improved ability to define and measure power as resources or capabilities will not be sufficient to solve all the problems or answer all the criticisms of the complex issue of power, it is certainly an important step to take nonetheless. Rather than abandon the notion of power as a total of resource capabilities, this research project will work on the task as defined by Waltz, and endeavor to develop a model that can rank the states on “how they score on all of the following items: size of population and territory, resource endowment, economic capability, military strength, political stability and competence”

(Waltz, 1979, p.131). It is expected that the process of building such a model will provide insights on, if not answers to, some of the questions raised by criticisms of realist theory and the understanding and use of power to explain relations between nations.

#### The Importance of Power and Its Measurement

The accumulation of a long line of realist thinking leads to the fundamental principle of realist theory that states operate in an anarchic system in which their policies are based on the national interest backed by power. Because the structure of the system includes the distribution of power, it follows that power is a key concept in realist theory. Furthermore, if techniques for measuring power cannot be developed, the ability to understand relationships among units in the structure will be severely limited. Therefore, realist theory has included both the conceptualization and measurement of power.

Although power is critically important to realist theory, it is not well defined. According to Robert Gilpin, “the number and variety of definitions of power should be an embarrassment to political scientists” (1975, p. 24). David Baldwin’s effort at providing a definition, “The most common conception of power in social science treats power as a type of causal relationship in which the power wielder affects the behavior, attitudes, beliefs, or propensity to act of another actor” (Baldwin, 1993, p.16), does not eliminate the need for understanding the capabilities of the actors involved. Other definitions include that of Waltz, who rejects a causal conception of power, preferring “the old and simple notion that an agent is powerful to the extent that he affects others more than they affect him” (Waltz, 1979, p.192), which requires an understanding of the capabilities of the agent in question.

Realists stress power and interest rather than ideals in international relations.

Realist theory regards power as the fundamental concept in the social sciences although power relations are often cloaked in moral and legal terms. “All civilized life rests in the last instance on power” (Spykman, 1942, p. 11). “International politics is dominated by the quest for power.... At any given period of known history, there were several states locked in deadly conflict, all desiring the augmentation or preservation of their power” (Strausz-Hupe, 1954, p. 5).

Even those who would not be realists accept the importance of understanding power. “There is probably no greater common factor in all thinking on international relations than the assumption that States depend for their existence on power, and achieve their objectives by power, thus making the management of power the main problem to be solved” (Burton, 1967 p. 46).

Both Gilpin and Waltz have added more specificity to the understanding of power. According to Gilpin (1981), power encompasses the military, economic, and technological capabilities of states. The power of a state consists of its capabilities, some of which are economic in nature – such as levels of industrialization and productivity, gross national product, national income, and income on a per capita basis. Waltz (1979, p. 131) goes on to maintain that it is possible to rank the capabilities of states by reference to “how they score on all of the following items: size of population and territory, resource endowment, economic capability, military strength, political stability and competence.” This paper seizes this notion and offers a method to provide a definition of power based on it and a way to measure power as defined this way.

Three previous efforts at measuring power in a more comprehensive way are beneficial starting points to develop understanding before embarking on the effort to adapt the Balanced Scorecard. They demonstrate that there is interest in, and logic to, an effort to build consensus toward a comprehensive concept of power.

Suggesting that “Obviously a sound U.S. strategy requires an objective calculus of national power and clusters of power in the international arena,” Ray S. Cline developed a formulaic approach to World Power Assessment (1977, p. 2).

National power, realistically described, is a mix of strategic, military, economic, and political strengths and weaknesses. It is determined in part by the military forces and the military establishment of a country but even more by the size and location of territory, the nature of frontiers, the populations, the raw-material resources, the economic structure, the technological development, the financial strength, the ethnic mix, the social cohesiveness, the stability of political process and decision-making, and, finally, the intangible quantity usually described as national spirit. To ease the task of describing elements of international power in their various combinations, I have evolved a formula relating these factors. It is not a magic measuring rod, for many of the variables are not truly quantifiable. It simply provides a shorthand notation or index system to replace words and judgments once these have been defined. (Cline, p. 2).

The formula that he created was:

$$\text{Perceived Power} = (\text{Population} + \text{Territory} + \text{Economic Capability} + \text{Military Capability}) \\ \times (\text{Strategic Purpose} + \text{Will to Pursue National Strategy}) \text{ (Cline, 1977).}$$

The first part of the formula is the addition of four separate capabilities that can be quantified and matched with Waltz's expanded definition. Cline's research took place during the Cold War and its focus was on the relationship between the United States and the Soviet Union. This influenced his approach and resulted in the second part of the formula, which is the combination of two concepts that are extremely subjective and ambiguous. It is difficult to measure purpose and will. Multiplying clear and quantifiable measured capabilities by the addition of two immeasurable concepts yields outputs that are less reliable and incapable of replication. In a similar vein, Robert Jervis (1976) applied the principles of cognitive psychology to national leaders' decision-making and created a counterpoint to a system or structural explanation of international relations.

The Correlates of War project is supported by the Program on Empirical International Relations in the Department of Political Science at the Pennsylvania State University. It consists of a series of data sets that allow researchers to do statistical analyses of international conflict. Power is considered by them to be a central concept in explaining conflict, and they have created a measure of power in their data set that covers the period from 1816-2001. The Composite Indicator of National Capability (CINC) is based on six factors: military expenditure, military personnel, energy consumption, iron and steel production, urban population, and total population. According to the administrators of the project, CINC is the most widely used indicator of national capability, although its use is intended to be limited to the study of military conflicts between nations. The data set is widely used by researchers of historical conflict and warfare, but as a result, it is biased toward military power. The economic and geographical factors in the definitions of power by Gilpin and Waltz are not addressed.

Robert L. Perry and John D. Robertson (2002) created a database to support their quantitative approaches to cross-national analysis. They include a definition of National Potential Power that is comprised of just three components: population, area, and aggregate wealth. This definition is limited by the fact that military power is ignored. Further, there are no variables attempting to capture qualitative aspects of these three components.

While users of ranking models typically focus on the top scorers, there is an emerging literature in international relations on the bottom end of the ranking. There is a concern about the threats that so-called weak states create for the world and for the international system from both academic and diplomatic perspectives, and a concomitant interest in the idea of state-building (Fukuyama, 2004). One result of this attention is the development of an Index of State Weakness in the Developing World, which ranks 141 developing countries according to their performance in four spheres: economic, political, security, and social welfare (Rice & Patrick, 2008). Other than political and economic indicators, the basic indicators of power, such as territory, military, and population sizes, are not included. The term weak in this instance refers to poor governance rather than to power, as weak states are defined as countries that lack the essential capacity and/or will to fulfill critical government responsibilities including sustainable and equitable economic growth, legitimate political institutions, protection from violent conflict, and meeting basic human needs.

These four efforts indicate consensus that a diverse set of fundamental attributes need to be considered together to inform an understanding of national power. With this as

a starting point, the concept of adapting the Balanced Scorecard seems to have merit, and may be a way to improve upon these definitions.

### The Balanced Scorecard

One of the most widely acclaimed concepts to come out of the academic business literature, the Balanced Scorecard, was developed to address a fundamental problem affecting the management of major multinational corporations: performance measurement (Harvard Business Review, 2001). The basic concepts of the Balanced Scorecard as it was developed may provide insights for development of a more comprehensive definition of performance measurement in nation-states.

A practical solution being developed by business practitioners across several companies was honed in a study titled “Measuring Performance in the Organization of the Future” by the research arm of an accounting firm in the early 1990s. This led to the publication of an article in the Harvard Business Review. This work was the product of a two man team: David Norton, the Chief Executive Officer of the Nolan Norton Institute, the consulting firm, and Robert S. Kaplan, a business professor at Harvard.

The article focused on the concern that existing performance measures that rely almost exclusively on financial accounting data are obsolete. In place of that, a framework or model is proposed. While financial measures are recognized as necessary and important, they are just one perspective among four that are identified. The other perspectives are the customers, internal business processes, and innovation and learning. The idea is to capture the “balance” needed in a number of relationships; between financial and non-financial measures, between lagging and leading indicators, and between internal and external performance perspectives.

Kaplan and Norton (1992) suggest that all the new processes of information age companies are being implemented in an environment governed by quarterly and annual financial reports. The financial reporting process is tied to an accounting model that was developed centuries ago for a different reality. This model should have been expanded to incorporate the valuation of a company's intangible and intellectual assets, such as high-quality products and services, motivated and skilled employees, responsive and predictable internal processes, and satisfied and loyal customers. This kind of valuation would be more useful since these assets are more critical to success in the information age than traditional physical and tangible assets.

The Balanced Scorecard retains traditional financial measures. But financial measures only explain the past. They are inadequate to use to create future value. The Balanced Scorecard complements financial measures of past performance with measures of the drivers of future performance. The measures view organizational performance from four perspectives: financial, customer, internal business processes, and learning and growth (Kaplan & Norton, 1992).

#### *Financial Perspective*

The balanced scorecard retains a financial perspective since these measures are important for summarizing the readily measurable economic consequences of actions that have already been taken. Financial performance measures indicate whether a company's strategy, implementation, and execution are contributing to bottom-line improvement. Financial objectives relate to profitability (Kaplan & Norton, 1992).

### *Customer Perspective*

In this perspective, the market segments are identified and core outcome measures are customer satisfaction, customer retention, new customer acquisition, customer profitability, and market share in targeted segments. This perspective should also include specific measures of the value propositions that the company will deliver to customers in targeted market segments. Segment-specific drivers represent those factors that are critical for customers to switch to or remain loyal to their suppliers (Kaplan & Norton, 1992).

### *Internal Business Process Perspective*

In this perspective, executives identify the critical internal processes in which the organization must excel based on delivering the value proposition to the targeted market segments and satisfying shareholder expectations of financial returns. This perspective incorporates two fundamental improvements to performance measurement. Traditional approaches monitor and improve existing business processes, while the scorecard approach identifies new processes at which an organization must excel to meet customer and financial objectives. Second, this perspective captures a long-term approach rather than a short-term approach which would focus on delivering current products and services to current customers.

The innovation process, the long wave of value creation, is for many companies a more powerful driver of financial performance than the short-term operating cycle. For many companies, their ability to manage successfully a multiyear product-development process or to develop a capability to reach entirely new categories of customers may be more critical for future economic performance than

managing existing operations efficiently, consistently, and responsively. (Kaplan & Norton, 1992, p. 28)

### *Learning and Growth Perspective*

Businesses are unlikely to be able to meet their long-term targets for customers and internal processes using current technologies and capabilities. Competition from other companies requires continual improvement of capabilities for delivering value to customers and shareholders. Organizational learning and growth come from three principal sources: people, systems, and organizational procedures. The financial, customer, and internal business process objectives on the Balanced Scorecard will reveal gaps between the existing capabilities and identify what will be required to achieve breakthrough performance. To close the gaps, companies must invest in re-skilling employees, enhancing information technology and systems, and aligning organizational procedures and routines. Employee based measures include a mixture of generic outcome measures along with specific drivers of the generic measures (Kaplan & Norton, 1992).

The properly balanced scorecard will include measures of desired outcomes as well as processes that will drive the desired outcomes for the future. A good balanced scorecard should have a mix of outcome measures and performance drivers. Outcome measures without performance drivers do not identify how the outcomes can be achieved. They also fail to provide information as to whether progress is being made in the implementation of strategy. Performance drivers such as cycle times and defect rates enable a company to achieve short term operational improvements but are insufficient to identify whether these improvements have been extended to expanding business and improving financial

performance. A good balanced scorecard will have an appropriate mix of outcomes or lagging indicators and performance drivers or leading indicators (Kaplan & Norton, 1992).

While the balanced scorecard was developed with these four perspectives and has been found to be useful across a variety of companies and industries, “the four perspectives should be considered a template, not a strait jacket” (Kaplan & Norton, 1992, p. 34).

Depending on industry circumstances, one or more additional perspectives may be needed.

Although the balanced scorecard recognizes the interests of customers as well as shareholders, it does not explicitly recognize the interests of other stakeholders such as employees, suppliers, and the community.

Once the concept of measuring the four distinct perspectives was developed, executives in some of the companies in the study began to realize additional value in the balanced scorecard beyond its contribution to enhancing the system of performance measurement. In addition to using the scorecard as a measurement system, they wanted to use it to communicate and align their organizational strategies. The Balanced Scorecard should be more than a collection of financial and non-financial measurements. It should be the translation of the company’s strategy into a linked set of measures that define both the long-term strategic objectives as well as the mechanisms for achieving those objectives (Kaplan & Norton, 1992).

Many companies were trying to improve the performance of existing processes through a variety of mechanisms including lower cost, improving quality, and shortening response times, but they were not identifying the processes that were truly strategic. The importance of selecting appropriate measures based on strategic success led to a second

article in the *Harvard Business Review*'s September-October 1993 issue (Kaplan & Norton, 1993).

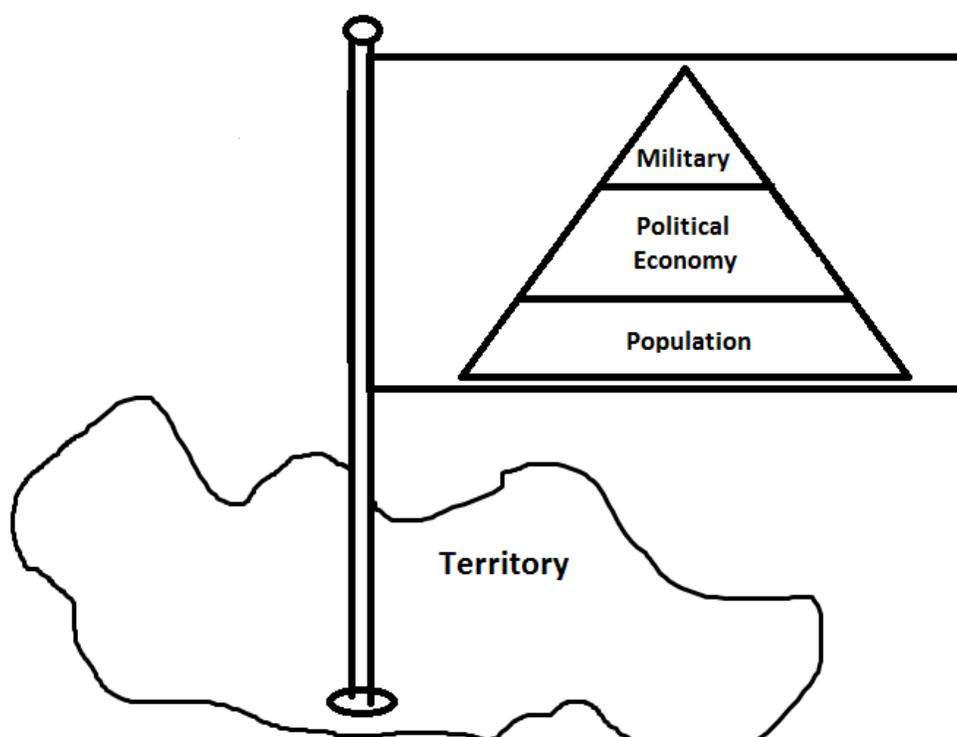
As more and more companies started using the balanced scorecard, it continued to evolve. What started out as an improved measurement system which then became used to clarify and communicate strategy has become embraced as a core management system. This was reflected in a third article which demonstrates how twenty to twenty-five measures across the four perspectives can both communicate and effectively implement strategy. Rather than viewing multiple measures as in conflict, companies develop strategic linkages, tying the measures together in a series of cause and effect relationships (Kaplan & Norton, 1996b).

The Balanced Scorecard has become a major phenomenon in the business world and has been adopted by more than half of Fortune 1000 organizations. In addition, its use has been transferred to the nonprofit and public sectors. It has become so widely used and accepted as effective that it was identified as one of the most influential ideas of the twentieth century by the *Harvard Business Review* (Niven, 2003, p. 14).

#### Adapting the Balanced Scorecard to Assess Nation-State Power

The effort to adapt the balanced scorecard begins with recognizing that the challenges of measuring corporate performance and nation-state power have some similarities. Where analysis of the performance of a corporation was hindered by a focus on only one perspective, financials, most analyses of the performance, or power, of a nation-state are based on a limited focus on either military or economic components of power. By analogy, one can perform the same exercise for the nation-state that Kaplan and Norton did for the corporation. As discussed in more detail to follow, the four components

of a nation-state's power can be represented by a flag planted on the sovereign territory of the country (see Figure 1). At the top of the flag is military power, the typical perspective on power loosely equivalent to how the financials of a company receive primary focus. The equivalent to internal business processes is an assessment of the appropriate functioning of political and economic systems of a nation-state, and the learning and growth perspective will support an assessment of the population.



*Figure 1.* The Four Components of a Nation-State's Power.

In summary, the literature of international relations is diverse, with many theories attempting to explain various parts of the subject. Efforts to analyze the fundamental, grand scope of international relation must start with realist theory and its variants. Other theoretical constructs are critiques of realist theory rather than independent of it. Power is

an underlying factor of realist theory and other theories addressing relations among nation-states. The literature demonstrates that a common, useful definition of power in this context remains elusive. Improved theories of power as a set of capabilities are necessary for researchers who understand power in that framework. A single model of power as a set of capabilities that is broad enough to meet the needs of scholars does not yet exist. Available models are too narrow, focusing only on part of the concept. The request or expectation for a more comprehensive model of nation-state power by Waltz remains unfulfilled. Even for those theories that seek to go beyond power as capability, a better definition of power is necessary to support that research; relational power concepts require some underlying thing to relate. This need calls for further expansion of the definition of power. At one extreme, there is an almost infinite variety of data that could be analyzed and compared between nations, and there are scholars and analysts that focus on specific, detailed comparisons. That type of analysis has utility but is lacking in the ability to capture the entire picture of a comparison between two nations. The goal here is to identify enough variables to develop a broad understanding of the fundamentals of power and to support those fundamentals with additional data to create meaning while avoiding the burden of too much data to collect and organize effectively. There is an unmet need in the literature for a comprehensive yet concise model of nation-state power that can be utilized by scholars in the field.

A similar situation exists in the world of corporations. Most measures of corporate performance are too narrow, focusing only on one dimension of performance. The Balanced Scorecard was created to address that problem and has been a successful advance in the literature on business performance. The Balanced Scorecard identifies four

perspectives of a business: financial, customer, internal business processes, and learning and growth. By analogy, nation state power can be viewed as having four components as identified by a consensus in the literature: territory, military, political economy, and population. The alignment of corporate perspectives to nation-state power components is not exact, but the concept is useful at a theoretical level. Some parallels can be drawn and insights garnered. The importance of effective internal business processes to the success of a corporation aligns with the need for effective systems of political economy to allow for the creation of wealth in a nation-state. The importance of learning and growth in the business perspective aligns to the population component of a nation-state.

Further insights in the development of the Balanced Scorecard for business can be effectively applied to improving the model of nation-state power. The basic measures of the four components of power can be agreed to readily among scholars interested in a simple set of capabilities but are not broad enough to meet the demands of those seeking an expanded understanding of the concept of power. The addition of supporting measures as suggested by the Balanced Scorecard allows for a more comprehensive analysis of nation-state power.

### CHAPTER III

#### METHODOLOGY

Waltz's theory of structural realism or neorealism has been a focal point of international relations theory over the past three decades, much as Morgenthau's version of realism dominated the theoretical landscape from 1950 to 1975. Power is a key concept in realist theories of international politics, but Waltz notes that its proper definition remains a matter of controversy (Waltz, 1979). Scholars interested in conflict focus on military power. The importance of geography has its own body of research literature. Other disciplines exist to analyze power as economic wealth. Sociologists study the population component. Yet the power of a nation-state is a combination of all these components.

Although power is a defining characteristic of realist theory, its importance is not unique to realist theory; all theories of international relations incorporate power (Wendt, 1999). There is agreement among scholars that understanding the role of power in international relations is necessary and that the topic has not been satisfactorily addressed (Guzzini, 1998). Confusion exists because different scholars have examined alternative views of power, attempting to develop the concept in terms of relationships between actors and identifying "soft" non-quantifiable types of power.

However, power has been understood as an inventory of capabilities of states for more than two centuries. The power of individual states was conceived to be "susceptible of measurement by certain well defined factors" including population, territory, wealth, armies and navies (Gulick, 1955, p. 24). This approach developed into the work of Morgenthau and his elements of national power in *Politics Among Nations* (Morgenthau, 1946).

States were understood to be working to maximize their power relative to one another in a world characterized by a “balance of power” (Gulick, 1955; Morgenthau, 1946). Balance of power theory suggested that the various elements of national power could be summed up as capabilities.

One of the characteristics of Waltz’s structural theory of international politics is the distribution of capabilities. According to Baldwin (1980), Waltz’s theory requires the rank ordering of states according to their capabilities, and this is difficult if power capability is perceived as multidimensional, having more than one component. Baldwin is concerned that the constraints of Waltz’s theory make ranking states excessively difficult. “States are not placed in the top rank because they excel in one way or another. Their rank depends on how they score on all of the following items: size of population and territory, resource endowment, economic capability, military strength, political stability and competence” (Waltz, 1979, p. 131). Further, Baldwin is not convinced of the utility of such an effort, suggesting that it is unlikely that defense ministries of states expend effort estimating each other’s capabilities in general. “The idea that American policy-makers spend a lot of time calculating the capabilities of Canada or the United Kingdom in general, or in the abstract, seems rather far-fetched” (Baldwin, 1993, p. 183). Baldwin prefers a shift from a property concept of power to a relational view, which develops the idea of power as a type of causation. From this perspective, power is a relationship between actors rather than a property of any one of them (Baldwin, 1980). Baldwin further suggests that preoccupation with military power has led to the neglect of other forms of power, such as the “soft power” of Nye (2004a), which is characterized as being associated with intangible power

resources such as culture, ideology and institutions as distinguished from the hard command power associated with military and economic strength (Nye, 2004a).

Positioning this research in the literature, the effort to establish a broader, more comprehensive definition of nation-state power as a bundle of capabilities may appear dated if one is persuaded by Baldwin's concern. However, the old-fashioned notion of power as capabilities serves a need. There are scholars who will recognize the value of this research directly. This research will also have utility for those who are interested in exploring power in a relational sense. In the latter instance, there is still value in having a more comprehensive understanding of the underlying capabilities of a nation-state as a foundation to exploring the relations among nation-states. It has been suggested that the relational power approach is unable to account for structural power (Guzzini, 1993). Further, practitioners are unclear on how to address notions of "soft power". Joseph Nye reported that Secretary of Defense Rumsfeld professed not to understand the term when he questioned him (Nye, 2004). For the study of power, there is value in addressing both lines of thought in the development of a more comprehensive assessment of nation-state power. Using the request as Waltz and others have defined it, both relational and capability attributes can be addressed; there is not a need for mutual exclusivity. In deference to the scholars who favor the relational approach to power, a structural definition of power as a collection of capabilities is understood as potential power. This distinction between potential power and actual power is the inclusion of effort and will to use power (Cline, 1977). The inventory of capabilities can best be understood as the primary components from which actual power can be realized (Perry & Robertson, 2002, p. 125). A comprehensive nation-state power index combined those primary components with

additional supporting measures to derive a measure of actual power. The supporting measures addressed the concepts of institutions, culture and ideology that Nye is concerned with in his characterization of “soft power” (Nye, 2004a).

The advent of personal computing has enabled the literature to progress in this pursuit. Without desktop spreadsheet software, the effort to collect and manipulate multiple measures of power for all the nations of the world and combine them in various ways to test the outcomes would be cumbersome and time consuming. The process is still time consuming, but now the majority of the time can be spent on manipulating the data and analyzing the outcomes to gain insights rather than simply laboring to collect the data.

The importance of a useful definition of power as a set of capabilities has resulted in a number of attempts to define a broad version of power:

- “Population, territory, wealth, armies and navies” (Gulick, 1955, p. 24).
- “Size of population and territory, resource endowment, economic capability, military strength, political stability and competence” (Waltz, 1979, p. 131).
- “Population, territory, resources, levels of education and skills, gross national product, the scientific-technological base, exports and imports, foreign investment, military expenditures, size of armed forces, agricultural production, and food supply” (Sullivan, 1990, p. 103).

Three ranking models have been created to carry this concept forward into an operational realm:

- Perceived Power = Population + Territory + Economic Capability + Military Capability) X (Strategic Purpose + Will to Pursue National Strategy) (Cline, 1977).

- Potential Power = Population + Area + Aggregate Wealth (Perry & Robertson, 2002).
- Composite Indicator of National Capability (CINC) = Military Expenditure + Military Personnel + Energy Consumption + Iron and Steel Production + Urban Population + Total Population (Correlates of War Project, 1987).

Perry and Robertson (2002) are missing the military component of power in their formula, and CINC is focused primarily on military power. Cline's (1977) approach combines those but adds the subjective ideas of will and purpose as a multiplier to the four components. His research was a reflection of the Cold War period and the notions of strategic purpose and will were his approach to addressing the concerns and unknowns of U.S. – Soviet relations regarding the military arms race and the struggle between communism and capitalism.

By consensus of the experts in the literature then, a model of structural capabilities, or comprehensive power, of nation-states, should include four components: territory, population, economic capability, and military capability. Two of these components are inherent in the definition of the words country, nation, and state. These terms are used interchangeably in the popular press, but decisions about the logic of declaring basic components of a nation-state begin with understanding the definition of the unit that is being explained. The *Oxford English Dictionary* definitions of country, nation, state, and nation-state follow:

A country is defined as,

The territory or land of a nation; usually an independent state, or a region once independent and still distinct in race, language, institutions, or historical memories, as England, Scotland, and Ireland, in the United Kingdom. (n.d., entry 3)

A nation is defined as,

A people or group of peoples; a political state. A large aggregate of communities and individuals united by factors such as common descent, language, culture, history, or occupation of the same territory, so as to form a distinct people. Now also: such a people forming a political state; a political state. (In early use also in *pl.*: a country.) In early examples notions of race and common descent predominate. In later use notions of territory, political unity, and independence are more prominent, although some writers still make a pointed distinction between *nation* and *state* (n.d., entry 1.a.).

A state is defined as,

A particular form of polity or government. *the state*, the form of government and constitution established in a country (n.d., entry IV.28.a.).

Nation-state: An independent political state formed from a people who share a common national identity (historically, culturally, or ethnically); (more generally) any independent political state (n.d.).

From these definitions, it follows logically that territory and population are fundamental aspects of a nation-state and that including them as components is necessary. A comprehensive assessment of the power of a nation-state starts with the territory and the people, as essentially the raw materials of that sovereign entity. To be recognized as a

sovereign nation-state, effective control over territorial space and a population is required. Article I of the 1933 Montevideo Convention on the Rights and Duties of States identifies a defined territory, a permanent population, government and a capacity to enter into relations with other states as minimal criteria for statehood under international law (Shaw, 1997, p. 140).

The political and economic systems that are created determine the development of those raw materials, and are the most important determinant of the power of the nation-state. What has been most commonly viewed as the power element of a nation-state, its military strength, is a product of those other factors that can be purchased. The availability of materiel for conducting warfare, and maintaining armed personnel, require funding, and are therefore at least in part a function of economic power.

The next section addresses each of the four components of nation-state power in turn, and identifies the literature supporting its inclusion. Further, the basic measure of each component is identified, which is also agreed by consensus of the experts in the literature.

### Territory

The definitions of Nation, State, and Nation-State center on identification of a specific area of land and people. Territory is a basic component of a nation-state, and one source of its power. Much of the scholarship in international relations addresses issues of territory.

The essence of international relations has historically been the study of states within a spatial setting. Conflicts take place among or within the geographical boundaries of states. Wars have typically been waged over control of territory and resources.

Therefore, political geography, the relationship between geography and politics, has been of enduring importance from a theoretical, as well as a practical, perspective (Glassner, 1993). It has been suggested that, throughout history, conflict between political entities has been more often based on concrete territorial issues than on abstract political goals (Diehl & Goertz, 1988). In the late nineteenth and early twentieth century, a primary focus of international relations was on physical possession and control of territory (Murphy, 2001). The emphasis on geography and conflict has had two focal points for research: geography as a variable that is especially important in facilitating conflict, and the role of geography in itself as the source of conflict (Diehl, 1991). Each political community is set on a territory that is a unique combination of location, size, shape, climate, and natural resources. Thus, transactions among nations must entail significant, even crucial, geographical considerations (Sprout & Sprout, 1965). While there are other factors, such as issues of ideology, which have led to conflict between states, there is support in the literature for geographical territory to be one of the components of nation-state power in the model.

Territory is one of the components of the model of nation-state power that is developed in this research. The literature has addressed many of the attributes of geography in assessing territory, such as mountains, rivers, and access to the oceans, but the fundamental measure of Territory is size, as quantified by total area. These data are available from the United Nations for all nation-states and will be used in the model.

### Population

Similarly to the concept of territory, population is a fundamental aspect of the idea of a nation-state and inherent in the definition. Solow's neoclassical model is still the most

useful theory of growth (Mankiw, 1995). The Solow model begins with a production function in which output is a function of the quantity of capital and labor. Labor is provided by the people. Therefore, population is an important measure of wealth as the supply of labor to a nation-state (Solow, 1956). Population is one of the components of the model developed to measure nation-state power.

There are multiple factors of interest about people in the literature, addressing whether they are urban or rural, sickly or well, literate or not. But the fundamental measure of Population is size, as quantified by total population. These data are available from the United Nations for all nation-states and will be used in the model.

### Military

Inclusion of military power as a basic component of nation-state power is equally obvious. The study of international relations has had a primary focus on military force since its inception, according to many scholars (Baldwin, 1980; Sprout & Sprout, 1965; Waltz, 1979). Traditionally, international politics scholars assumed the existence of nation-states with conflicting policies that placed value on maintaining their independence and relied on military force (Baldwin, 1993). States with the most military power were designated as Great Powers (Sprout & Sprout, 1965). Military force is understood to be the ultimate form of power (Gilpin, 1981). The subject of international security studies is conceived of as the study of the threat, use, and control of military force (Walt, 1991). Even Soft power advocates identify military force as a focus of the study of power (Keohane & Nye, 1989).

The fundamental measure of Military power is size, as quantified by total military expenditures. Military expenditures for weaponry constitute a global market; it is not

appropriate to adjust them for purchasing power parity. While this is not as appealing as the outcome measures that represent the other three components, it is generally accepted and recognized in the literature as the most appropriate proxy for military might. These data are more difficult to collect for all nation-states. The United Nations is not yet successful in collecting the data, although collection of these data is an ongoing effort by the UN's Statistics Division. In 1980, the United Nations General Assembly adopted resolution 35/142 B, entitled "Reduction of Military Budgets," which introduced the UN system for standardized reporting of military expenditures. The resolution recommended that all member states make use of the reporting instrument and report annually to the Secretary-General, and requested the Secretary-General, in turn, to report on the matter to the General Assembly on an annual basis. The purpose of the UN Standardized Reporting Instrument for Military Expenditures is to contribute to a broad effort to develop a set of specific measures for the purpose of facilitating the reduction of military expenditures. Unfortunately, to date participation in the military expenditure instrument has been minimal, with only 30-35 countries submitting information during the 1990s. That number increased to 61 countries in 2001 out of the total 192 countries in the world. Therefore, a replacement for that data set was needed. The Stockholm International Peace Research Institute military expenditure project was initiated in 1967. The SIPRI database on military expenditure covers 173 countries and contains consistent data for the period since 1988. SIPRI is the only long-term, historically consistent series of military expenditure data with global coverage available today (Stockholm International Peace Research Institute, 2010).

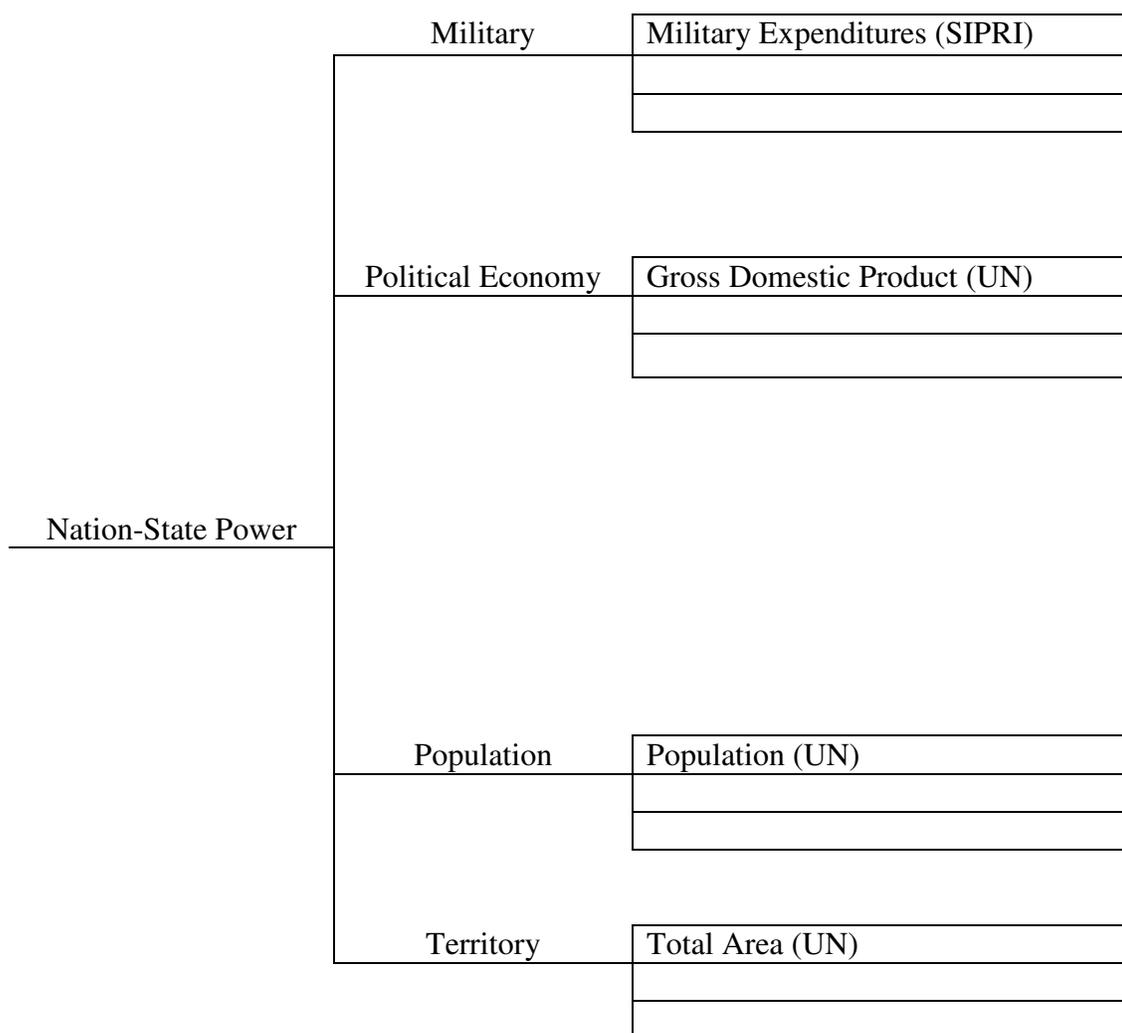
## Political Economy

Wealth of the nation is one component of the total power of a nation-state. Adam Smith (1776/1976) declared that the wealth of a nation is determined not by the amount of gold in the national treasury, the size of its navy and army, and even the success of some of its industries but by how many goods and services could be acquired by its entire population. The wealth of a nation is the standard of living enjoyed by the individuals residing in the country. The best performing economy is the one that provides the greatest amount of welfare for the greatest number of people.

Throughout the literature of power as capabilities, the concept of economic capability appears: Wealth (Gulick, 1955; Perry & Robertson, 2002), Economic capability (Cline, 1977; Waltz, 1979), Gross National Product (Sullivan, 1990). The basic measure for economic performance is Gross Domestic Product. This is the standard, compiled by nation-states' official statistical agencies in accordance with procedures developed by working groups under the United Nations, and data is collected and maintained for all nation-states by the United Nations. The absolute amount, rather than a per capita amount is used because the intent is to measure overall power at the national level. If a per capita approach was utilized, a very small state with a high income level would be misrepresented as being powerful instead of wealthy.

### The Four Components of Nation-State Power

The construction of the model of nation-state power began with the identification of these four components. Further, each component has a basic measure that has been identified. This is depicted visually in Figure 2.



*Figure 2.* Nation-State Power Components and Basic Measures.

#### The Balanced Scorecard Approach – Addition of Supporting Measures

Further development of the model was based upon advances from the balanced scorecard literature. The balanced scorecard literature reviewed in Chapter II provided a mechanism with which to enhance the model of nation-state power and make it more comprehensive. Add in the balanced scorecard concept of supporting indicators - improve the understanding of the four components by adding in supporting measures that

supplement the basic measure of each component (Kaplan & Norton, 1996a). The researcher developed a new power index combines the four components described by Cline (1977) and others and then added a comprehensive perspective by elaborating on each component in the manner of a balanced scorecard (Kaplan & Norton, 1996b). Rather than just one basic measure for each component, there was a basic measure and two supporting measures which served to add depth and nuance to the understanding of each component, ensuring that a single measure did not become monolithic. For example, the Territory component had a basic measure of total land area. This is useful information but can be enhanced by including other measures that provide additional insights into the value of the Territory component and its contribution to the power of a nation-state. The purpose of the balanced scorecard approach was to achieve a balance between being overwhelmed by too much data and not capturing enough information. These additional measures were meant to support the basic component measures, but were not meant to be an exhaustive list of all the variables that could be measured. In addition, the balanced scorecard literature suggests that supporting measures endeavor to be leading indicators rather than lagging indicators as most measures of performance are. For example, a lagging indicator for Population is total population. It is static, and identifies a singular statistic at a point in time, like total assets on the balance sheet of a corporation. Leading indicators can provide information as to the direction of performance, such as sales trends for a corporation, or literacy rates for Population. The result is a more comprehensive view of the subject, whether it is a business corporation's performance or an assessment of a nation-state's power. The concept of the balanced scorecard is to expand understanding of the subject

without claiming to be completely precise, because that would require a level of complexity that is unattainable.

#### Territory – Supporting Measures

Much of the literature of political geography discusses the value of resource endowments (Glassner, 1993). The value of the land, in addition to its inherent and strategic military value, is in the ability for it to create wealth. Two important wealth generation opportunities of the land that also have strategic value are agricultural production and for energy production. In “The Power and National Strategy,” Stephen Jones (1954) identified land as including two categories of resources; area, i.e., the size of the country, and mineral and biological resources elucidating what most people understand as a given. The supporting measures for the territory component assess the productivity of the land for two critical functions; the production of food and the production of energy.

These data are available from the United Nations, so a measure of the amount of agricultural land and a measure of energy production will serve as the two supplemental indicators for territory. Total agricultural land is a comprehensive and accurate representation of the nation-state’s total agricultural productivity. Total energy production is also the most comprehensive approach to a supporting measure for the territory rather than a limited measure of production of one fossil fuel.

There are other possible measures for territory that have been used in the literature, such as distance from the equator (Decker & Lim, 2008). Given the balance scorecard literature admonition to keep the total number of measures low, the researcher selected two measures that most directly address the basic measure specifically. Other measures have a

less direct connection to the value of the land and do not suffice for inclusion in a comprehensive index.

#### Population – Supporting Measures

The importance of education and human capital has been identified in studies of economic growth. Robert Lucas (1988) has specified education as the critical force that generates technological progress in an economy. His model shows that education and the creation of human capital are responsible for both the differences in labor productivity and the differences in overall levels of technology across nation-states (Lucas, 1988). Edward Denison (1985) also identified education as a major contributor to economic growth. Denison calculated that over one fourth of the average rate of increase in U.S. national output was due to improvements in the level of education of workers.

While GDP is the basic measure of the wealth of a nation-state, it does not necessarily capture the essence of the quality of life attained by the citizens of that nation-state. There is an opportunity with this model to supplement that basic measure with additional measures that do address quality of life issues. Human welfare is not just a function of the total of goods and services consumed. Given the incomplete relationship between welfare and the consumption of goods and services, growth economists use other measures to supplement GDP data in order to gain a clearer picture of human welfare.

The United Nations' Human Development Index (HDI) is based on per capita income, life expectancy, the literacy rate, and school enrollment rates (United Nations, 2009). This measure is widely used in the literature and brings credibility to the model. It also has the advantage of being comprehensive, with this one measure addressing three important aspects of the quality of the population.

Solow's neoclassical model of economic growth shows that long-run economic growth is possible only if there is technological progress that can overcome diminishing returns to capital and other producible factors (Solow, 1956). The number of Internet users in a nation-state is an important indicator both in terms of an assessment of technology and also a mechanism to access knowledge, leveraging and increasing human capital. The proportion of Internet users is measured by the UN, and was selected by the researcher as a measure because the one measure addresses both access to information as well as serving as a proxy for technological capability for a given nation-state. This measure would not be useful in attempting to recreate the model over history, as the technology it represents is current. Twenty years ago or more, two measures, one of phone lines and one of access to independent newspapers, would have been comparable. It is also possible that this measure will become obsolete over time as Internet access becomes ubiquitous. That time is far enough off that the measure will be used until some future researcher replaces it with a more current concept. It is expected that before that time comes, access to the Internet will be an important supporting measure of which nation-states provide and/or allow access to information to their populations.

One possible indicator of human development as a supplemental measure of power that is in the literature is the distribution of national income across the population. There is a measure available, the Gini Coefficient, which can provide data across nation-states. The lower the Gini Coefficient, the more equal the income distribution. Upon first consideration, such a measure has some intrinsic appeal, if one accepts the assumption that a more even distribution of income would result in increased economic growth. However, there is no agreement in the literature on what the "ideal" income distribution is. Neither

extreme is beneficial; extreme inequality in distribution and complete equality in distribution both provide negative incentives to growth. Further, the empirical evidence does not support a specific level that would indicate a contribution to economic growth, and therefore power. Deininger and Squire (1996) plotted the Gini Coefficient over time for regions of the world and found that the coefficient does not vary as countries develop. Forbes (2000) found that while on average, countries grow faster if their Gini coefficient is lower, over time individual countries that lower their Gini coefficients have slower growth rates.

Given the lack of a clear standard, and the inability to rank the existing data, the use of this measure as an indicator was determined not to be feasible. It remains an interesting and valuable tool for discussion and may serve users of the model with additional context when the power contribution of Population is calculated. For these reasons, a measure of poverty as an indicator was also not included in the model. Poverty is an extreme case of an unequal income distribution. An attempt to measure it therefore has the similar issues that using the Gini coefficient would have. Further, poverty is both an absolute and a relative term, and no common definition of poverty exists that is measured across all nation-states. The model as developed utilizes the UN Human Development Index to address the same fundamental concepts that a poverty or income distribution measure would address. Further, the model incorporates measures of political economy that address the systems in place that allow for wealth creation, providing adequate coverage of this concept.

## Political Economy – Supporting Measures

Economic growth depends on economic freedom. It requires that there be few restrictions on people's creativity; that government institutions, traditions, religions, and social pressures not suppress individual freedom, not discourage new ideas, and not deny people the rewards of their efforts (Sen, 1999). Hernando de Soto (2000) identified the establishment of firm and documented property rights as the decisive institutional change in Western Europe and North America that allowed for the surge in economic growth after 1800.

An index of economic freedoms from the Heritage Foundation addresses ten measures. The 10 measures are: government size as a percentage of GDP; corruption as examined by Transparency International's Corruption Perception Index; the ability to start, operate and close a business; tariff and non-tariff barriers to trade; the tax burden imposed by government; inflation and price controls; investment freedom; banking security; property rights; and, the regulatory framework of the labor market. (Heritage Foundation, 2010). The details of the 10 measures in the index are in Appendix A. This index of 10 practically oriented economic freedoms will be utilized as one of the supporting measures for the Political Economy component.

Political Freedom is a deeper, more personal concept than economic freedom. The ability to leverage human capital depends on the understanding of the primacy of the individual (Sen, 1999). Constraints upon individual thought and behavior that are limited and exist only to the extent necessary to maintain an orderly society create an environment for the enjoyment of life and development of wealth (Sen). The Freedom in the World survey provides an annual evaluation of the state of global freedom as experienced by

individuals. The survey measures the opportunity to act spontaneously in a variety of fields outside the control of the government and other centers of potential domination according to two categories: political rights and civil liberties. Political rights enable people to participate freely in the political process, including the right to vote freely for distinct alternatives in legitimate elections, compete for public office, join political parties and organizations, and elect representatives who have a decisive impact on public policies and are accountable to the electorate. 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 (Freedom House, 2010). The Freedom House index is well-known and has been maintained since 1972. It is based on a thorough set of questions conducted in an annual survey that address many of the issues discussed during the proposal defense such as religious freedom. The full survey questionnaire used by Freedom House is included as Appendix B. This index of political freedom will be used as the other supporting measure for the Political Economy component.

#### Military – Supporting Measures

One of the three existing models of nation-state power that was reviewed earlier is focused on the military aspect of power. The Composite Indicator of National Capability (CINC) of the Correlates of War project has two measures each in three categories; military, technology, and population. As described above, the model developed in this research has a separate component for population. The first measure in the military part of the CINC equation is military expenditures. The second measure is military personnel. The measures of technological development are energy consumption and iron and steel production (Vasquez, 1987).

This research will utilize the logic of the CINC measures for the military component. The model has as its basic measure military expenditures as described previously. As a supporting measure, the number of military personnel will be used. This is a measure in the CINC. The number of people available to serve in the armed forces is a fundamental aspect of military power. Throughout history, military technology has also been critical, so some measure of it is important. It is difficult to make an empirical case regarding the general technological capacity of the world's militaries, so a more specific measure – whether the nation-state has developed the capacity for nuclear weapons – is used as a proxy. This is an advancement of the CINC use of iron and steel production and reaches to a broader concept of technological capability. In addition, the capacity for nuclear weapons is a fundamental division of nation-states in terms of military power (Ramsey, 1963). Thus, the basic measure of total military expenditures can be enhanced by one supporting measure that addresses total manpower availability and another measure that addresses technology by identifying those nation-states that have developed a nuclear capability.

#### Twelve Measures of Nation-State Power

This is the first improvement that distinguishes the Comprehensive Nation-State Power Index from previous models that measure power as capabilities (Cline, 1977; Perry & Robertson, 2002). Figure 3 identifies a more comprehensive set of indicators that address a broader spectrum of nation-state capabilities.

Nation-State Power	Military	Military Expenditures (SIPRI)
		Military Manpower (US CIA)
		Military Technology (UN)
	Political Economy	Gross Domestic Product (UN)
		Political Freedom Index (Freedom House)
		Economic Freedom Index (Heritage Foundation)
	Population	Population (UN)
		Human Development Index (UN)
		Internet Users (UN)
	Territory	Total Area (UN)
		Agricultural Land (UN)
		Energy Production (UN)

*Figure 3.* The Comprehensive Nation-State Power Components and Measures.

## CHAPTER IV

### DATA ACQUISITION

The challenge of acquisition of the raw data for each of the measures for a comprehensive nation-state power index reaffirmed the realist perspective of international affairs. One of the fundamental principles of realism is that independent sovereign nation-states exist in a state of anarchy; therefore, there is no overarching organization with authority over them (Morgenthau, 1946). The search for comparable data across nation-states was made more difficult by this fact. For many measures that might be of interest, incomplete data exists across all the countries of the world.

The institution closest to having some kind of oversight is the UN. While the UN has very little authority or enforcement capability over nation-states, it does have a very active role in data collection across nation-states. The United Nations Statistics Division manages UN data ([www.unstats.un.org](http://www.unstats.un.org)). For this reason, and for the fact that it is the only organization independent of a nation-state, the researcher gave preference to UN data. Three of the four basic measures had data available from the UN – Area, Population, and Gross Domestic Product.

Several of the supporting measures were also data sets available from the UN. Agricultural land, energy production, and internet users are available from UN data. The UN Human Development Index is of course also a product of UN data. Two of the other measures were discussed above; the Freedom House Freedom in the World Survey and the Heritage Foundation Index of Economic Freedom are surveys that provide data not available from the UN. Of the two supporting measures for the military, one was a simple identification of which nations have nuclear weapons capability. The second, military

manpower, was not available from UN data or the Stockholm International Peace Research Institute; the United States' CIA World Factbook is the only published source for that information.

The United Nations has a membership of 192 countries of the world. Two nonmember states are Palestine and the Holy See. Twenty-one nations represented are very small, with populations below 250,000. Data on these small nations was not available from UN data or the independent indices for many of the supporting measures. These 21 countries are spread throughout the world and only account for 0.017% of the world's population and 0.028% of the world's territory.

Vanuatu	Tonga	Saint Kitts and Nevis
Samoa	Kiribati	Liechtenstein
Saint Lucia	Seychelles	Monaco
Sao Tome and Principe	Antigua and Barbuda	San Marino
Saint Vincent and the Grenadines	Andorra	Palau
Federated States of Micronesia	Dominica	Tuvalu
Grenada	Marshall Islands	Nauru (UN data only)

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*Figure 4.* List of United Nation Member Countries with Populations below 250,000.

These 21 countries are not included in this effort. Since data exists for Palestine, it was included even though it is not an official member of the United Nations.

### Converting Raw Data into Comparable Units

Before a ranking model could be built that utilized twelve criteria that contained data using different units, conversion of the raw data into comparable units had to be accomplished. A technical problem existed in building a comprehensive model. The 12 criteria were measured in different units. In their raw form, the data could not be combined in a meaningful inferential sense. Before creating a multivariable index, the data was converted to a common scale. For a ranking model, each of the variables had a highest score that had been achieved by one of the finite number of subjects. This was a normative approach. The raw data was normalized by assessing a value of 100% to the highest score. The next step of the process was to convert the raw data into comparable numerical values. For each of the 12 criteria, the highest raw score was identified and assessed a value of 100. Every other raw score in that criterion was converted to a percentage of the highest raw score.

The basic measures raw data were simple statistics easily converted to scaled scores, the nation-state with the most people, highest dollar values, or most land, respectively, was assessed a score of 100 and all other nation-states' scores were a percentage of that value.

Conversion of Basic Measure of Population: China has the largest population, 1,329 million people, so it was assessed a score of 100 for this measure. The U.S. population of 305 million results in a scaled score of 23.0, India's population of 1,169 million resulted in a scaled score of 88.0, Venezuela's population of 28 million resulted in a scaled score of 2.1, and Greece's population of 11 million resulted in a scaled score of 0.8. All other nation-states were scored in a like manner.

Conversion of Basic Measure of Military Expenditures: The U.S. had the highest level of military spending, at \$549 billion. It was assessed a score of 100. Canada's spending of \$16 billion resulted in a scaled score of 2.9. France's spending of \$53 billion resulted in a scaled score of 9.6. China's spending of \$64 billion resulted in a scaled score of 11.6.

Conversion of Basic Measure of GDP: The U.S. had the highest level of GDP, at \$13,776 billion, so it was assessed a score of 100. Mexico's GDP of \$ 893 billion resulted in a scaled score of 6.5. The United Kingdom's GDP of \$2,768 billion resulted in a scaled score of 20.1. India's GDP of \$1,141 resulted in a scaled score of 8.3.

Conversion of Basic Measure of Territory: Russia was the largest nation-state in area, with 17,098 thousand square kilometers, so it was assessed a score of 100. Brazil's area of 8,515 thousand square kilometers resulted in a scaled score of 49.8. Germany's area of 357 thousand square kilometers resulted in a scaled score of 2.1. China's area of 9,597 thousand square kilometers resulted in a scaled score of 56.1. The U.S.' area of 9,629 thousand square kilometers resulted in a scaled score of 56.3.

The conversion of supporting measure of military personnel, energy production, and agricultural land were done in the same manner.

Two of the supporting measures were indices; the Human Development Index and the Economic Freedom Index. Those were converted in the same manner, which increased the highest ratio to 100 and adjusted the other scores accordingly.

The Freedom House scored each nation on a 1- 7 scale, with 1 the best and 7 the worst. Those scores were converted mathematically by converting a score of 1 to equal 100 and a score of 7 to equal 0. As a result, 2 = 83.3, 3 = 66.7, 4 = 50, 5 = 33.3, and 6 = 16.7.

As a result, the U.S., Australia, Chile, and others were assessed a score of 100. Turkey was assessed a score of 66.6 and Turkmenistan was assessed a score of 0.

The score for nuclear capability was derived by assessing the United States and Russia each a score of 100. The other nuclear powers, China, the UK, France, India, Pakistan, and Israel each were assessed a score of 50. The twelve criteria were listed in table form (an Excel spreadsheet) to facilitate the next step, which was to apply a relative weight to each criterion.

#### Building a Ranking Model Based upon the Four Components

The methodology for ranking nation-states relative to their power required the development of a scoring system that assigned a numerical score to each nation-state. This score represented the nation-state's power and allowed each nation-state to be ranked relative to all other nation-states. This decision analytic methodology is known as multiple criteria decision making theory (von Winterfeldt & Edwards, 1986).

Research in multiple criteria decision making theory suggests that all variables do not impact an outcome equally (von Winterfeldt & Edwards, 1986). Therefore, a mechanism was required that enabled the researcher to account for the variance of influence among the variables. Assigning weights to each variable, reflecting the relative influence of each variable on the outcome of interest, is the method to accomplish this (Keeney & Raiffa, 1996).

The adoption of the multi-criteria decision-making process is a second important improvement that distinguishes the Comprehensive Nation-State Power Index from previous models to measure power as capabilities. Applying different weights to each

measure has not been done before; previous models gave equal weight to each item being measured.

The technique used to assign weights to each variable is known as analytic hierarchy process (Saaty, 2001). The analytic hierarchy process has been used for a variety of decision problems including public policy (Keeney, von Winterfeldt, & Eppel, 1990), and resources management (Hobbs & Meier, 2000). The process is an importance-ratio assessment procedure that uses a hierarchy to establish preferences and ordering. Weights are identified on the basis of the effect each variable has on the outcome through sensitivity analysis methodology. The analytic hierarchy process provides a comprehensive framework for solving complex problems characterized by many variables. This method allows for organization of the basic rationale of the ranking process by breaking down a complex problem into smaller constituent parts permitting pair-wise comparison judgments to develop priorities in a hierarchy. The researcher used this approach to develop the recommended weighting of each measure.

The Comprehensive Nation-State Power Index (CNSPI) was developed by the researcher using numerical estimation as part of the analytic hierarchy process. Numerical estimation techniques characterize the importance of a variable relative to other variables in the outcome of interest. In this model, the importance of a variable on power of a nation-state is the outcome of interest. The numerical estimation technique used was direct ranking/rating (Edwards, Miles, & von Winterfeldt, 2007). In direct ranking users directly assign an ordinal rank to variables with respect to their relative importance.

The Comprehensive Nation-state Power Index has twelve criteria – four components with three measures each. Three of the supporting measures are indices

themselves consisting of multiple variables. This is advantageous to the purpose of the Comprehensive Nation-State Power Index, as it allows for increased coverage of supplemental measures making the index allowing it to be more comprehensive. Further, data collection challenges are resolved, which allows for the index to be repeated annually and for future research to investigate prior years. These supporting indices were developed by groups of experts involved in institution-building, so they have been constructed by experts over time. Similarly, the five remaining supporting measures benefit from the attention of researchers focused in those areas.

Multi-Criteria Decision-Making theory suggests that equal weighting –either at the level of the twelve criteria or at the level of four components – is not appropriate as it fails to take into consideration the underlying differences in importance levels of various criteria.

Therefore, the underlying theoretical tenet is that all variables do not equally influence nation-state power. An importance distribution of power can be determined which will illustrate the different impact of each variable. The comprehensive nation-state power index incorporates this importance distribution, adjusting the impact of each variable based on the researcher's valuation after undertaking a sensitivity analysis. Therefore, the CNSPI is based on multi criteria decision making theory. This theory describes the method for the development of value modeling. Value modeling identifies value functions, which have also been referred to as worth functions, ordinal utility functions, preference functions and utility functions. In value modeling experts are asked for personal insights which are used to create weights, which describe the importance distribution of the model variables (Keeney & Raiffa, 1996).

One approach to generating the weights for these twelve measures would be to employ a group of experts to reach consensus in a panel study (Kumar, 2005). This possibility can be pursued in future research. The present approach uses the experience and judgment of the researcher and his committee coupled with the logic of the structure of the measures into four components each with one basic and two supporting measures and goes through an iterative process to glean deeper understanding of the variance components. In this manner, the researcher is utilizing sensitivity analysis to demonstrate the level of variation and ascertain the right balance of weighting for the measures. This model, like most models, is dynamic, and therefore can be adjusted in the future by the author or other researchers as new and improve means of measure and data reliability occur.

Despite the multi-criteria decision-making theory, previous work in power analysis has given equal weight to whatever measures were incorporated into the formulaic approach (Cline, 1977; Perry & Robertson, 2002). In this sensitivity analysis, the researcher started with an examination of each basic measure by itself. Then, the first stage of combination of the measures used the four basic measures, one for each component, at equal weight of 25% each. Then, the supporting measures were added, keeping each component at 25% but diluting the weight of the basic measure to 15% and setting the weight for each supporting measure at five percent in a systematic approach. The use of logic was the only adjustment to equalized weighting. Each component was still weighted at 25%, and the basic measure was weighted more than the two supporting measures combined for each component to ensure that the basic measure is not eclipsed by the supporting measure(s). There were two layers of sensitivity analysis; one level of sensitivity was evaluated by reducing the weight of the basic measures and increasing the

weight of the supporting measures, while the more substantive change was to alter the weighting of all measures allowing the total for each component to be different. In the first layer, the researcher moved the model from four components weighted equally and each component having only one measure to four components weighted equally but including supporting measures as well as a basic measure. In the second layer of analysis, the researcher altered the weights of all the measures without regard to the resulting weight at the component level.

That level of sensitivity was evaluated by allowing the weighting at the component level to vary. For example, the dominance of the United States in the military expenditure ranking may have the effect of overwhelming the other components. Given that the Perry and Robertson (2002) model for potential power excludes a military component; the researcher evaluated the model weighting the other three components at 33.3 % each. Next, the results were at 30%/30%/30%/10%, adding the military component back in but at a lower level. By setting the model up in a spreadsheet application, scenario adjustments were made and the influence of the weighting changes on the ranking outcome evaluated quickly.

The researcher decided to weight the four components unequally because the literature confirms that a systems approach that leverages the fundamental assets of the nation-state is the most important factor in determining nation-state power. This dissertation addressed the issue presented in the literature (Baldwin, 1980; Waltz, 1979) that a focus on power understood in military terms was unacceptably limited and limiting; therefore, that component was reduced from an equal 25% share to 15%. Baldwin (1980) suggests that the importance of military force has been exaggerated. This weighting still

allowed the military component to impact the overall score while reducing its impact; a zero weighting would eliminate it as a component. Similarly, while territory was important enough to be one of the four components, it was not as important as people in determining the power of a nation-state because the land has limited value until people do something with it and the power of land as the only variable is changing with technology advances. The power of a nation-state today is in its people, so the measures of how well the people of a nation-state are prepared for value-added activities as an indicator of economic health in the world, and the measures of how well the systems of the nation-states political economy allow for the people to create wealth are the more important measures. The literature reminds us that the preoccupation with military force has led to the neglect of non-military forms of power such as economic (Baldwin, 1980). In the researcher's recommended weighting, these two components received 35% weighting each. Fifteen percent for territory was 10 for area, two for agriculture, and three for energy. Fifteen percent for military was 10 for military expenditures, three for personnel, and two for nuclear capability. Thirty-five percent for people was 15 for population, 10 for UN Human Development Index, and 10 for Internet users. Thirty-five percent for political economy was 15 for Gross Domestic Product, 10 for Freedom House Index of political freedoms, and 10 for Heritage Foundation Index of economic freedom. Higher weight on the Political Economy indicators was justified by the literature. Prior to the writings of Smith (1776/1976), a nation's welfare had almost always been viewed in terms of the strength of a nation's military might, the growth of certain sectors of its economy, or the size of its population or territory. Some still associate a nation's military might or its visibility in international politics with "wealth." The fallacy of such a view is illustrated by a few cases

of militarily strong places that cannot satisfy their citizens' basic needs, such as North Korea. Another misguided concept of national wealth is the availability of natural resources. If the presence of oil or fertile soil were important determinants of economic growth and human welfare, then resource-rich countries should be wealthy but many of them have the lowest per capita incomes in the world. While these components and indicators are still valid, they should have less weight in a measure of nation-state power.

National Wealth is one component of Power – and the most important one. With wealth, a nation can purchase the military and national resource components of power. Of the four components of power identified in the literature, military power, which has held a privileged place in the study of international politics (Baldwin, 1980), is actually the narrowest and has limited utility. Further, resources of the land mean little until they are used to produce goods and services that allow people to live longer and have more options and opportunities. The most important resources are the ideas generated by the human mind, not the minerals found in the ground. The supporting indicators in this component focus on the development of the necessary institutions to allow for the creation of wealth by unleashing the people and the land of the nation-state.

Figures 4, 5, and 6 demonstrate the changes in weighting in a visual form.

100% Nation-State Power	25% Military	25% Military Expenditures (SIPRI)
		0% Military Manpower (US CIA)
		0% Military Technology (UN)
	25% Political Economy	25% Gross Domestic Product (UN)
		0% Political Freedom Index (Freedom House)
		0% Economic Freedom Index (Heritage Foundation)
	25% Population	25% Population (UN)
		0% Human Development Index (UN)
		0% Internet Users (UN)
	25% Territory	25% Total Area (UN)
		0% Agricultural Land (UN)
		0% Energy Production (UN)

Figure 4. The Comprehensive Nation-State Power Value Tree – First Scenario – Equal Weighting of Four Basic Measures

100% Nation-State Power	25% Military	10% Military Expenditures (SIPRI)
		7.5% Military Manpower (US CIA)
		7.5% Military Technology (UN)
	25% Political Economy	10% Gross Domestic Product (UN)
		7.5% Political Freedom Index (Freedom House)
		7.5% Economic Freedom Index (Heritage Foundation)
	25% Population	10% Population (UN)
		7.5% Human Development Index (UN)
		7.5% Internet Users (UN)
	25% Territory	10% Total Area (UN)
		7.5% Agricultural Land (UN)
		7.5% Energy Production (UN)

*Figure 5.* The Comprehensive Nation-State Power Value Tree – Second Scenario- Adding in Supporting Measures – Retaining Equal Weighting of Four Components.

100% Nation-State Power	15% Military	10% Military Expenditures (SIPRI)
		3% Military Manpower (US CIA)
		2% Military Technology (UN)
	35% Political Economy	15% Gross Domestic Product (UN)
		10% Political Freedom Index (Freedom House)
		10% Economic Freedom Index (Heritage Foundation)
	35% Population	15% Population (UN)
		10% Human Development Index (UN)
		10% Internet Users (UN)
	15% Territory	10% Total Area (UN)
		2% Agricultural Land (UN)
		3% Energy Production (UN)

Figure 6. The Comprehensive Nation-State Power Value Tree – Third Scenario- Unequal Weighting Based on Researcher Assessment of Importance.

## CHAPTER V

## ANALYSIS

At the end of the previous chapter, a series of figures demonstrated the analytical thought process that was followed in deriving a recommended weight for each of the 12 measures that constitute the Comprehensive Nation-State Power Index. The model was built in steps to analyze the various components individually before combining them. In this manner there is value in the transparency of building the model; other scholars or groups of scholars can “weigh in” with their own assessment of the relative importance of each criteria and observe the affect those choices have on the ranking output. Before examining the result of Figure 4, which provides a weight of 25% to each of the four basic measures, the researcher examined the basic measure of each of the four components alone – in essence, awarding each measure a 100% weight.

In the body of this dissertation, only the top scoring countries are listed. The full data set for each permutation of the index is included in Appendix D.

The basic measure of the Military component, Military Expenditures, showed a significant dominance by the United States (see Table 1).

Table 1

*Military Expenditures Measure by Country*

Country	Military Score Measure
United States	100
China	11.6
United Kingdom	10.5

Table 1 (continued).

Country	Military Score Measure
France	9.6
Japan	7.8
Russian Federation	7.0
Germany	6.8
Saudi Arabia	6.0
Italy	5.9
India	4.5

This a commonly known part of the relations between nations since the end of the Cold War; the United States spent almost as much on military as the rest of the world combined. When converted to 0-100 scale, the U.S. scored 100 and all other militaries scored in the single digits except China and the UK. In this basic measure of the military component of power, the U.S. was in a league of its own.

The U.S. was also dominant in the basic measure of the Political Economy component, Gross Domestic Product (see Table 2).

Table 2

*Gross Domestic Product Measure by Country*


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Country	Gross Domestic Product Measure
United States	100.0
Japan	31.8
China	24.7
Germany	24.1
United Kingdom	20.1
France	18.5
Italy	15.2
Spain	10.4
Canada	10.3
Brazil	9.5
Russian Federation	9.4
India	8.3

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In the basic measure of Political Economy, the U.S. also held a dominant position, though somewhat less overwhelming than in the Military component. Eight other countries scored above a 10, with Japan's economy about a third the size of the U.S. and China and Germany about a quarter the size.

China and India were in a league of their own in the Population measure (see Table 3).

Table 3

*Population Measure by Country*

Country	Population
China	100.0
India	88.0
United States	23.0
Indonesia	17.4
Brazil	14.4
Pakistan	12.3
Bangladesh	11.9
Nigeria	11.1
Russian Federation	10.7
Japan	9.6
Mexico	8.0

China received the score of 100, while India received the second largest scoring of 88.

Even though the U.S. had less than one quarter the population of China, it ranked third in this measure. Only nine countries scored above single digits.

Russia dominated the Territory component's basic measure of total area in square kilometers (see Table 4).

Table 4

*Territory Measure by Country*


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Country	Territory Measure by Country
Russian Federation	100.0
Canada	58.4
United States	56.3
China	56.1
Brazil	49.8
Australia	45.1
India	19.2
Argentina	16.3
Kazakhstan	15.9
Sudan	14.7

---

The U.S. dominated in two of the basic measures, military spending and GDP, and ranked third in the other two measures, population and area of country. China was first in population, and ranked second, third, and fourth in the other basic measures. The only other countries to reach the top ten in all four basic measures were Russia and India. Canada, Brazil, Japan, Germany, and the United Kingdom all scored highly in two of the categories, but all had at least one category in which they were relatively weak.

Those four measures were combined giving each an equal weight as demonstrated in Figure 4. This process rendered diverse and incommensurable data comparable, so that a

more comprehensive view of power came into view. At this stage, this was a model of nation-state power with equal weight for the basic measure for each of the four components and was similar to previous models (Cline, 1977; Perry & Robertson, 2002).

Since the U.S. dominated two of the four basic measures and placed third in the remaining two, it was not surprising that it ranked first in a combined ranking that averages the four measures (see Table 5). This table corresponds to Figure 4:

Table 5

*Average of All Four Measures by Country*

Country	Average
United States	69.8
China	48.1
Russian Federation	31.8
India	30.0
Brazil	19.1
Canada	18.5
Australia	14.1
Japan	12.9
Germany	9.8
United Kingdom	9.1
France	9.0
Indonesia	8.1

This resulted in the U.S. placing as the most powerful nation-state in the world, significantly ahead of China in second place. Russia and India were closely ranked in third and fourth significantly behind China. The United States ranked first in two of the basic measures and third in the other two. China ranked first, second, third, and fourth. Russia ranked first, sixth, ninth, and eleventh, and India ranked second, seventh, tenth, and twelfth. No other country demonstrated such levels of strength across diversified power measurements.

Adding the supporting measures into the model while weighting each component equally was done to provide clarification of how the model functioned. This diluted the basic measure from 25% weight each to 10% each while each of the two supporting measures were assessed 7.5%. With this step, all twelve measures were incorporated into the model, as identified in Figure 5.

While the order was similar, adding in the secondary measures resulted in 76 nation-states scoring a 20 or higher compared to four in the basic-measures-only scenario (see Table 6).

Table 6

*Average by Country with Secondary Measures Added*

Country	Average
United States	77.5
China	59.5
Russian Federation	46.3

Table 6 (continued).

Country	Average
India	43.1
Australia	40.8
Canada	39.2
United Kingdom	36.7
Brazil	34.2
France	34.0
Japan	33.1
Germany	31.4
Netherlands	30.4

There was still more than a 10-point gap between first and second and second and third, but subsequent rankings became much closer. Adding in the supporting measures had the effect of smoothing the distribution of scores, as the supporting measures that were indices measuring political freedom, economic freedom, and human development were not based on an absolute scale.

Finally, the weighting of the 12 criteria was adjusted to the researcher's recommended weighting identified in Figure 6. The model was built to allow for application of individual analyst's judgment, using knowledge of the multiple disciplines involved. The researcher's recommended weighting plan placed more weight on the political economy and population components; fifteen percent each for the basic measures

of GDP and population, and 10% each for the Freedom House Index, the Heritage Foundation Economic Index, the United Nations Human Development Index, and Internet Usage. The two other components were allocated 10% each for the basic measure and a total of five percent for the two secondary measures in each component. This resulted in data that corresponded to Figure 6 (see Table 7).

Table 7

*Average by Country with Adjusted Weighting*

Country	Average
United States	77.9
China	51.1
Canada	46.8
Australia	43.7
Japan	42.6
United Kingdom	42.6
India	42.4
Netherlands	40.2
Germany	39.4
France	38.7
Russian Federation	38.5
New Zealand	38.4
Norway	38.1

Table 7 (continued).

Country	Average
Sweden	37.4
Brazil	36.7
Luxembourg	36.7
Denmark	36.6
Finland	36.5
Republic of Korea (South)	36.5
Switzerland	36.4

Through a sensitivity analysis of a variety of approaches to weighting the measures, a consistent outcome evolves. The various scenarios all demonstrated that the dominant world power was the United States, and that no other country approached the U.S. level of power. Calculating the ranking with the researcher's recommended weighting yielded a score of 77.9 out of a possible 100, 26.8 points ahead of second place China. China was four points ahead of the third place country, Canada. The U.S. had a high ranking on all measures and was shown to be in a league of its own in this ranking model. China was a distant second and managed to have a high combined score despite lower scores on freedom for its people. Six countries scored in the 40s, and 38 countries scored in the 30s. Just a few countries stood apart from the remainder. At the bottom end of the scale were eight countries that did not score above 10: North Korea, Somalia, Iraq, Zimbabwe, Afghanistan, Myanmar, Congo, and Sudan. These countries all qualified for the title of

“Failed State”. These results were similar to the results from the Index of State Weakness in the Developing World, which identified Somalia, Afghanistan, Congo, Iraq, Burundi, Sudan, Central African Republic, and Zimbabwe as the bottom eight. The two indices diverged, however, as Russia, India, and China were ranked sixty-fifth, sixty-seventh, and seventy-fourth of the weakest nations, respectively. This reflected that the State Weakness Index was limited to governance issues and did not account for other attributes of power.

#### Comparison of Two Models

The literature of the balanced scorecard induced the researcher to go beyond prior efforts at measuring nation-state power by adding two supporting measures to the basic measure for each of the four components. Further, the literature of multi-criteria decision-making theory suggested that equal weighting is a crude approach to the ranking process. These two refinements changed the ranking model as seen in Table 8.

Table 8

#### *Comparison of Averages of Balanced Scorecard vs. Refined Measure*

Country	Four Measures	Adjusted Weighting
United States	69.8	77.9
China	48.1	51.1
Canada	18.5	46.8
Australia	14.1	43.7
Japan	12.9	42.6
United Kingdom	9.1	42.6

Table 8 (continued).

Country	Four Measures	Adjusted Weighting
India	30.0	42.4
Netherlands	----	40.2
Germany	9.8	39.4
France	9.0	38.7
Russian Federation	31.8	38.5
New Zealand	----	38.4
Norway	----	38.1
Sweden	----	37.4
Brazil	19.1	36.7
Luxembourg	----	36.7
Denmark	----	36.6
Finland	----	36.5
Republic of Korea (South)	----	36.5
Switzerland	----	36.4
Iceland	----	36.1
Italy	6.8	35.9
Spain	4.9	35.6
Estonia	----	34.3
Belgium	----	34.3

Table 8 (continued).

Country	Four Measures	Adjusted Weighting
Indonesia	8.1	----
Mexico	6.7	----
Saudi Arabia	5.8	----
Argentina	5.4	----
Pakistan	4.7	----
Democratic Republic of the Congo	4.6	----
Iran (Islamic Republic of)	4.6	----
Algeria	4.5	----
Sudan	4.5	----
Nigeria	4.5	----
Kazakhstan	4.5	----
Turkey	4.0	----

The four basic measures rewarded scale, most notably physically large countries with large populations. Even with a low per capita GDP, countries with huge populations could generate enough economic activity to score on the political economy measure as well. One country, the U.S., overwhelmingly dominated the military measure.

The United States, with a score of 69.8, dominated the ranking, while a second country, China, was distinctly in second place with a score of 48.1 points. There was a marked gap between first and second and third and fourth places as Russia and India

ranked closely together in third and fourth place. Four other countries scored above a 10; Brazil, Canada, Australia, and Japan. Of these eight countries, seven were ranked first through seventh in territorial size; only Japan made the top eight without that scale.

Four of the 10 most populous countries, Indonesia, Pakistan, Bangladesh, and Nigeria, did not make the list despite their large populations. Conversely, Canada and Australia made the top eight despite their small populations. The major European countries were notably absent from the top eight.

When the supporting measures, which were designed to inform and expand upon the concepts of the four components of power, were added and the weighting was changed to reduce the influence of the Military and Territory components, a different ranking emerged. However, the top two countries, the United States and China, remain the same, as does the existence of a substantial gap between them. The additional weighting on the measures of political and economic systems and the development of human capital, proposed as leading indicators for sustainability of power, had the effect of bringing up the scores of so-called developed countries.

Russia fell from third to eleventh, India fell from fourth to seventh, and Brazil dropped from fifth to fifteenth. European countries and New Zealand became visible in the rankings.

#### Additional Sensitivity Analysis

In order to better understand the results of the comprehensive index, a series of views of the data were performed that removed each component from the index separately (see Figures 7 through 10 and Tables 9 through 12). In these scenarios, the total index value remained equal to 100% by allocating the weight reduced from one component

across the three other components. Creating alternative scenarios was an exercise without limits; a value of the model is that an individual researcher can adjust any of the 12 criteria from zero to one hundred percent and create a new scenario. The purpose of these iterations was not to suggest that these scenarios had particular merit; rather, it was to assess the importance of each component by examining what happens to the ranking when that component is not in the mix. In this manner, the researcher was attempting to determine whether the model has explanatory power within and across issue areas. A discussion of the impact of the removal of each component follows the mathematical calculations.

100% Nation-State Power	0% Military	0% Military Expenditures (SIPRI)
		0% Military Manpower (US CIA)
		0% Military Technology (UN)
	40% Political Economy	18% Gross Domestic Product (UN)
		11% Political Freedom Index (Freedom House)
		11% Economic Freedom Index (Heritage Foundation)
	40% Population	18% Population (UN)
		11% Human Development Index (UN)
		11% Internet Users (UN)
	20% Territory	13% Total Area (UN)
		3% Agricultural Land (UN)
		4% Energy Production (UN)

*Figure 7.* The Comprehensive Nation-State Power Value Tree – Elimination of the Military Component from the Recommended Mix.

One might expect that the overwhelming military expenditures of the U.S. would skew the results of the Power Index and be the primary cause of the high score it received in the rankings. In the researcher's recommended weighting, the Military component was given a lower weighting of 15%, and the United States still ranks first. Further, the result of eliminating the Military component entirely showed the U.S. remaining the dominant power without consideration of its number one ranking in that area. The United States'

score dropped 1.7 points and China's score increased 3.9 points, narrowing the gap from first to second from 26.8 points to 21.2 points. This still represented a dramatic and significant difference in power between the two places, far greater than in any other part of the rankings. Other than the absence of impact on the U.S. ranking, it was not surprising that the rest of the ranking list changed very little, as few other countries had a significant enough military score. Of the strongest countries, France was reduced, from tenth to fifteenth, not including its fourth place ranking in the Military component, and Russia dropped one position from eleventh to twelfth.

Table 9

*Score by Country with the Military Component Removed*


---

Country	Score
United States	76.2
China	55.0
Canada	52.7
Australia	49.5
Japan	46.3
United Kingdom	44.9
India	44.6
Netherlands	44.1
Germany	42.9
New Zealand	42.3

---

Table 9 (continued).

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Country	Score
Russian Federation	42.1
Norway	42.0

---

Based upon the literature, it is important to include a Military component in the definition of state power, but it was surprising to note that its exclusion would not significantly alter the rankings. The U.S. has invested huge sums of money to dominate this component of power; this sensitivity analysis of the model suggested that a substantial reduction in military spending by the U.S. would not adversely affect its top ranking in the Nation-State Power Index. As the U.S. spends almost as much as the rest of the world combined, and nearly 10 times the amount China spends, such a reduction could be enormous without affecting this ranking model. This is a significant finding of analyzing the model and is worthy of further investigation. The implications for the U.S. approach to foreign policy and its domestic fiscal orientation are grand. This finding suggests the possibility of a fundamental reorientation of international relations in the world today, and gives additional credence to the advocates of “soft” power. The outcome of analyzing this model may well have the effect of changing this researcher’s agenda for his career.

100% Nation-State Power	27% Military	20% Military Expenditures (SIPRI)
		4% Military Manpower (US CIA)
		3% Military Technology (UN)
	0% Political Economy	0% Gross Domestic Product (UN)
		0% Political Freedom Index (Freedom House)
		0% Economic Freedom Index (Heritage Foundation)
	46% Population	20% Population (UN)
		13% Human Development Index (UN)
		13% Internet Users (UN)
	27% Territory	20% Total Area (UN)
		3% Agricultural Land (UN)
		4% Energy Production (UN)

*Figure 8.* The Comprehensive Nation-State Power Value Tree – Elimination of the Political Economy Component from the Recommended Mix.

The result of eliminating the Political Economy component keeps the U.S. in first place in the rankings, with China a closer second place. Russia and India move up in the rankings to third and fourth (in a tie with Canada).

Table 10

*Score by Country with the Political Economy Component Removed*

Country	Score
United States	68.5
China	58.6
Russian Federation	45.6
India	38.2
Canada	38.2
Australia	33.8
Brazil	30.5

Similarly to the findings of the sensitivity analysis on the Military component, it was surprising that removing a component that is dominated by the U.S., its economic might, did not alter its first place ranking. The U.S. score dropped from 77.9 to 68.5, down 9.4 points, and China's score increased from 51.1 to 58.6, up 7.5 points. This closed the dramatic gap from 26.8 points to 9.9 points, but the rankings still showed a clear separation, with the U.S. first, China second, and Russia third. Russia moved up to a distinct third place ranking from eleventh place, suggesting that its political and economic systems are holding it back. Similarly, Brazil moved up from fifteenth to seventh when the Political Economy component was removed. Japan dropped from fifth place to ninth place; despite a "lost decade" or two, Japan is still the second largest economy in the world, and removing this component adversely affected its score.

100% Nation-State Power	27% Military	20% Military Expenditures (SIPRI)
		4% Military Manpower (US CIA)
		3% Military Technology (UN)
	46% Political Economy	20% Gross Domestic Product (UN)
		13% Political Freedom Index (Freedom House)
		13% Economic Freedom Index (Heritage Foundation)
	0% Population	0% Population (UN)
		0% Human Development Index (UN)
		0% Internet Users (UN)
	27% Territory	20% Total Area (UN)
		3% Agricultural Land (UN)
		4% Energy Production (UN)

*Figure 9.* The Comprehensive Nation-State Power Value Tree – Elimination of the Population Component from the Recommended Mix.

Elimination of the Population component dropped China's and India's scores. In this scenario, China dropped from second to fourth in the ranking, and India dropped from seventh to ninth. To the researcher, the lack of a more dramatic decline for these two countries was surprising, suggesting that the rankings demonstrated a more robust power

structure for both countries. Without the diminishing effect of comparing its population to China and India, the U.S. score increased and demonstrated its dominance in the rankings under any combination. Russia and Canada, ranked second and third when Population was not considered, was not surprising. They are similarly situated with huge land masses in inhospitable climates, which have limited their population growth.

Table 11

*Score by Country with the Population Component Removed*


---

Country	Score
United States	86.0
Russian Federation	42.2
Canada	40.9
China	40.0
Australia	39.5
Brazil	34.2
United Kingdom	33.5
Japan	31.8
India	31.0
Germany	30.8
France	30.7

---

100% Nation-State Power	20% Military	13% Military Expenditures (SIPRI)
		4% Military Manpower (US CIA)
		3% Military Technology (UN)
	40% Political Economy	18% Gross Domestic Product (UN)
		11% Political Freedom Index (Freedom House)
		11% Economic Freedom Index (Heritage Foundation)
	40% Population	18% Population (UN)
		11% Human Development Index (UN)
		11% Internet Users (UN)
	0% Territory	0% Total Area (UN)
		0% Agricultural Land (UN)
		0% Energy Production(UN)

*Figure 10.* The Comprehensive Nation-State Power Value Tree – Elimination of the Territory Component from the Recommended Mix.

The result of eliminating the Territory component demonstrated again that, in sensitivity analyses, the U.S. is ranked first in a dominant position of power under any weighting. This was a reflection of the diversified nature of United States power; it was strong in all components and measures. Without territory as a consideration, Canada and

Australia fell in the rankings, but not as far as one might have expected. Canada dropped from third to sixth, and Australia dropped from fourth to thirteenth. However, Russia dropped from eleventh all the way to fifty-seventh, which demonstrated how dependent Russia is and has been on its land mass as a source of power. Without it, Russia was most comparable to Peru and Turkey in this ranking model. Japan and the United Kingdom moved up in the rankings to be nearly tied with China in second place. The fact that these two countries were powerful in all components except Territory suggests an explanation of the history of these countries' efforts toward geographical expansion.

Table 12

*Score by Country with the Territory Component Removed*


---

Country	Score
United States	79.4
China	47.7
Japan	47.4
United Kingdom	47.2
India	45.6
Canada	44.2
Netherlands	44.2
Germany	43.5
New Zealand	42.1

---

These four scenarios were not meant as suggested power rankings. The purpose was to demonstrate the functionality of the model in creating different scenarios, which allowed the researcher to test hypotheses about the relative importance of the 12 criteria in the model. The number of scenarios that can be developed is almost without limit. The major finding of this set of scenarios was that the U.S. was the dominant power under any scenario, attributing to it a widespread base of power. The other implications of the sensitivity analysis suggested a strong explanatory value in working with the model to understand the drivers of nation-state power.

#### Analysis of Country Combinations

Through development of the model from four equally weighted basic measures to a Comprehensive Power Index that is adjusted for importance, the countries of Western Europe appeared in the second tier of rankings. The existence of the European Union suggests an appealing alternative approach to the analysis. Through some additional manipulation, the model can represent the power of combinations of countries. The process requires that the ratios that receive the weightings be recalculated on the combinations of the 12 variables. The variables that are values statistics of land area, population count, or dollar-based are summed; index values are averaged.

There is an unlimited set of combinations that could be examined, but the most obvious combination of interest would be to look at the countries of the European Union as a whole rather than at their positions individually. Several of the high-scoring nation-states in the second tier of the ranking, following the U.S. and China, are the core members of the EU. The EU has grown steadily in both size and in the level of integration of its member countries. The 27 European Union countries are: Austria, Belgium, Bulgaria, Cyprus,

Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom.

There is an abundant history and literature on the development and growth of the EU (Cameron, 1992; Keohane & Hoffman, 1991; Moravcsik, 1991). While it may be too much to refer to it as a “United States of Europe,” it is worthwhile to recalculate the rankings with the EU in place of its member states. In doing so, it can be determined if a United Europe can rival the U.S. and China as a global Power. Table 13 identifies the major impact of consideration of the EU as a separate entity; while the U.S. was still the dominant power, a united EU was the clear second place in the ranking.

Table 13

*Score by Country with European Union (EU) Counted as a Whole*

Country	Score
United States	75.2
European Union	65.3
China	50.4
Canada	46.5
Australia	43.5
India	42.2
Japan	41.8
Russian Federation	38.5

Table 13 (continued).

Country	Score
New Zealand	38.4
Norway	38.1
Brazil	36.4
Switzerland	36.3
Republic of Korea (South)	36.3
Iceland	36.1

Calculating the rankings with the recommended weightings, or in most variations, the EU emerged as the second Power in the world. While the current news of the EU has been focused on economic crises of the PIGS (Portugal, Ireland, Greece, and Spain – but Greece in particular), this Power Index demonstrated a strong incentive for all the member countries to ensure the success and continued development of the EU.

Analyzing the results of these sensitivities suggested some insights into future developments in the development of trade blocs into more formal alliances. First, the model did demonstrate the value in terms of power, to the member states of the EU to continue the development of the Union into a singular entity. It was in hybrid status; on one level, still merely a collection of independent, sovereign states, but on a different level more integrated than that. While there has been movement in that direction, there still is no common European military, for example. Polls demonstrate that most citizens have much more interest in their national elections than in European parliamentary elections.

However, the 16 countries of the Eurozone are farther down the path of economic integration and can be examined separately from the EU as a whole. The 16 Euro Zone countries are: Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, and Spain.

The next variation in the model that the researcher developed identified the possible logical response to a unified Europe that may attempt to exercise its power. If the EU continued to progress to the point where it acted as a nation-state rather than a strong coalition of nation-states, the existing power distribution in the world would be altered dramatically. No longer would the discussion be of a dominant U.S. and a rising China; the EU would be in a strong second place. Such a position might even encourage continued growth of the EU, enough to make inclusion of Turkey a reality. If such a scenario took place, a response from North America could be encouraged that NAFTA be expanded from a free trade area into a more comprehensive arrangement. While other regional trade blocs are in various stages of cooperation, the next iteration of the model combined them to perform a sensitivity analysis (see Table 14).

Table 14

*Score by Country with Regional Trading Blocs Combined*

Country	Score
NAFTA	82.1
EU	65.2

Table 14 (continued).

Country	Score
China	48.8
AUSNZ	45.2
Japan	43.1
India	42.9
Norway	39.5
MERCOSUR	39.1
Switzerland	37.7
Republic of Korea (South)	37.7
Iceland	37.6
Russian Federation	36.0

In a theoretical world characterized by the development of existing trade blocs into more formal collaborations between nation-states, or even formal combinations of them, the North American combination of the U.S., Canada, and Mexico would be the world's dominant power with a score of 82.1 points. There would be a substantial gap of 16.9 points to the second most powerful entity, the EU. Another substantial gap of 16.4 points would exist between the EU and China, which would be closely followed by a combined Australia and New Zealand, Japan, India, Norway, and a combined MERCOSUR. This analysis suggested an explanation for why the world's current alignment of nations is not changing toward more integration. The countries of Europe do have a power incentive to

be more formally aligned. But a sovereign Norway was more powerful than a combined MERCOSUR. There is little incentive for Australia to more formally align with New Zealand. China, however, faced a relative power reduction in the face of a combined Europe, dropping from the second most powerful country in the world to a more distant, and less distinct, third. The analysis shows Asia to be potentially problematic, with China, Japan, India, and Australia possibly competing to be the most powerful nation in that region of the world and no peaceful history of combination or alignment among them.

If the EU is analyzed as a nation-state for purposes of this model, its increased power ranking, to second place, raises the question of the individual interest of the three countries in NAFTA in responding with further integration. It would appear that the United States would not have much incentive to pursue further integration with Mexico and Canada based upon a power “threat” of a united Europe. The EU as a whole replaced China in second place in the rankings, but it was still 10 points behind the United States’ score.

Rather, the current strategy of the United States appears to be to utilize NATO as a mechanism to remain an integral part of Europe’s military, both diluting that component of nation-state power directly and hindering the development of a common European military that could eventually develop into a competitor. This suggestion does not diminish the impact of internal European differences that have mitigated the potential for a common EU military.

Canada would have some incentive from a power perspective to enhance the NAFTA alliance, as it dropped from third to fourth behind a powerful EU and China. On the other hand, Mexico benefitted from consideration of the EU as one entity, as it is

ranked below most of the European countries individually. A common Europe in second place allowed Mexico to move up in the rankings from forty-fourth to twenty-first. All three countries would benefit from the combination, however, as a combined NAFTA would be the dominant power in the world.

Such an incentive toward combination would create interesting questions of implementation. Would a NAFTA Union be constructed like the EU, a combination of independent sovereign nations, or would the dominant U.S. follow its existing historical model of accepting states into the union, adding a star to the flag for each new state accepted? Would it be NAFTA or an expanded U.S.? The power model would be helpful in analyzing the relative contribution of the two nations to an existing governmental structure in Washington, D.C. By population, Mexico would bring in its eleventh place ranking in that basic measure, while Canada would contribute its second place ranking in territory. The implementation of representational government equivalent to the contribution of each country might suggest that each province of Canada be admitted separately, with one representative and two senators, while combinations of states in Mexico would be admitted, with many representatives and fewer senators. This model could be adapted to research this line of thought.

A trend toward increasing regional collaboration that leads to more extensive combinations of countries would result in a dominant North America, with a United Europe second in the ranking. Such a set of events would perhaps encourage further regional collaboration in Asia, such as a combination of China and ASEAN or Japan and ASEAN. Many possible combinations can be analyzed with this model; many of those

combinations are interesting to scholars as they are fraught with challenges and lead to considerations of the possibility of conflict in Asia.

The same type of sensitivity analyses was run against the regional trade bloc model as was done for the nation-state model (see Tables 15 through 18).

Table 15

*Regional Trading Blocs with the Military Component Removed*

Trading Bloc	Score
NAFTA	81.7
EU	67.0
China	52.0
AUSNZ	50.9
Japan	46.8
India	44.9
MERCOSUR	44.2
Norway	43.5

Even without the military dominance of the U.S., the ranking was virtually unchanged. NAFTA was ranked first by a substantial margin, with its score having slipped slightly from 82.1 to 81.7 points. The EU remained in second place with an increased score of 67.0, up from 65.2 points. China still ranked third. As in the individual nation-state rankings, the significant finding was that the overwhelmingly large expenditures of the United States on its military did not significantly affect its power ranking.

Table 16

*Regional Trading Blocs with the Political Economy Component Removed*


---

Trading Bloc	Score
NAFTA	79.3
China	55.2
EU	46.6
Russian Federation	40.8
India	37.2
AUSNZ	34.6
MERCOSUR	33.2
ASEAN	30.6

---

When the importance of a well-functioning political and economic system was removed from the power equation, China moved ahead of the EU as the second most powerful entity, and Russia reappeared near the top of the ranking moving up to fourth from twelfth.

Table 17

*Regional Trading Blocs with the Population Component Removed*


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Trading Bloc	Score
NAFTA	94.2
EU	62.4

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Table 17 (continued).

Trading Bloc	Score
AUSNZ	38.2
MERCOSUR	37.4
Russian Federation	37.1
China	35.9
India	31.1
Japan	31.1

Elimination of the Population component raised NAFTA's score to 94.2, demonstrating that it dominated all other measures of power. Not surprisingly, China dropped in power, and Russia moved up in the ranking.

Table 18

*Regional Trading Blocs with the Territory Component Removed*

Trading Bloc	Score
NAFTA	78.8
EU	71.4
Japan	47.9
China	47.5
India	46.7

Table 18 (continued).

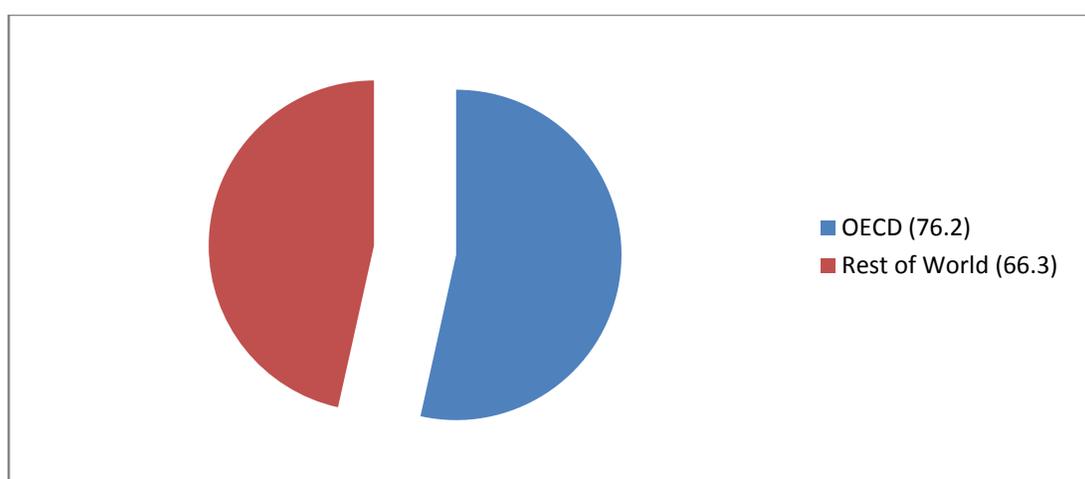
Trading Bloc	Score
AUSNZ	43.7
Norway	43.0
Republic of Korea (South)	41.7

Elimination of the Territory measure is the only scenario in which NAFTA was not the clearly dominant power in the world. It still ranked first, but by only 7.4 points over the EU. If territory is not a consideration, then the world might be considered to not be characterized as a one-power world; rather it is balanced by two regions of power that are not in conflict with each other but tend to be aligned in their view of international relations. This scenario does point out potential conflict in the third region of the world, however, as Japan, China, and India are all relatively equal. Australia/New Zealand and South Korea then enter the mix. This scenario suggests that much of the work of international relations for the future will be focused on ensuring that Asia develops peacefully.

Other, non-regional combinations can be examined. The popular business press identifies the BRICS (Brazil, Russia, India and China) as a grouping of emerging markets that are an economic force to be reckoned with. While it is not likely from an international relations scholarly perspective that such a combination is much more than a clever acronym and a thought provoking paradigm shift for multinational corporations, the model can be altered to analyze it.

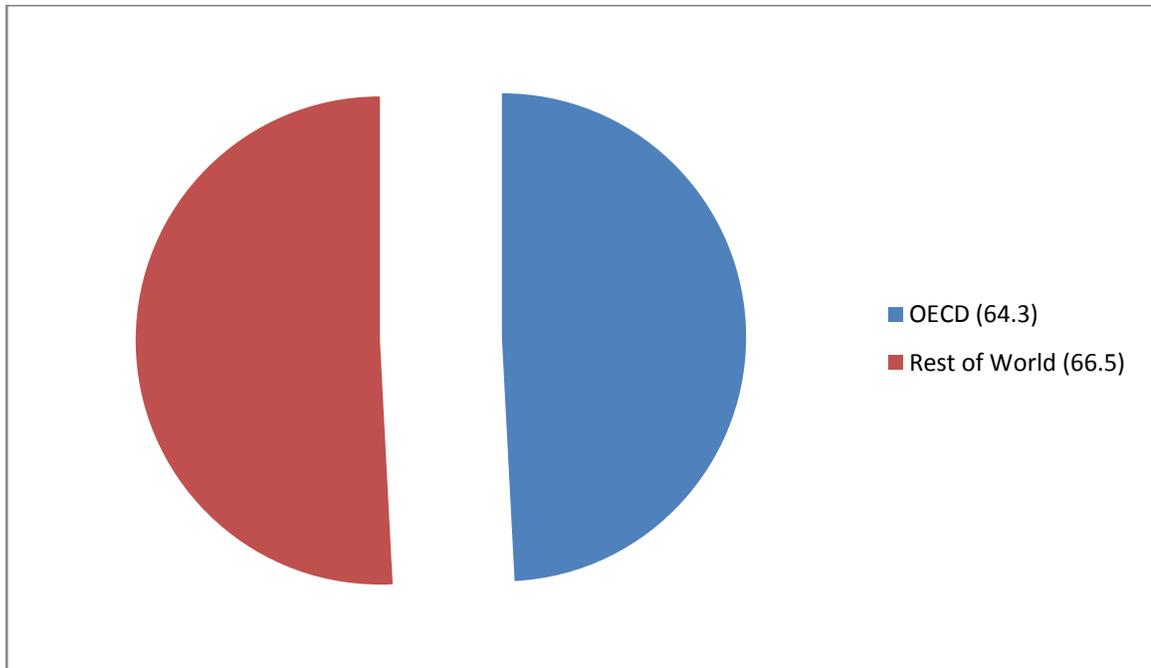
The researcher did perform an additional combination of countries to demonstrate the functionality of the model. Built into this model in the supporting measures in the Population and Political Economy components are expectations of modernity. There is a body of literature, dependency theory, that is suspicious of western liberal modernity (Kapoor, 2002; Love, 1990). The supporting measures reflect some bias toward the goals of the Organization for Economic Co-operation and Development (OECD), which has as its stated mission a commitment to democracy and the market economy in order to support economic growth and raise living standards (OECD website). Comparing the OECD countries to the countries of the rest of the world is a proxy for this debate.

The OECD includes twenty countries: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, South Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States of America. In the recommended weighting, the result shows that these twenty countries are more powerful than the rest of the world combined (see Figure 11).



*Figure 11.* Comparison of OECD Countries to the Rest of the World.

Even when the weighting was changed to 25% each for the basic measures, the resulting power ranking was close (see Figure 12). The 5:1 ratio of population and 3:1 ratio of territory advantage of the rest of the world was almost offset by the economic and military power of the twenty countries that comprise the Organisation for Economic Co-operation and Development.



*Figure 12.* Comparison of OECD Countries to the Rest of the World with Weighting Change of 25%.

The model can be adapted to analyze any combination of countries and provide a quantitative view of the comparisons.

## CHAPTER VI

### CONCLUSION

The development of a Comprehensive Nation-State Power Index moves the research on Power forward in an incremental fashion by providing a number of benefits:

The Index is an advancement of the structural model of measuring nation-state as a diverse set of capabilities. The first substantive change, the inclusion of supporting measures, allows for this model to be more comprehensive and doing so addresses the issues that are important to the relational power scholars. Supporting measures allow for incorporation of the importance of successful institutions. While it remains a structural model, it has utility for the investigation of relational power concepts.

The second substantive change is to allow for the model to vary the weights of the identified criteria to meet multi criteria decision making theory expectations. This renders the model more meaningful and adaptable to the insights of a consensus of scholars.

The theoretical model combines four components, the basic measures of which are the same as used in Cline's (1977) analysis. Addition of the balanced scorecard concept allows one to supplement the basic measures with supporting leading indicators for each component that allow the model to be more comprehensive, explanatory, and prescriptive. A nation-state's leadership could use this model to improve its power over time by targeting its efforts.

Development of a ranking system is helpful in providing a mechanism so that broad comparisons can be made between nation-states. Further, the flexibility of the model in incorporating a variety of measures and accommodating varying perspectives as to weighting allows for data manipulation which fosters increased understanding of the

drivers of Power and an opportunity to support expanded discussion in the literature.

Incorporating other indices along with the basic data will allow future research to work backwards and develop a historical approach to the model.

An additional benefit of the model is its potential as a forecasting tool – predicting future powers. This can be accomplished by tracking the trajectory of individual measures for a given nation-state and inserting the new data into the ranking model. More broadly, the use of the model to analyze the Trade bloc approach demonstrates the increased utility of the model. This tool allows a researcher to examine the power potential of strategic alliances.

Beyond the development of the theoretical model of a comprehensive view of nation-state power that satisfies the suggestion of Waltz (1979), a flexible ranking device that allows for researchers as individuals or groups to manipulate the weightings and analyze nation-state power from a variety of perspectives has been developed.

This dissertation began with the stipulation that there is a need for the concept of power in such context to be better defined and measurable. The hypothesis that measurement of nation-state power can be improved and analytical utility gained by development of a model of power that applies methods developed in other disciplines, specifically the balanced scorecard concept and multi criteria decision making theory, was tested through an evaluation conducted by sensitivity analysis. The findings suggest that, at a minimum, this measure of power provides useful context for the “big picture” policy discussions that occur with regard to comparisons of nation-states.

The researcher's efforts at utilizing the model's capabilities led to several conclusions that appear to validate it. First, the model identified the U.S. as the dominant power in the world. The U.S. ranks at or near the top in all twelve criteria of the model – in some instances by an order of magnitude, resulting in a score of 77.5. Further, the model identifies China as standing alone as the second most powerful nation-state in the world with a score of 59.5, which also conforms to general expectations garnered from reading the literature of current affairs (Larson, 2010). The model further facilitated an analysis of the global power ramifications of a strong EU. By combining the nation-states that comprise the EU, the model indicates that a strong EU, with a score of 65.3 would become a power ranked second after the U.S. at 75.2 and in front of China at 50.4. Such a finding resonates with power scholars such as Morgenthau (1946) and Waltz (1979). Creating and analyzing that scenario led this researcher to determine what ramifications might result from that possibility, including stronger binds between members of other regional free trade areas. The model lends itself to thought provocation.

Further analysis based upon the model's calculation of nation-state power yields possible insights into individual nation-state actions in the world arena. An explanation for an underlying unpublished mission for NATO by the U.S. could be conjectured, for example. The original purpose for NATO is gone, yet the institution remains. It is valuable for European countries that do not have to support their own military power. The other side of that argument is that Europe's dependence on American military power helps to solidify the U.S.' status as the dominant world power (Larson, 2010). A similar argument can be made for China's influence in the political economy of much of Asia. This model helps to

put numbers to such conversations allowing for a more structured and meaningful debate among scholars.

Through working with the model, predictions can be framed with data. What impacts would a movement toward regional consolidation have on the interplay of power in the world? The model helps identify where such a process would go smoothly and where it would run into challenges. Practitioners might find the tool useful to create strategic plans for better cooperation. The member countries of the EU might be more influenced to ensure that the current economic crisis does not derail the progress they have made. ASEAN may be incited to work toward further integration within its member countries and to seek a stronger relationship with Japan, South Korea, and/or China. The member countries of NAFTA may see and seek the benefits of further integration and/or revisit the notion of a Free Trade Agreement for the Americas.

Another possible application is to propose the model as a mechanism to align voting and financial support for the United Nations. While this is a challenging concept, the current membership of the Security Council, based on the victors of a war that ended sixty years ago, prevents the UN from further progress toward collaboration or integration. Those countries outside the Security Council expect that structure to change, and those inside it will not agree unless substantive changes are made to the structure and management of the General Assembly. The five permanent members of the UN Security Council are not the five most powerful countries according to the ranking. The U.S. is ranked first, China is second, UK is tied for fifth, France is tenth, and Russia is eleventh. Canada, Australia, Japan, India, Netherlands and Germany all outrank at least two of the

permanent members, and therefore have a legitimate argument to make for reconfiguration of that body.

The Comprehensive Nation-State Power Index has the potential to be a useful tool for scholars and analysts interested in a broad view of the relations between nation-states. Rather than focusing on one aspect of power, the model encourages a multidisciplinary approach and a broader view of power that incorporates soft power concepts while maintaining the rigor of quantitative analysis.

Additional research opportunities follow from this work. The use of basic and supporting measures that have historical data available will enable future research to create historical comparisons. Backward analysis of the variables in this model would be useful for comparison by the scholars that utilize the Correlates of War data, especially the Comprehensive Indicator of National Capabilities. New insights could be developed from research in that area. There is also the possibility that scholars interested in relational power or soft power concepts may find the model to add some valuable structure to their research.

The initial work on combining countries can be investigated further to determine if a valuation model for nation-state consolidation can be created. This would encourage the process of integrating nation-states to be analyzed in a manner similar to how mergers and acquisitions of corporations are examined, opening up a line of research possibilities that could combine the interests and expertise of international relations scholars and business scholars. A more specific, formalized approach to assessing the value of country combinations could facilitate much more activity and change the organizational structure of the world.

This model has the potential to cross over and/or bridge the gap between scholarly research in and the practice of international affairs. The popular press affects public policy, and the conversation in that arena could be enhanced with data generated from this model. This researcher aspires to engage in these conversations, bringing a scholarly approach to bear on widely debated international affairs policy issues. For instance, an article by Christina Larson, an editor at *Foreign Policy*, recently appeared in *Time* entitled “China and the U.S.: The Indispensable Axis.” It compared this developing relationship to the cold war and to the U.S. – British alliance and suggests that neither apply. Rather, there is no precedent for this relationship, where they will compete and cooperate simultaneously. She suggests that this is not a marriage of equals, that the U.S. remains the unchallenged predominant global power. She further suggests, however, that China is becoming more influential economically and militarily, while indicating that China has not participated in supporting the systems of the global economy (Larson, 2010). These assessments would benefit considerably from a quantitative model that addresses these components of power. The comprehensive nation-state power index would facilitate meaningful comparisons between the world’s dominant power and the second most powerful nation-state, and serve to quantify the relationship between the two as well as identify the gap between those two and the rest of the world.

The model could also serve as a lens with which to view works such as Martin Jacques’ influential book *When China Rules the World* (2009), as he suggests that the rise of China will result in the eradication of Enlightenment principles of the West. The book argues that the 21<sup>st</sup> century will be different from the last 200 years when the notion of modernity was synonymous with being western. With the rise of increasingly powerful

non-Western countries, the west will no longer be dominant and there will be many ways of being modern. In this new era of 'contested modernity' the central player will be China. Rather than becoming a western-style society, China will remain highly distinctive. It is already having a far-reaching and much-discussed economic impact, but its political and cultural influence, which has hitherto been greatly neglected, will be at least as significant. Continental in size and mentality, and accounting for one fifth of humanity, China is not a 'civilization-state' whose imperatives, priorities and values are quite different. As it rapidly reassumes its traditional place at the centre of East Asia, its sense of superiority will reassert itself. According to Jacques, China's rise signals the end of the global dominance of the west and the emergence of a world which it will come to shape in a host of different ways and which will become increasingly disconcerting and unfamiliar to those who live in the west. The framework of the Comprehensive Model of Nation-State Power may impose some constraints on Dr. Jacques' enthusiasm, as it demonstrates that the United States is still quantitatively well ahead of China in terms of power. Further, analysis based on the model could demonstrate how much would have to change in both countries for the two to be equal in power or for China to become dominant.

Similarly, recent news of the challenges of the Euro brings power in Europe into question. The framework of the model can help emphasize the criticality of maintaining progress in the European Union if Europe is to remain significant in world affairs. The PIGS (Portugal, Ireland, Greece and Spain) will either be assisted by the stronger economies of Europe, especially Germany, or the European Union may falter. If so, it has dramatic ramifications for the future of the world. The upcoming elections in Britain, with a strong possibility of a Conservative government, are another example of the utility of the

model in adding a framework to the assessment of the situation. The Tories' hostility to increasing federalism in the EU and the Lisbon treaty will play a significant role in Britain's domestic affairs. A victory for them would impact the future of the European Union. If the EU begins a decline, there will be many questions about the relative power of the affected countries that the model could help address. A strong, growing EU represents a third power in the world comparable to the United States and China. However, a declining union of European countries will leave the individual nation-states in a weakened situation. Further, the impact of such a decline or of resurgence may have an impact on the development of other regional trade blocs into more complete economic and then political unions, for example ASEAN or MERCOSUR. As the importance of geographical proximity lessens with technology, realignments of nations do not necessarily need to be regional. A failed EU could result in ever closer ties between the United States and Britain, for example, up to and including political union. The model could be reconfigured to demonstrate what such a combination would do to the power rankings.

Another article in *Time*, "Remapping the World" by Parag Khanna (2010), addresses this issue. According to the article, political borders remain among the most fundamental obstacles to human progress around the world. In the next decade, drawing a new map of the world will become a moral, economic and strategic imperative. For instance, Africa would benefit hugely from a reimagining of its current borders. A better organized Africa or the Middle East would allow for the possibility of better institutions that would allow for economic growth and an improved quality of life for the people who live there. In addition to that benefit, Africa and/or the Middle East could cease to export problems to the rest of the world.

Impacts of the model include a reassessment of the U.S. foreign policy organizational structure. The military component is just one component of power in the model, and the research helps drive the significance of that idea. It further suggests that a realignment of organizations and funding to become more effective at building nation-states that function in this world order is necessary. The model could encourage a structural review of the U.S. government organization. For example, the Department of Defense has a budget that is 10 times the size of the Department of State and Defense has its own “nation-building” organization within it, known as Military Operations Other Than War. Organizational strategy principles might suggest that Defense focus on its expertise, warfare, and that nation-building operations and their funding might better be located within State.

Once that issue is addressed, the question of whether states can be reoriented to function well in this not-so “new world order” must be addressed. Iraq is just the most obvious example; many more will follow. Should Iraq be organized along the US model and then just turned loose? Or have just superficial elements been laid upon a nation that will not accept the transplant without a generation’s worth of time? If so, would it be necessary or beneficial to more formally adopt failed states like this one and rather than place a veneer of U.S. attributes on them, incorporate them into these United States as was common practice for more than half the country’s existence? The model could be reconfigured to demonstrate the change in power rankings if a more formal combination was put in place. If there is logic to that idea, the model would be useful in prioritizing the invitations and in the practice of alignment itself. Even in the presently contemplated

situation, where failed states will be rebuilt, the model can be useful in measuring progress toward goals.

Future research interests that arise from this work investigate the various organizational options for the world as time progresses. Will there be growth of regional trade blocs into economic unions and then political unions? Would any of those rival the United States as powers? What reaction would the United States have in such a scenario? What role does the United Nations play in the future; an interested neutral observer of change or the catalyst for change and the body that replaces the current system of anarchy among states? In such a case, the terms addressing stronger relationships could be made utilizing information available in the model. What of the possibility for the United States to expand its unique, dare it be said exceptional, structure in a non-imperialist fashion; a manifest destiny redux? The theoretical case for American exceptionalism to be the model for growth and improvement of the quality of life for people across the globe should be made. Further, the implementation model for such an idea is also needed. The researcher intends to dedicate his scholarly efforts toward impacting these issues with a structured approach to outlining them in a realist framework.

## APPENDIX A

## HERITAGE FOUNDATION INDEX OF ECONOMIC FREEDOM

“Economic freedom is the fundamental right of every human to control his or her own labor and property. In an economically free society, individuals are free to work, produce, consume, and invest in any way they please, with that freedom both protected by the state and unconstrained by the state. In economically free societies, governments allow labor, capital and goods to move freely, and refrain from coercion or constraint of liberty beyond the extent necessary to protect and maintain liberty itself.” (Heritage Foundation webpage)

The index measures 10 freedoms:

- 1) Business freedom is a quantitative measure of the ability to start, operate, and close a business that represents the overall burden of regulation as well as the efficiency of government in the regulatory process.
- 2) Trade freedom is a measure of the absence of the trade-weighted average tariff rate and non-tariff barriers that affect imports and exports of goods and services.
- 3) Fiscal freedom is a measure of the tax burden imposed by government, including the direct tax burden in terms of the top tax rates on individual and corporate incomes and the overall amount of tax revenue as a percentage of GDP.
- 4) Government expenditures as a percentage of GDP.
- 5) Monetary freedom is a measure of the weighted average inflation rate for the most recent three years and the extent of price controls.
- 6) Investment Freedom is a measure of the variety of restrictions typically imposed on investment.
- 7) Financial freedom is a measure of banking security as well as a measure of independence from government control.
- 8) Property rights freedom is an assessment of the ability of individuals to accumulate private property, secured by clear laws that are fully enforced by the state.
- 9) Transparency International's Corruption Perceptions Index.
- 10) Labor freedom is a measure of various aspects of the legal and regulatory framework of a country's labor market.

(Heritage Foundation, 2010).

## APPENDIX B

## FREEDOM HOUSE RATINGS PROCESS

The ratings process is based on a checklist of 12 political rights questions and 15 civil liberties questions.

## Political Rights Checklist

## A. Electoral Process

1. Is the head of government or other chief national authority elected through free and fair elections?
2. Are the national legislative representatives elected through free and fair elections?
3. Are the electoral laws and framework fair?

## B. Political Pluralism and Participation

1. Do the people have the right to organize in different political parties or other competitive political groupings of their choice, and is the system open to the rise and fall of these competing parties or groupings?
2. Is there a significant opposition vote and a realistic possibility for the opposition to increase its support or gain power through elections?
3. Are the people's political choices free from domination by the military, foreign powers, totalitarian parties, religious hierarchies, economic oligarchies, or any other powerful group?
4. Do cultural, ethnic, religious, or other minority groups have full political rights and electoral opportunities?

## C. Functioning Of Government

1. Do the freely elected head of government and national legislative representatives determine the policies of the government?
2. Is the government free from pervasive corruption?
3. Is the government accountable to the electorate between elections, and does it operate with openness and transparency?
4. For traditional monarchies that have no parties or electoral process, does the system provide for genuine, meaningful consultation with the people, encourage public discussion of policy choices, and allow the right to petition the ruler?
5. Is the government or occupying power deliberately changing the ethnic composition of a country or territory so as to destroy a culture or tip the political balance in favor of another group?

## Civil Liberties Checklist

## A. Freedom of Expression and Belief

1. Are there free and independent media and other forms of cultural expression?

2. Are religious institutions and communities free to practice their faith and express themselves in public and private?
3. Is there academic freedom, and is the educational system free of extensive political indoctrination?
4. Is there open and free private discussion?

**B. Associational and Organizational Rights**

1. Is there freedom of assembly, demonstration, and open public discussion?
2. Is there freedom for nongovernmental organizations?
3. Are there free trade unions and peasant organizations or equivalents, and is there effective collective bargaining? Are there free professional and other private organizations?

**C. Rule of Law**

1. Is there an independent judiciary?
2. Does the rule of law prevail in civil and criminal matters? Are police under direct civilian control?
3. Is there protection from political terror, unjustified imprisonment, exile, or torture, whether by groups that support or oppose the system? Is there freedom from war and insurgencies?
4. Do laws, policies, and practices guarantee equal treatment of various segments of the population?

(Freedom House, 2010)

## APPENDIX C

## UNITED NATIONS DEVELOPMENT PROGRAMME

## HUMAN DEVELOPMENT INDEX

The first Human Development Report (1990) introduced a new way of measuring development by combining indicators of educational attainment, life expectancy and income into a composite human development index, the HDI. The HDI is a single statistic which serves as a frame of reference for both social and economic development. The HDI sets a minimum and a maximum for each dimension, expressed as a value between 0 and 1.

The educational component of the HDI is comprised of adult literacy rates and the combined gross enrolment ratio for primary, secondary and tertiary schooling, weighted to give adult literacy more significance in the statistic. Since the minimum adult literacy rate is 0% and the maximum is 100%, the literacy component of knowledge for a country where the literacy rate is 75% would be 0.75, the statistic for combined gross enrolment is calculated in an analogous manner.

The life expectancy component of the HDI is calculated using a minimum value for life expectancy of 25 years and maximum value of 85 years, so the longevity component for a country where life expectancy is 55 years would be 0.5.

For the wealth component, the goalpost for minimum income is \$100 (PPP) and the maximum is \$40,000 (PPP). The HDI uses the logarithm of income, to reflect the diminishing importance of income with increasing GDP. The scores for the three HDI components are then averaged in an overall index. The HDI facilitates instructive comparisons of the experiences within and between different countries.

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