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The Political Economy of the United States Military Market: 1963-2005

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at George Mason University.

By

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Summer Semester 2006
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Abstract

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Judson M. Fussell, Ph.D.

George Mason University

Dissertation Director: Dr. Charles K. Rowley

This dissertation examines the economic and socio-political forces that influence behavior within military organizations. The tenets of Public Choice economic theory are utilized along with special emphasis on the institutional and cultural frameworks of the military environment in order to better understand why the military market succeeds and fails. Much of the existing literature related to military science proceeds from a holistic approach, which often glosses over the micro phenomena that are crucial in understanding the dynamics of military organizations. Thus, the approach used in this research emphasizes methodological individualism and allows us to better understand the incentives and constraints that individual agents face in their decision calculus.

Chapter two lays out the nature of the military market and highlights the significant economic challenges inherent in the organizational structure and the vulnerability of this market to the political environment. Of particular interest are

difficulties the military faces in achieving contract performance of its members under perilous combat conditions. Chapter three develops a club-good model to explain how free-riding is constrained in a combat setting where standard economic theory would suggest contract breaches en masse. Extant empirical research is used to evaluate the validity of the theoretical model. Chapter four describes what military culture is, how it channels behavior toward more efficient outcomes and how it has evolved over the years. Additionally, game theory is used to illustrate the impacts of culture. Chapter five concludes the dissertation.

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Judson M. Fussell

A Dissertation
Submitted to the
Graduate Faculty
of
George Mason University
in Partial Fulfillment of
The Requirements for the Degree
of
Doctor of Philosophy
Economics

Committee:

_____ Director

_____

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_____ Department Chairperson

_____ Program Director

_____ Dean, College of Arts and Sciences

Date: _____

Summer Semester 2006
George Mason University
Fairfax, VA

Dedication

This work is dedicated to all the men and women who have and continue to serve their country with honor; especially those who have given the ultimate sacrifice. To reduce courage, bravery and camaraderie to numerical payoffs in rows and columns may seem offensive to those whose behavior I seek to explain. However, it is out of a deep respect that I have chosen to explain their behavior using the tools of my trade and to show that these individuals are not in fact irrational.

Acknowledgements

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Personally, I would like to thank my loving wife, whose encouragement, independence and positive attitude made this trying time much less stressful than it would have been otherwise. I appreciate the members of my study group for their help in overcoming many obstacles during this program. I hope our paths cross again in the future. Finally, I am grateful to the U.S. Air Force for providing me this opportunity.

The views expressed in this dissertation are those of the author and do not reflect the official policy or position of the United States Air Force, Department of Defense, or the U.S. Government.

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Chapter 1. Introduction

> "War is an ugly thing, but not the ugliest of things: the decayed and degraded state of moral and patriotic feeling which thinks nothing worth a war, is worse…A man who has nothing which he is willing to fight for, nothing which he cares more about than he does about his personal safety, is a miserable creature who has no chance of being free, unless made and kept so by the exertions of better men than himself."[1].
>
> John Stuart Mill

General Issue

There is something fundamentally admirable about self-sacrifice, but only when it imparts a positive externality upon others. An externality that is positive for one person or group may be negative to another at the same time. For example, a suicide bomber may be revered as a martyr by those whose cause he seeks to advance, while others outside his group view him as a psychopathic murderer. When a person deliberately chooses to engage in behavior detrimental to his own well-being without conferring any positive benefits to others that individual is typically labeled as mentally disturbed.

Although, the tools of economics have been used successfully to explain a diverse range of phenomena including drug addiction, religious activity etc., economists often find it difficult to explain extreme acts of personal sacrifice. Part of this difficulty arises from the most basic assumptions that economists use to build their models. More

[1] Dissertations and Discussions, 1873, vol 1, p. 26.

specifically, there is virtually universal agreement among economists (and many other social scientists) that the behavior of individuals (especially in private market settings) is best characterized by rational, self-interested assumptions. Not that models built on these assumptions are perfect representations of behavior, but they are tractable, they often yield robust empirical results and more importantly, no better modeling techniques are currently available. Using this methodology, it is difficult to imagine a level of benefits that would make suicide (or other extreme forms of sacrifice) rational in terms of the cost/benefit calculus.

Although the egoistic representation of behavior has been applied to behavioral research in private markets for a long time, such assumptions were not formally applied to behavior in the public sphere until much later in scientific inquiry. As rational choice, self-interested assumptions made their way into the behavioral study of public officials, two dominant schools of thought eventually emerged; the Virginia Political Economy (VPE) and the Chicago Political Economy (CPE)[2]. Although both schools utilize self-interest and rational choice assumptions in their models, they reach strikingly different conclusions. CPE scholars generally conclude that government policy outcomes are economically efficient as a consequence of the competitive nature of government processes and institutions. On the other hand, VPE scholars show that political outcomes, even under the best of conditions, often lead to highly inefficient outcomes.

The approach utilized in the subsequent research starts out from the premise that the motivations for behavior should be applied consistently regardless of whether agents

---

[2] See Rowley (1992) for more on the distinction between CPE and VPE.

are privately or publicly employed. On the other hand, even though self-interested, rational motivations are treated as the primary forces that drive human behavior, we must also acknowledge that preference intensities vary considerably across individuals. Based merely on our intuition, we may agree that one individual appears to be more risk averse whereas another exhibits more risk-preferring behavior. Similarly, some individuals have more of an innate taste or preference for cooperation than others.

Yet, even though preferences may vary widely, individuals do in fact respond to incentives, e.g., a risk-averse agent would engage in high-risk activities if the benefits sufficiently outweighed the costs. Of course the perceived benefits or costs one person expects to incur from a particular course of action may be so high that it appears he does not respond at all to incentives—he *appears* irrational. To understand the behavior of individuals with very inelastic preferences, we need to take a look at the institutional framework within which these types of agents operate. The formal and informal institutional environment is often a key determinant of individual's preference/belief formation process, or a mechanism that constrains behavior due to a cost/benefit calculus.

Most of the existing literature of military science proceeds from a holistic approach, where each army of a conflict is treated as a unit of analysis. Principles of war such as mass, maneuver etc. are taught to military leaders in terms of their effectiveness in prosecuting warfare. These macro-analytical approaches gloss over the micro phenomena that are really crucial in understanding battlefield behavior. On the other hand, these holistic approaches may have been quite relevant for military confrontations where one large military mass confronted an opposing mass. In these types of conflicts,

various institutional mechanisms assisted in overcoming the individual incentives to shirk. Such mechanisms included very harsh penalties for cowardice and desertion etc. Additionally, the very structure of military formations themselves made it very difficult for individuals to run away from the fight[3]. Thus, the incentives to shirk in battle may have been constrained to some extent. Moreover, military leadership was often a driving force to galvanize and motivate the troops against the enemy. The top officer corps was often very close to the battle if not leading the battle, which may have had significant morale impacts on their troops.

Specific Issue and Contribution

Although the American military's sophisticated weapons technologies have changed the nature of battle to a large degree, the role of the foot soldier will continue to be an important component of the military force. In modern military environments, the ability to counter guerilla-type warfare has proven to be difficult and necessary. With smaller, often dispersed and relatively autonomous units, some of the traditional mechanisms to prevent breaking ranks may not be very effective. Additionally, top military leaders of today often command their forces from locations far away from the front lines (e.g., top U.S. military leadership orchestrated the recent wars in Afghanistan and Iraq from their headquarters in Florida).

There are many reasons why high levels of performance in combat should be very difficult to obtain and these reasons will be highlighted in this research. Given the many

[3] For example, although the British Square formation is potentially vulnerable to attack from all sides, the only way for one to break out of the formation was to run towards the enemy—thus it was never really broken (Brennan & Tullock, 1982).

inherent challenges, how can we explain the high morale and performance of U.S. troops in today's environment? This paper is an attempt to do just that using the tools of economics and within a methodological individualistic approach. In order to examine fully the dynamics of combat behavior we must understand the cultural and institutional environment that constitutes the military market. In fact, these cultural and institutional frameworks will be the key to unlocking the mystery of morale and performance in the military. It will not be surprising to social scientists that culture and institutions are important for directing individual behavior toward socially optimal outcomes. Evidence continues to mount that cultural/institutional factors are important in understanding observed behavior—behavior that may appear to deviate significantly from standard rational choice theoretic predictions.

In studying military morale, we will focus on the past four decades for a number of reasons. First, focusing on this period will permit analyzing the effects of moving from a conscripted force to an all-volunteer force. Second, this approach will make the research manageable while at the same time allowing a sufficiently detailed analysis. Third, and perhaps more importantly, this approach will allow us to focus on those factors that are most relevant to the military market today, so that the results may be more applicable.

Within the timeline of interest, there are three major events/milestones that distinguish four important sub-periods that will be especially useful to analyze. The first major event was the abandonment of the draft and implementation of the all-volunteer force in 1973. The second major event was the implosion of the Soviet Union in the late

1980's. The final event was the terror attacks against the United States that occurred on September 11th, 2001. The strains on active duty units following the attacks resulted in an increasing use of Guard forces especially in Iraq. Thus, the U.S. military market may have been significantly impacted by each of these events, and this research will examine the effects of these key events where it is relevant.

The subsequent analysis is not meant to prove that combat forces are more committed to their job than others in support-type functions etc. Other individuals within and without government are no doubt highly committed to their work. However, the environment within which combat forces must operate is radically different than that faced by non-combat troops and requires a different type of commitment. Similarly, the intent is not to demean the honorable service of National Guard or Reserve forces. Rather, the intent is to show, using economic tools how difficult it should be to achieve high-levels of cooperation in a hostile combat environment. Further, the analysis will examine the institutional or cultural frameworks within the military and how these impact individual behavior and collective efficacy.

Dissertation Overview

This chapter furnishes the motivation to analyze the military market and lays out the roadmap for how the research will proceed. Chapter two lays out the nature of the military market and highlights the significant economic challenges inherent in the organizational structure and the vulnerability of this market to the political environment. It also focuses attention on how these relationships have changed over time. Of particular interest are difficulties the military faces in achieving contract performance of

its members under perilous combat conditions. Chapter three will develop a club-good model to explain how free-riding is constrained in a combat setting where standard economic theory would suggest contract breaches en masse. Several hypotheses based on this model will be put forth and a review of existing empirical work will be examined to determine the validity of the model. Chapter four will describe what military culture is, how it channels behavior toward more efficient outcomes and how it has evolved over the years. Additionally, game theory will be used to illustrate the impacts of culture. Chapter five concludes the dissertation.

Chapter 2. The Nature of the U.S. Military Market

> "The only cause of armed conflict is the greed of autocrats... Democracies are peaceful. It is no concern of theirs whether their nations' sovereignty stretches over a larger or smaller territory. They will treat territorial problems without bias and passion. They will settle them peacefully. What is needed to make peace durable is to dethrone the despots. This, of course, cannot be achieved peacefully. It is necessary to crush the mercenaries of the kings. But this revolutionary war of the people against the tyrants will be the last war, the war to abolish war forever".
>
> Ludwig Von Mises (1966, p. 822).

Chapter Overview

This chapter will apply the tools of economics to our national defense system. The analysis will focus on the "military market" as it actually exists rather than a comparative institutional analysis. Although all markets are impacted by the political environment, the public nature of defense outputs ensures the military market is more vulnerable to political influence than most other markets. Additionally, the organizational structure of the defense establishment creates some serious challenges in terms of achieving efficiency in production; one of the most severe problems being how to ensure contract performance from combat troops. Yet, even in the face of these problems; where the profit motive is absent, where the output is difficult to measure or where the pricing mechanism is not fully operational, we can still apply the tools of

rational choice theory to analyze behavior of self-interested agents with meaningful results. Before laying out the details of the military market, we will review some of the fundamental institutional influences and unique features of the defense environment. Then we will examine the inherent problems related to contract performance in the 'execution phase' of the military market.

The U.S. Political Environment and National Defense

The word democracy is derived from the Greek word demokratia which translates into "rule by the people" (American Heritage Dictionary, 1991). Thus, in a democratic nation, voters are meant to wield the real power and determine policies through elections or referendum. However, there are many different forms of democracy, and the differences can lead to significantly different outcomes. A direct democracy provides the closest correspondence between citizen's preferences and policy outcomes. But in a nation large in geographical size and population, direct democracy may not be feasible. Instead, various forms of representative democracy, where voters elect individuals to represent their interests have been used.

The U.S. style of representative democracy has several features quite unique among existing democratic governance arrangements. Those key attributes of the U.S. political system that bear significantly upon the military market are worth examining. One of the most striking features of the U.S. style of representative democracy is the separation of powers. Unlike most European democracies, the U.S. system is considered to provide equal power to all three branches of government. This system of checks and balances may help to constrain the size of government (Persson and Tabellini, 2002).

This may in turn impact the size of the defense sector. Figure 1 displays defense expenditures in constant 2000 dollars for the years 1963 to 2003 and Figure 2 displays defense expenditures as a percentage of GDP for the same time period. Figure 3 shows the twenty-five countries who spent the most for defense (in terms of GDP percentage) in 2002.

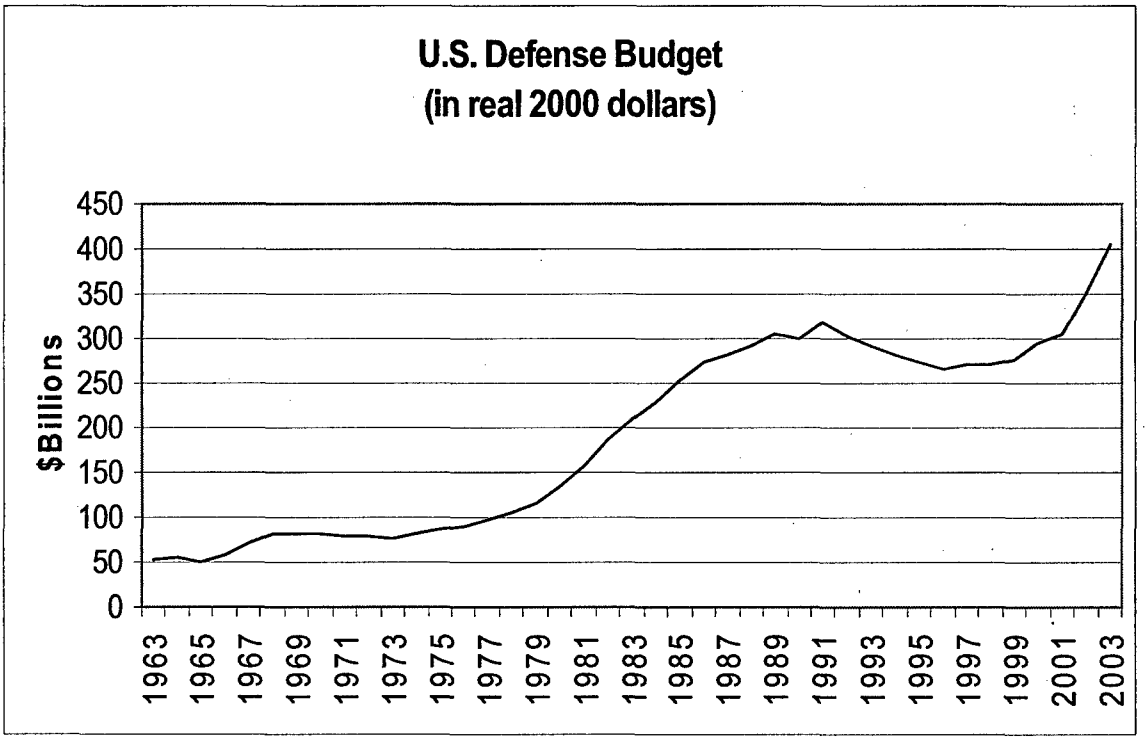

Figure 1. Defense Budget in Real 2000 dollars (CBO website).

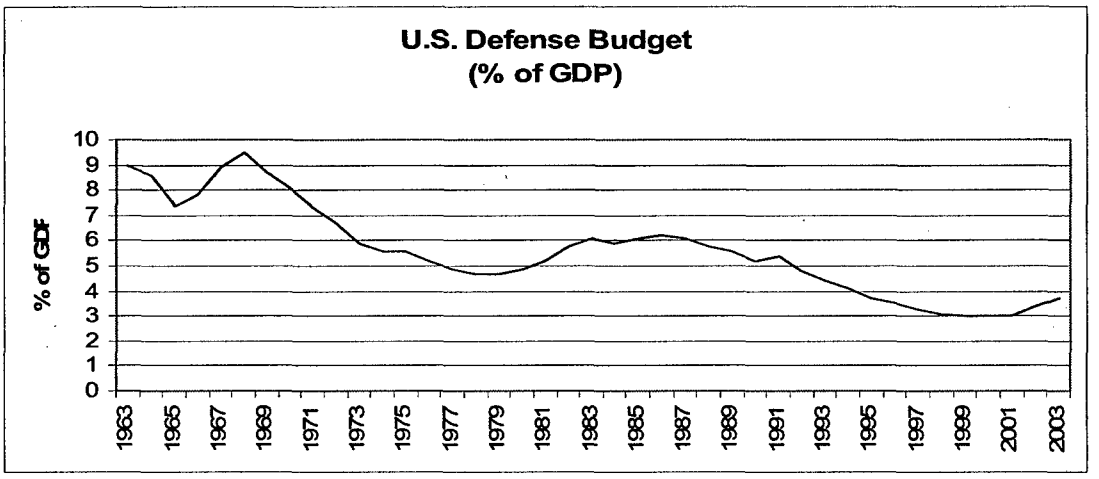

Figure 2. Defense Expenditures as a Percentage of GDP (CBO website).

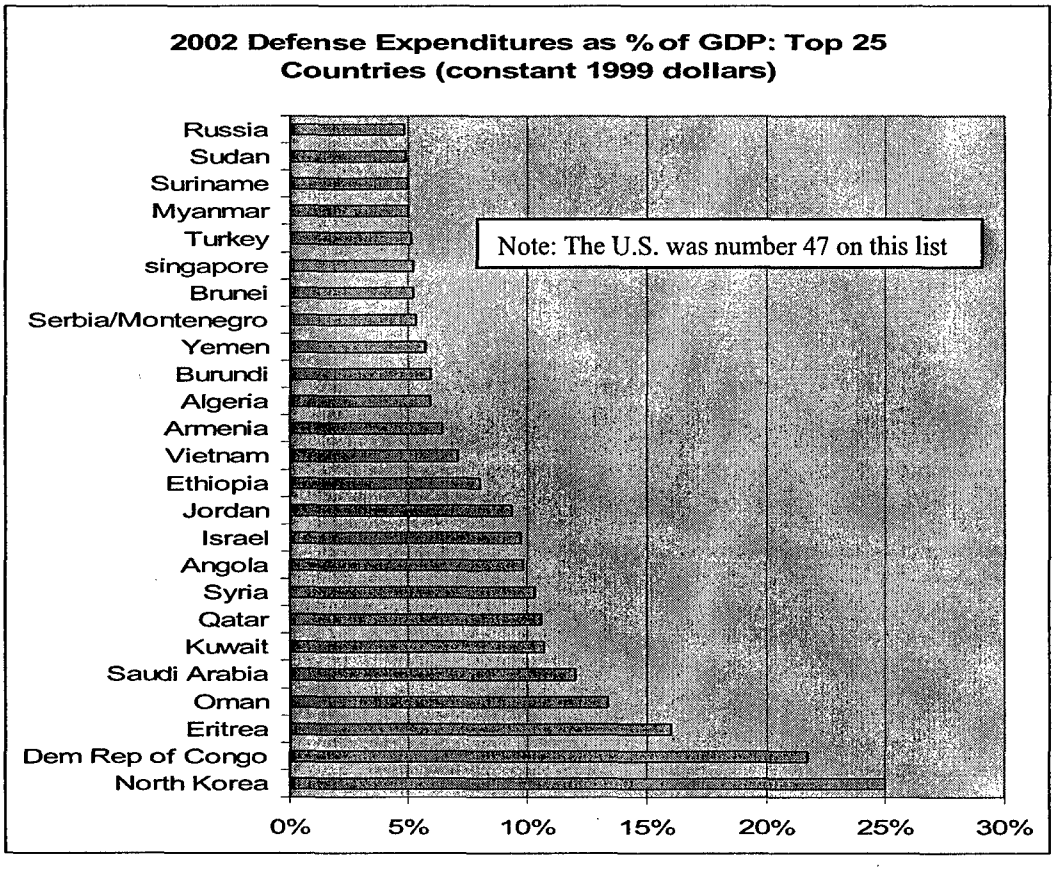

Figure 3. Defense Expenditure as a Percentage of GDP (CRS, 2004, p. 20).

Even though the U.S. has invested a considerable amount of resources into national defense since the early 1960's, defense expenditures as a percentage of GDP have been falling steadily, except for the Vietnam and Reagan eras. In an international comparison, the U.S. ranks 47th (with 3.3%) in terms of the percentage of GDP that is invested in national defense. Of course, some of the U.S. defensive capability creates an external benefit for its NATO allies, reducing the amount of defense those countries must purchase for themselves.

Congress plays an instrumental role in national defense affairs due its power of the purse. Additionally, the Defense Armed Services Committee owns property rights in regard to national defense affairs. Some of the rules Congress attaches to funds are very specific whereas other rules are less so which gives some discretion to military officials. Of course the political posturing by legislators may significantly impact the geographic location of defense contracts and render certain programs almost immune from cancellation even when it would be prudent to terminate them. Additionally, there is evidence that members of committees fare better than other legislators in receiving the benefits of committee decisions (Weingast and Marshall, 1988; Ferejohn, 1974; Weingast and Moran, 1983). Finally, only Congress can declare war.

Although the power of the president was envisioned by the Founding Fathers to be rather limited, this power has grown over the years, especially during times of war. In response to the growing powers of the President as the commander-in-chief of the military, the War Powers Resolution (Public Law 93-148) was passed in 1973 to limit the power of the President to wage war without the approval of the Congress. This law

required the President 'in every possible instance' to consult with Congress before committing the U.S. to military action. Thus, although the President cannot declare war, he has often initiated the use of military force in consultation with the Congress. The meaning of 'consultation' has been debated and the President has sometimes consulted Congress after deploying U.S. forces into hostile or potentially hostile environments. Nevertheless, the Congress has tended to defer to the President on matters concerning U.S. military engagement.

As the head of the executive branch, the President also has considerable influence on the military market through his formal power to manage the bureaucracies—all of which must report to him. The President can and often does change many regulations with the stroke of a pen, whereas individual Congressman must work through the political process in order to effect change. Since the President's constituency is broader than that of individual Congressman, he has more of an incentive to create a unified and coordinated bureaucratic system.

A popular President with a very strong preference for a large military can exert even more influence on the military market than the impacts above might suggest. For instance, President Reagan clearly had a large impact on the military market during the 1980's (Rowley, 2002). Although he promised to increase defense spending, cut taxes and reduce domestic spending and regulations, he was not able to achieve all of his goals. Congress bought in to the tax cuts and increased defense spending, both of which help their constituency, but balked at reductions in domestic programs, entitlements and regulations, which would have damaged their electoral prospects. This bilateral veto

game resulted in enormous deficits—the separation of powers that was intended to restrict the size of government actually ended up increasing the size of government dramatically.

Finally, the military-industrial complex (MIC)[4] may influence the level and quality of defense services beyond what each player within the MIC might be able to influence individually. President Eisenhower stated in his 1961 farewell address:

> "In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist. We must never let the weight of this combination endanger our liberties or democratic processes. We should take nothing for granted. Only an alert and knowledgeable citizenry can compel the proper meshing of the huge industrial and military machinery of defense with our peaceful methods and goals so that security and liberty may prosper together".

Within the defense industry, there is a long history of cost overruns and many instances of weapons being delivered with much lower quality than contractually required. Yet, in many cases, defense contractors have been shielded from the severe consequences that would befall a private company under similar conditions. Of course, many of these contractors are sole source (or one of very few) providers of a particular defense good, and to punish them severely might eliminate them or reduce competition within a particular defense procurement sector. This reason, among others, has been used to prop up or bail out poorly performing suppliers in order to maintain what is perceived as a necessary military industrial base.

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[4] The term "military industrial complex" was first used publicly by President Eisenhower in his Farewell Address to the Nation in 1961.

Various individuals within the defense-related establishment have often argued that even in times of relative peace, the ability to ramp up production of various weapons quickly is critical to national security. Although competition is highly regarded by economists in terms of the efficiency properties it tends to generate, the standard arguments for competition may not hold in the military market. First of all, competition is regarded as healthy if it arises naturally rather than through an artificial government induced or supported means. Additionally, there are certain markets, e.g. in declining cost industries, where a monopoly supplier may be most efficient. Riordan and Sappington (1989) develop a theoretical model of defense procurement where a second source of production is of limited value or in many instances would be inferior to a sole source producer. There is some validity on both sides of the argument and determining the optimal number of suppliers within the military industrial base is a difficult and politically charged task.

Of course these three legs of the iron triangle; the military, the defense industry suppliers and Congress all benefit from large defense budgets, although inefficiencies are not in everyone's best interest. On the other hand, a popular and clever President may be able to destabilize an iron triangle and limit its influence (Rowley et al, 1995). Thus, some of the impacts on the military market that have been attributed to the MIC may be overblown and a more rigorous analysis of the military market may be achieved through the application of standard Public Choice theory. These Public Choice arguments are taken up next.

Public Choice and National Defense

Public Choice is defined by Mueller (2003, p. 1) as "the economic study of non-market decision making, or simply the application of economics to political science". Prior to public choice theory, public officials were often depicted as benign agents carrying out their duties as benevolent public servants. However, public choice scholars (Tullock, 1965; Downs, 1967; Niskanen, 1971) depicted politicians and bureaucrats as rational, self-interested agents—the same traits prescribed to private economic agents. Using these Public Choice tools and insights we shall examine the U.S. defense establishment.

Rational Ignorance. How can majority election processes yield policies most economists agree are harmful (e.g. trade protection policies) to a majority of citizens—surely the rational actor models must be abandoned. However, the models may be salvaged by acknowledging that in certain situations it may actually be rational for voters to remain ignorant about specific policies. Rational Ignorance models (Congleton, 2001; Caplan, 2001 and 2002) show that an individual realizes the probability of his particular vote has a negligible impact on the outcome, no matter how informed he is about a particular policy. Therefore, the opportunity cost of becoming informed is far greater than the benefit he expects to receive from becoming informed and socially harmful policies may result.

Pressure Groups. Issues about which voters choose to be rationally ignorant create an opportunity for certain groups to exploit the situation for their advantage. These groups may offer votes/funds in exchange for specific policies that are beneficial

to their small group at the expense of taxpayers in general. Olson (1965) is noted for his contributions to interest group theory along the 'tyranny of the majority' line of research. On the other hand, Becker (1983) and Wittman (1989, 1995) portray pressure-group politics as a competitive process that leads to relatively efficient outcomes. U.S. legislators are generally more susceptible to pressure group politics than most of their parliamentary counterparts due to the weaker party structure. Lobbying and other rent-seeking activities by private defense interests can lead to fragmented, less-efficient procurement strategies and the continuance of systems unwanted or unneeded by military users.

Logrolling. A logroll can occur if a legislator exchanges his vote on an issue he cares little about for one in which he has a stronger preference. Buchanan and Tullock (1962) show that the logroll may lead to a more socially optimal level of public goods provision. Other researchers show the logroll as inherently unstable (Bernholz, 1973) and a source of inefficiency (Tullock, 1959). Normatively, the discussion of logrolling comes down to the question of whether the electoral system defines jurisdictions according to the spillover of public goods. As a result of logrolling, many local defense programs may be approved that would not be possible if legislators voted sincerely and with national interests in mind.

Public Goods. Even among mainstream economists today, the debate continues about not only what constitutes 'market failure' but also about if or when the government should intervene to correct the maladies of the market. However, one area where mainstream economists tend to agree on the presence of market failure is that of public

goods. Public goods are often defined as those goods which are non-rival in consumption (i.e., consumption by one person does not diminish the amount available to another) and non-excludable (i.e., the good cannot be excluded from non-payers). The non-excludable property of public goods leads to the free-rider problem since individuals might decide not to pay their share and depend on others for public goods provision. Sub-optimal levels of public goods arising from the free-rider problem may be overcome by the government levying taxes on its citizens to pay for the good.

National Defense as a Public Good. Defense is often used as the quintessential example of a public good in neoclassical economics. Once a national defense system is established, the marginal cost of protecting another citizen is effectively zero. However, the example may not be so pure. For instance, if military forces were required to fight two battles at once, it would be inaccurate to say that provision of defense on one border does not diminish the amount available for another. Additionally, not everyone would agree that defense should be provided collectively through government means (Rothbard, 1962, pp. 883-890). Moreover, even if everyone agreed national defense provision is a proper role for government, there would remain significant disagreements over the level of national defense required and how to organize and control those resources[5].

Principal/Agent Problems. An employer (principal) that hires a worker (agent) to produce goods or services wants the worker to apply himself diligently to the task assigned. On the other hand, the worker would prefer to proceed at a much more leisurely pace than the employer would like. Thus, the employer might need to monitor

[5] Of course private security forces and/or mercenary armies have been utilized in the past although usually not as the sole source of military capability.

the performance of the employee so that he can observe and penalize sub-optimal performance. However, the monitoring process is costly to the employer. This dilemma represents the classic principal/agent problem that is so common in economic analysis. In large organizations where there are many workers, the problem becomes more severe.

Bureaucracy. The terms bureaucrat, bureaucratic, and bureaucracy are most often used in negative ways and tend to conjure up images of waste and inefficiency. Therefore, it is not surprising that there have been repeated attempts to privatize bureaucratic organizations or functions in the name of efficiency. Some of these exercises have been successful, but there is no guarantee. For instance, Mises (1944/1983) claims that bureaus are a necessary part of democratic processes, and that bureaucratic inefficiencies are often "not simply the result of culpable negligence or lack of competence. They sometimes turn out to be the result of special political and institutional conditions or of an attempt to come to an arrangement with a problem for which a more satisfactory solution could not be found" (p. 53). On the other hand, since a bureau cannot utilize profit/loss accounting to guide them along like private enterprises can, even a well-run bureau would find it difficult to achieve efficiency in production. Additionally, these public enterprises are more vulnerable to the political environment than private, for-profit enterprises. Of course bureaus can become very inefficient, but there are fundamental differences between private firms and public enterprises that must be recognized.

The early work of Tullock (1965) and Downs (1967) on the bureaucratic process touched off more formalized efforts on bureaucratic analysis. Niskanen (1971, p.15)

defines a bureau as non-profit organization financed primarily by an appropriation or grant from a sponsor; an organization in which no individual can appropriate legally any part of the difference between revenue and costs as personal income. His initial contribution was to apply the principal/agent problem to bureaucratic politics and show that the principal (Congress)/agent (bureau) problem can result in a lack of effective control for the principal and an ability for the agent to expand his budget over time well beyond an efficient level. Since Niskanen's first model of bureaucracy, other models (Weingast & Moran, 1983; Weingast, 1984; McCubbins & Schwartz, 1984; Moe, 1987) have come forth highlighting various institutional features of Congress and the role of the President that serve to limit the exploitive power of bureaus. At the other extreme, Breton (1996) and Wittman (1995) models depict political pressures offsetting each other and generally leading to efficient bureaucratic outcomes.

The Bureaucracy of National Defense. Although the organizational structure through which public goods are provided may take several forms, national defense in the U.S. is provided through a government controlled bureau. National defense is ultimately under the control of civil authorities in order to minimize the potential for the military taking over control of the government.

There is overwhelming evidence that private organizations can achieve significant efficiencies compared to government provision[6]. Therefore, there may very well be some inherent properties of bureaucratic systems that constrain efficiency or even work directly

[6] Mueller (2003, pp. 373-380) provides a summary of 71 different studies comparing the provision of similar services by public and private firms; generally private firms are much more efficient except in a few cases.

against efficiency (Warren, 1975). Although we should not expect all public officials and bureaucrats to act completely in a self-interested manner, the use of rational choice models are still very useful and often yield robust results. Similarly, we should not expect all politicians or bureaucrats to behave in purely selfless, socially efficient ways.

Many of the key Public Choice insights are highly relevant to the military market and will contribute significantly to our understanding of this environment. First of all, voters are likely to remain rationally ignorant about national defense policies and programs. That is, even if an individual (a typical citizen) was aware that a particular defense procurement program was not cost effective or in the national interest, there is virtually nothing that he can do to shut the program down. Therefore, there is no incentive for any individual to become educated about defense affairs. On the other hand, those individuals who stand to gain substantially from a particular defense program would find it worthwhile to organize with other potential beneficiaries in order to exert influence (through campaign contributions or promised votes) on political officeholders and secure the program. Legislators, with their control over public funds, may be motivated to approve programs if doing so gains them votes, or if voting for a program is expected to result in a reciprocal favor by other lawmakers through the logroll exchange mechanism.

Even if the defense establishment were to somehow overcome all of the potentially inefficient political influences, the Public Choice arguments relating to the organic bureaucratic organization itself would paint a dismal picture of national defense provisioning processes. The Defense Department is such a large organization where the

principal/agent problem is not only ambiguous, but multi-layered. Additionally, it is often very difficult to measure the output of a bureau which makes identifying, much less correcting inefficiencies very challenging.

Thus, given the various influences, pressures and potentially inefficient structure and processes, we might expect our defense system, in theory, to operate poorly in general. Next, we will look more closely at how the military market operates after the political dust has settled (at least temporarily settled).

Execution Phase and the Military Market

The institutional apparatus comprising our national defense system goes through similar machinations each year; the various players battle and compromise, eventually producing approved programs or projects, force levels and spending authority along with various spending rules. Quite obviously, physical capital is essential to the military mission. However, since these capital inputs are broadly determined by the political process mentioned above, and since this process occurs largely prior to and separate from the operational or execution phase, physical capital is treated as given to the execution phase. This execution phase, where the military services carry out their primary missions within the constraints they have been given, is where we will focus our attention and analysis henceforth.

Efficiency and the Military Labor Market.

Since a primary objective of this research is to analyze the human capital element of national defense, there are some very basic economic arguments that should be

highlighted as it applies to the military labor market. Rather than review the large literature concerning the merits and disadvantages of conscription versus voluntary military service, we shall present some fundamental economic concepts in order to better understand why the present system has survived and even thrived under some difficult circumstances.

During the Vietnam War, the United States used the method of conscription to fill its military ranks. Many draftees (and potential draftees) avoided military service through various deferment programs, through political connections or by leaving the country altogether. In 1973, the U.S. military transitioned from a conscripted force to an all-volunteer force. Consequently, this labor market obtained some of the attractive features of private markets. Although some of the advantages of voluntary service are quite obvious, others are not necessarily so easily grasped. As a nation founded on strong ideals of personal liberty, the ability of Americans to choose freely whether to join the military or join the private labor force must be viewed as an advantage over compulsory service.

Almost all economists today agree that private markets are much more efficient than those planned by government officials. In fact, the private market is the benchmark against which the efficiency of other institutions is measured. But what exactly is meant by efficient? To understand what is meant by the economic term 'efficiency' we shall review the arguments set out by Ludwig von Mises in an article he wrote in 1920 entitled "Economic Calculation in the Soviet Commonwealth". This article formally touched off a debate that Mises (and others) fought vigorously against various socialist advocates.

Mises' basic argument was that if you want to employ your scarce national resources in their most valuable (efficient) uses, then you must have market prices so that you know the opportunity costs of employing them in alternative uses. Further, the only way to have reliable pricing signals is to allow trade in markets. Finally, the only way to have trade in markets is to allow individuals to have property rights. It is important to note that although Mises and his camp had effectively lost the debate by the mid 1940's, they found redemption and a newfound respect in their economic reasoning with the fall of communism in the 1990's.

Applying Mises' arguments to the military labor market, we should expect that voluntary service, in theory, would tend to be more efficient than conscription. That is, individuals who own the right to their own labor services (through the all-volunteer program) would choose to contract their labor in a manner that maximizes their own utility and would collectively result in a more socially optimal allocation of resources as well.

In practice though, the voluntary system may fall short on several grounds. For instance, those military authorities who know best what mix of talents they need to fill their ranks are at the mercy of Congress and the political process that determines force levels as well as pay and benefits levels. Even if there was strong cooperation between defense officials and Congress, the process is rather slow and inflexible such that it may be very difficult or impossible to implement incentive packages in a manner that would allow full realization of efficiencies. On the other hand, even with an imperfect voluntary

system, we should expect individuals that self-select to contract their labor with the military to perform at a higher level than those compelled into service against their will.

Another attractive property that has been analyzed already within the literature is the more explicit economic efficiency properties of voluntary service. For instance, a person capable of generating, say $100,000 of income per year in the private market that is forced to earn $30,000 in the military results in a loss to the national economy of $70,000 per year. Of course when we consider the potential misallocation of labor resources in the largest single employer in America, the economic advantages of the all-volunteer military becomes more apparent.

Demand for Military Labor.

In executing its authority and fulfilling its mandate, defense officials naturally need labor inputs. However, Congress (along with the influence of the President) determines force levels as well as pay and benefit levels. Within these constraints, each branch strives to recruit various types of individuals to fulfill a diverse range of military roles. Moreover, the demand for military personnel across and within the military branches can be quite intense.

Over time, military weapons have become much more complex. As a result, the military needs "more and more highly trained personnel, with higher educational levels. The least specialized functions tend to disappear (they are either automated or outsourced). On the other hand, the training of these specialists is long and costly. In order to make this training cost effective, personnel must remain in place for a minimum period of time" (Manigart, 2003, p. 325).

Additionally, although U.S. military force levels (active and reserve) have dropped significantly since the end of the Cold War, the DoD has increasingly relied upon reserve forces to prosecute the Global War on Terror which began in 2001. Figure 4 highlights the trends in U.S. force levels and figure 5 depicts the increased utilization of reserve forces since 2001.

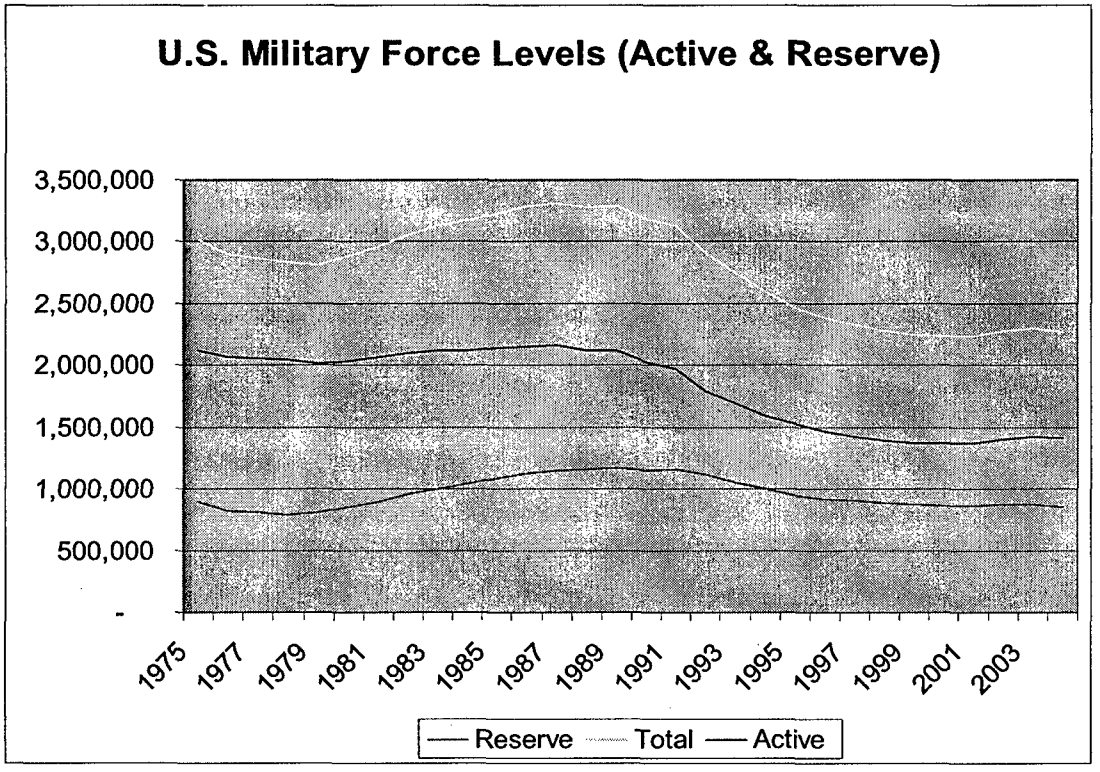
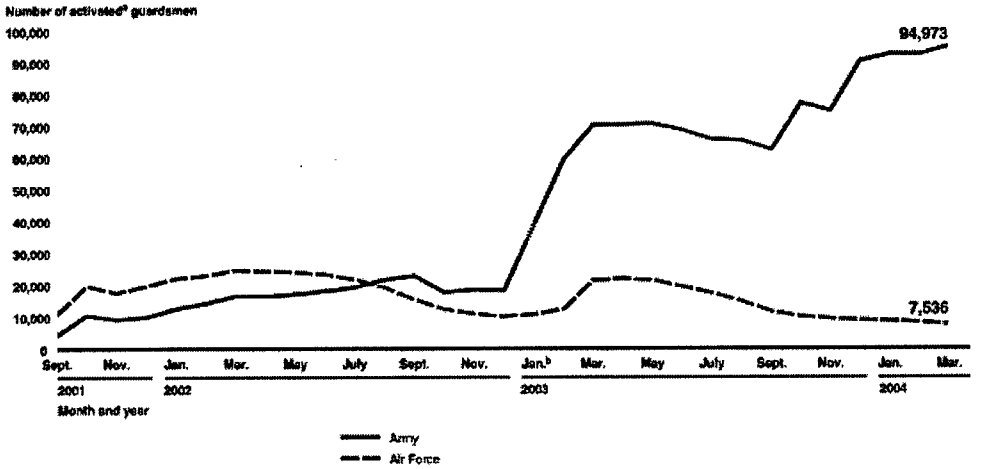


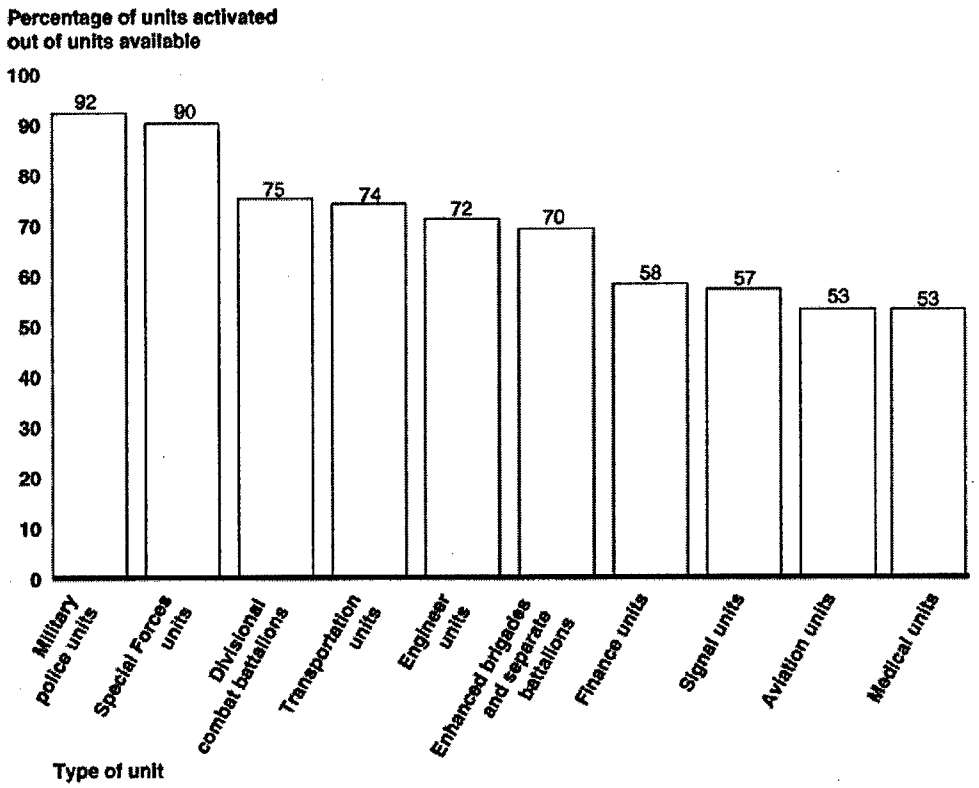
Figure 4. U.S. Active Duty/Reserve Force Levels Over Time. (Defense Manpower Database Center)



[a]Army National Guard data represent the number of soldiers alerted and mobilized. Air National Guard data represent the number of airmen who are mobilized.
[b]Because Army National Guard data for January 2003 are not available, chart data point was estimated based on trend.

Figure 5. Post-September 11 National Guard Federal Activity under Title 10. (GAO, 2004).

To make matters worse, certain specialties as depicted in figure 6 within the Army National Guard have been "used extensively and at rates that DoD reports cannot be sustained for long durations (GAO, 2004, p. 7)



Note: Data through March 31, 2004.

Figure 6. Types of Army National Guard Units with Highest Post-September 11 Use. (GAO, 2004)

Supply of Labor.

The suppliers of labor in this market are obviously, men and women (mostly citizens 18 or more years old). The fact that private market opportunities exist, means that incentives must be offered to attract the right types and numbers of people. Since exit from the military market also exists, at least in a limited sense, the conditions of employment must be attractive enough to foster desired retention. Additionally, the incentives required fluctuate depending on general economic conditions and other factors. Besides the basic pay and benefits package, additional incentives offered include

college scholarship funding, enlistment bonuses and technical training that may serve to enhance future private market prospects.

The labor pool has changed significantly over the years. As Table 1 shows, the military has increasingly eliminated barriers to military service for blacks, women and homosexuals, although some barriers do still exist.

Table 1. Key Events Affecting the Military Labor Supply (Dunivin, 1997).

1940	Blacks were accepted into training for Army Air Forces
1942	Navy opened up more career fields (other than steward occupation) to blacks.
1948	President Harry S. Truman issued Executive Order 9981, mandating the integration of blacks in the military.
1948	Congress passed the Women's Armed Services Integration Act, which established a permanent but separate women's corps in the military services.
1951	Defense Advisory Committee on Women in the Services (DACOWITS) was established.
1963	Department of Defense (DOD) established civil rights office and directed each military service to develop internal civil rights monitoring systems.
1967	Public Law 90-130 removed the statutory ceiling on the number of military women (2 percent) and grade limitation (one line colonel per each service).
1972	Reserve Officer Training Corps (ROTC) admitted women.
1973	Flight training opened to Army and Navy women; Air Force in 1976.
1974	DOD rescinded its policy which involuntarily separated pregnant servicewomen.
1976	Military service academies admitted women.
1977	Army began coeducational basic training of women and men recruits (the Army returned to separate training in 1982).
1977	Air Force assigned the first women to Titan missile launch control crews.
1978	Public Law 95-485 abolished the Women's Army Corps (WAC), fully integrating women into the Regular Army.
1978	First Navy women reported for sea duty aboard USS Vulcan.
1980	DOD issued its first sexual harassment policy statement (in 1981 the SecDef issued a memorandum emphasizing that sexual harassment was unacceptable conduct).
1981	DOD issued a policy that banned homosexuals from military service.
1985	Air Force assigned the first women to Minuteman/Peacekeeper missile launch crews.
1989	Servicewomen participated in Operation Just Cause.
1990-1991	More than 40,000 women participated in Operations Desert Shield and Desert Storm, many in nontraditional roles. Two women were prisoners of war and five women died due to hostile action.
1993	SecDef directed the military services to open combat aircraft and ships to women. Congress repealed laws prohibiting women from assignment aboard combatant vessels.
1993	SecDef directed implementation of "Don't Ask, Don't Tell" policy allowing discreet homosexuals to serve in the military.
1994	Since SecDef Memo, DOD opened an additional 260,000 positions to women. Today 80 percent (versus 67 percent before SecDef Memo) of military positions are open to women.

Team Production.

A nation's military might is defined in terms of the collective capability of its military. However, we must remember that a military group is made up of individual fighting agents, each with their own preferences, goals, weaknesses and strengths. Indeed the ability to motivate diverse individuals toward a common goal has often been more decisive in battle than sheer numbers or dominant firepower.

Since military combat units are normally organized into relatively small groups of men that must work together to achieve specified objectives, we should recognize the challenges that joint or team production arrangements present. According to Alchian and Demsetz (1972), team production will be used if it yields an output enough larger than the sum of the individual inputs could achieve including the costs of organizing and disciplining team members. The primary problem with team production is that the marginal products of cooperative team members are not so directly and separably observable. Since individual utility functions include both leisure and income and because monitoring is costly, team members will shirk more than is optimal for themselves and for the team. Consequently, the problem becomes one of determining how to reward individuals and provide them incentives to work efficiently. Alchian and Demsetz (p. 790) show that in those activities where team production is most important is where we usually observe team loyalty and spirit most strongly encouraged. Their

analysis also helps explain the enormous emphasis the military places on training; an emphasis separate from that needed solely to build optimal team spirit and loyalty[7].

Prisoners Dilemma on the Battlefield: A Critical Analysis.

Game theory is a branch of applied mathematics that was developed as a tool for understanding economic behavior. A prisoner's dilemma is one of the most common games used by economists to illustrate how privately optimal choices may lead to highly inefficient social outcomes. Although game theory is certainly abstract and reduces complex phenomena into much more simple terms, the interest in and application of game theory continues to grow in the social sciences. For instance, the 2005 Nobel Prize in Economics was awarded to Thomas Schelling largely for his work in game theory.

Battlefield conditions can drastically intensify the problems related to shirking and team production. The severity of the free-rider problem in a combat setting will be highlighted through an example adapted from Brennan and Tullock (1982) in the form of a Prisoners Dilemma game. We will see that for an army under attack, "the collectively

[7] The example in Alchian and Demsetz that relates well to military training is where particular teams in a sports league, realizing that not only absolute skill is relevant to consumers but skills relative to other teams too means that players are induced to overpractice relative to the social marginal value of their enhanced skills. It may also appear the military invests excessively (in training etc.) relative to the actual technical skills that are developed, but that does not mean there is overinvestment relative to the social value of the investment. First of all, the stakes are much higher in the military—since national security depends on military readiness. Additionally, in the military, training also serves to develop cohesion and other less tangible skills that are so crucial for military units. Moreover, U.S. military authorities do not typically know the number and quality of future adversaries well in advance, so that a determination of the skills needed can be ascertained. Finally, military authorities want the ability to overwhelm the enemy so that their will is broken quickly, whereas in sports, a single extra point defines the victor. Of course particular sports teams may also want to dominate their opponent but it is not nearly as important as it is for the military.

rational thing to do is to stay and fight [or charge the hill], the individually rational thing to do is to run (or to attempt to avoid conflict in some other manner" (p. 228).

Table 2. Prisoner's Dilemma on the Battlefield.

	Soldier B charges the hill	Soldier B runs away
Soldier A charges the hill	(3,3)	(4,1)
Soldier A runs away	(4,1)	(2,2)

In the prisoners dilemma matrix in Table 2 above, soldier A and B are in the same military unit and are deciding (of their own volition or as commanded) whether to charge a hill where enemy forces are expected to exist (although these enemy forces may be hidden from view). The numbers in parenthesis are payoffs associated with each particular outcome—a higher number being more desirable. The standard neoclassical economic assumptions are that both agents are self-interested and rational. From soldier A's perspective, if both charge the hill they each receive a payoff of three. However, suppose that A is unsure if he can trust B completely, then if A charges, and B runs away, A receives only one and B receives four. This is so because if only one charges the hill, he is less likely to overcome the enemy and more likely to be injured or killed. The one who flees may have a better outcome since the enemy's attention will be directed, at least temporarily, to the one who does charge. On the other hand, if A is certain that B will not run away, his best option is to run away himself, which yields A four and B one. Soldier

B perceives the strategy exactly as Soldier A, so that the most rational choice for each, individually, is to run away no matter what his comrade does.

Unfortunately, this equilibrium is inefficient. First off, if they could both somehow be sure that the other will cooperate (charge the hill), then they both would achieve a higher payoff individually than could be obtained otherwise. Further, the cooperative solution is socially optimal in the sense that the combined payoffs for cooperation are higher than the combined payoffs of any other solution. Of course from the military's viewpoint, having the soldiers charge rather than run away is certainly a desirable outcome (excluding the case where it may be optimal to retreat). This is nothing more than the most standard form of a prisoner's dilemma game applied to a military combat setting. Of course, the dilemma is more pronounced in a combat setting than in typical situations due to the high probability of death or injury.

Initially, it may seem that this example is unrealistic since it represents a simple example involving only two military agents, whereas in reality there are a large number of military agents on the battlefield. But the problem of free-riding (or not cooperating) becomes more severe with larger numbers of 'players'. That is, in very large groups it is much more difficult to detect agents breaking the rules—which serves to increase the incentives to defect (or not cooperate). This may be one reason that military units are organized into relatively small units. But in the face of extreme danger, cooperation may be very difficult to obtain through the use of rewards and sanctions even in small groups. For example, Frey (1997) argues that state-initiated punishments and bribes designed to promote cooperative behavior may do the opposite by destroying the natural motivation

of individuals to behave morally. Rawls (1971) depicts a similar process, but in the opposite direction; where the moral (or cooperative) behavior of one individual promotes moral behavior of others, which reinforces the behavior of the first—creating a snowball effect.

Thus far, we have shown how difficult it should be for combat troops to reach the cooperative solution. Yet in practice, the U.S. military has apparently overcome the predicted inferior Nash equilibrium. There are several means by which we can explain this divergence between theory and practice. One possibility is that the threat of punishment (or actual punishment) is sufficiently severe that the potential for defection is largely overcome. In previous eras, cowards and deserters were dealt with severely on the spot[8], which may have been a strong control mechanism for military authorities. Although rather severe penalties are still meted out for deviant behavior in the military, such punishments are not nearly as harsh (or presumed as effective) today as those used in earlier times.

On the other hand, much has been written about positive incentives that may induce individuals to behave in socially optimal ways. For instance, military decorations for courage might be expected to elicit courageous behavior at the margin. Likewise, a system that provides promotion based on heroic deeds might result in socially beneficial outcomes as well.

[8] "The discipline of the Greeks was secured by exercises and rewards; the discipline of the Romans was secured also by the fear of death. They put to death with the club; they decimated their cowardly or traitorous units" (Ardant du Picq, p. 51).

Another possibility is that the 'players' view their situation as playing a repeated game. That is, they perceive this as a repeated prisoner's dilemma game, instead of a one-shot game. Theory and experimental evidence both suggest that much higher levels of cooperation may be achieved when the game is considered a repeated one. However, on the theoretical side, if one of the players believes he knows with some degree of certainty when the game ends, his optimal solution is to defect on the last turn of the game. Similarly, if other players are rational, and have similar ideas about the number of turns left, then it would be rational to defect the turn before last. Using backwards induction, the process continues to unravel until there is no cooperation from the start. On the other hand, if the players believe the probability of the game continuing is sufficiently high enough, it would be viewed as a repeated game for all intents and purposes and should lead to more cooperative (optimal) solutions.

Whether a combat troop, at the moment of deciding whether to charge the hill, perceives the situation to be a repeated or one-shot deal is complicated. Indeed there are many other variables and complications that we could add to the analytical framework, but the intent in this section was only to show, using standard economic theory how strong the incentives are to shirk (or not cooperate). Moreover, there are a number of other approaches with which we could frame the problem and the analysis; approaches which consider, e.g., culture, reputation etc. more explicitly than was represented in the approach above and may yield different ways around the free-rider problem. In fact, the next two chapters will apply different analytical frameworks to examine how the military overcomes the free-rider problem in a combat setting. However, first we will review the

nature of military labor contracts as well as the key reforms within the broader military market.

Military Labor Contracts.

Because of the inherent difficulty of ensuring contract performance and the potentially disastrous national consequences of poor performance, enlistment contracts are very different than private contracts. A contract breach between private individuals can be remedied through the court system and damages assessed against those failing to carry out the terms of the agreement. Breaches of the enlistment contract can result in more severe criminal penalties that go far beyond the consequences of typical private contract breaches.

In today's military, the majority of recruits sign a delayed-entry contract, which is basically a promise to report for active duty service at some future date as specified in the contract. Although the delayed entry contract is not legally binding, there are claims that recruiters often use various pressure tactics to ensure those on delayed-entry carry out "their contract". Additionally, the actual enlistment contract sometimes specifies the type of training, school or field to which a recruit will be assigned. Due to various circumstances, the military may divert a recruit away from the promised assignment, and it may be very difficult (though not always impossible) for a recruit to do anything about it.

Additionally, military enlistment contracts are not fully specified. For instance, the contract states explicitly the minimum amount of time the enlistee is required to serve on active and/or reserve duty. However, the document also provides several provisions

to unilaterally renegotiate the terms of agreement under several conditions (national emergencies declared by the President, in times of war etc.). For example, each enlistment contract contains the following language: "Laws and regulations that govern military personnel may change without notice to me. Such changes may affect my status, pay, allowances, benefits, and responsibilities as a member of the Armed Forces **REGARDLESS** of the provisions of this enlistment/reenlistment document" (Department of Defense Form 4, emphasis from original).

Defense Procurement: A Critical Analysis

> "How the American military buys its equipment is the subject of public derision. In the minds of much of the citizenry, the Pentagon procurement system is scandalous and the defense industry is manned by fast-buck artists, incompetents, or deranged Dr. Strangeloves who, when they lack weapons of mass destruction to tinker with, design $600 hammers or $5,000 coffee pots".
>
> Gregory, 1989, p.1

The U.S. Defense Procurement apparatus is an increasingly complex web of stakeholders, rules and regulations that produces goods and services for our military forces. There is a long history of problems related to the defense procurement industry. Consequently, there is long history of attempts to reform the "system" although significant improvement has been elusive. Indeed, reports of fraud, waste and abuse continue to grab headlines and the continual parade of reforms seem to reappear under new names with renewed vigor each time. Although some of the reasons the process defies improvement are quite clear, others are not so easily understood. Inefficient procurement outcomes result from agents acting rationally (even from those agents who

believe their actions are in the national interest) from all sides of the procurement machine as well as from the process itself.

Despite the lackluster results of previous reform attempts, there may be room for some optimism in regard to reforms put in place since the 1990's. Such optimism is not necessarily in response to a newfound benevolence among those in the arms industry, nor from an improved political atmosphere. Rather, real improvements may come about due to the shrinking defense budgets. The ever expanding types and numbers of roles the U.S. military has been faced with since the end of the Cold War along with shrinking budgets and declining personnel levels ushered in a new interest in reforming what was seen as a costly, slow defense procurement process. In fact, defense procurement spending plummeted 59% (in real terms) from fiscal year 1987 to fiscal year 1997 (CRS, 2000). Personnel draw-downs resulted in an excessively large and costly military base infrastructure in the eyes of military officials, yet lawmakers predictably resisted closing down bases in fear of losing power or support from their constituency (Kehl, 2003). The "do more with less" adage has become second nature in the defense community and perhaps this time it could mean something.

Economic Analysis of Defense Procurement.

Although the competitive free market is the benchmark against which the efficiency of all other organizational types is measured, there are some drastic differences between the practices of free-market enterprises and defense-market organizations as highlighted in table 3 below. Consequently, we cannot expect the defense market to

achieve the level of efficiency found in private industry. On the other hand, we should continually seek out efficiency enhancing improvements for the defense market.

Table 3. Comparison of Practices from Free-market theory and the Defense Market (Gansler, 1989, p. 159).

Free Market Theory	Defense-market practice
Many small buyers	One buyer (DoD)
Many small suppliers	Very few, large suppliers of a given item
All items are small, and bought in large quantities	Each item is extremely expensive, and bought in very small quantities
Market sets prices	Monopoly or oligopoly pricing—or "buy in" to "available" budget dollars
Free movement in and out of market	Extensive barriers to entry and exit
Prices are set by marginal costs	Prices are proportional to total costs
Prices are set by marginal utility	Almost any price is paid for desired military performance
Prices fall with reduced demand to encourage buying more	Prices rise with reduced demand, owing to cost-based pricing
Supply adjusts to demand	Large excess capacity
Labor is highly mobile	Greatly diminishing labor mobility
Decreasing or constant returns to scale (operating difficulty)	Increasing returns to scale (in region of interest)
Market shifts rapidly with changes in supply and demand	7-10 years to develop a new system, then at least 3-5 years to produce it
Market smoothly reaches equilibrium	Erratic budget behavior from year to year
General equilibrium—assumes prices will return to equilibrium value	Costs have been rising at 5-7 percent per year (excluding inflation)
Profits are equalized across economy	Wide profit variations between sectors; even wider between firms
Perfect mobility of capital (money)	Heavy debt; difficulty in borrowing
Capital (equipment) is mobile with changing demand	Large and old capital equipment "locks in" companies
No government involvement	Government is regulator, specifier, banker, judge of claims, etc.
Selection is based on price	Selection is based primarily on promised performance
No externalities	All businesses working for DoD must satisfy requirements of OSHA, EEO, awards to areas of high unemployment, small business set asides, etc.
Profits are a return for risks	Profits are regulated, primarily as a percentage of costs

All products of a given type are the same	Essentially, each producer's products are different
Competition is for a share of the market	Competition is often for all or none of a given market
Production is for inventory	Production occurs after sale is made
Size of market is established by buyers and sellers	Size of market is established by "third party" (Congress) through annual budget
Demand is sensitive to price	Demand is "threat-sensitive", or responds to availability of new technology, it is almost never price-sensitive
Technology is equal throughout and industry	Competitive technologies
Relatively stable, multi-year commitments	Annual commitments, with frequent changes
Benefits of the purchase go to buyer	A "public good"
Buyer has the choice of sending now or saving for a later time	DoD must spend its congressional appropriation or lose it

One of the recurring problems in defense procurement has been the inability to field weapons in a timely manner. Table 4 highlights the length of time between program initiation and fielding of initial units on 32 weapon systems in production and deployed on December 31, 1991.

Table 4. Delays in Major Weapon System Programs (GAO, 1992).

Type of weapon (number of programs)	Average planned length (years)	Average actual length (years)	Average total delay (years)	Average increase (percent)
All programs (32)	8.53	10.49	1.96	22.94
Aircraft (11)	8.36	9.75	1.39	16.57
Ground vehicles (3)	6.75	8.67	1.92	28.38
Missiles (10)	8.97	11.47	2.5	27.86
Ships (3)	7.36	9.17	1.81	24.57
Other (5)	9.75	11.98	2.23	22.91

Unfortunately, the schedule delays illustrated above are in fact conservative since some of these systems were "fielded" with performance deficiencies or attributes below what was contractually required. From a cost perspective, the story is not much better. Christensen (1993) analyzed a sample of large defense contracts completed since 1977 and found that of the 64 contracts in his sample, the average overrun was $36 million or 18% above initial estimates. Table 5 summarizes the cost overruns by contract type (price or cost), the contract phase (development or production), type of weapon system (air, ground or sea) and by military branch (Air Force, Army, Navy).

Table 5. Final Cost Overrun on 64 Completed Defense Contracts (Christensen, 1993, p. 45).

		Overrun ($Millions)			Overrun (Percent)		
Contract Category	Number	Avg	Min	Max	Avg	Min	Max
All	64	36	-3	493	18	-3	109
Army	28	21	-3	46	20	-3	46
Air Force	18	49	-2	407	19	-1	109
Navy	18	47	0	493	13	0	46
Air	43	45	-3	492	18	-3	109
Ground	13	23	7	42	21	5	45
Sea	8	12	0	36	12	0	38
Developme	25	38	-2	407	21	-1	109
Production	39	35	-3	493	16	-3	46
Cost	23	41	-2	493	14	-1	46
Price	41	34	-3	407	20	-3	109

Although cost growth in weapons procurement has been a serious problem for a long time, we should put it in perspective by comparing this growth with other projects. Figure 7 is adapted from Biery (1985) and compares cost growth of major weapon systems with various complex, technically ambitious non-military projects. The cost

growth in Figure 7 is defined by Biery as "the difference between the actual costs (or the most current estimate of actual costs) and the estimate made at the start of the system's development" (1985, p. 11). These growth factors were calculated in constant dollars to eliminate the effects of inflation. For example, the military weapon systems cost factor of 1.4 represents a 40 percent cost overrun. Biery also states that "if one assumes that the technological advance sought in many new weapon systems is greater than that generally sought in commercial and non-defense projects, then [the data represented in this chart] may even understate the military cost record" (1985, p. 12).

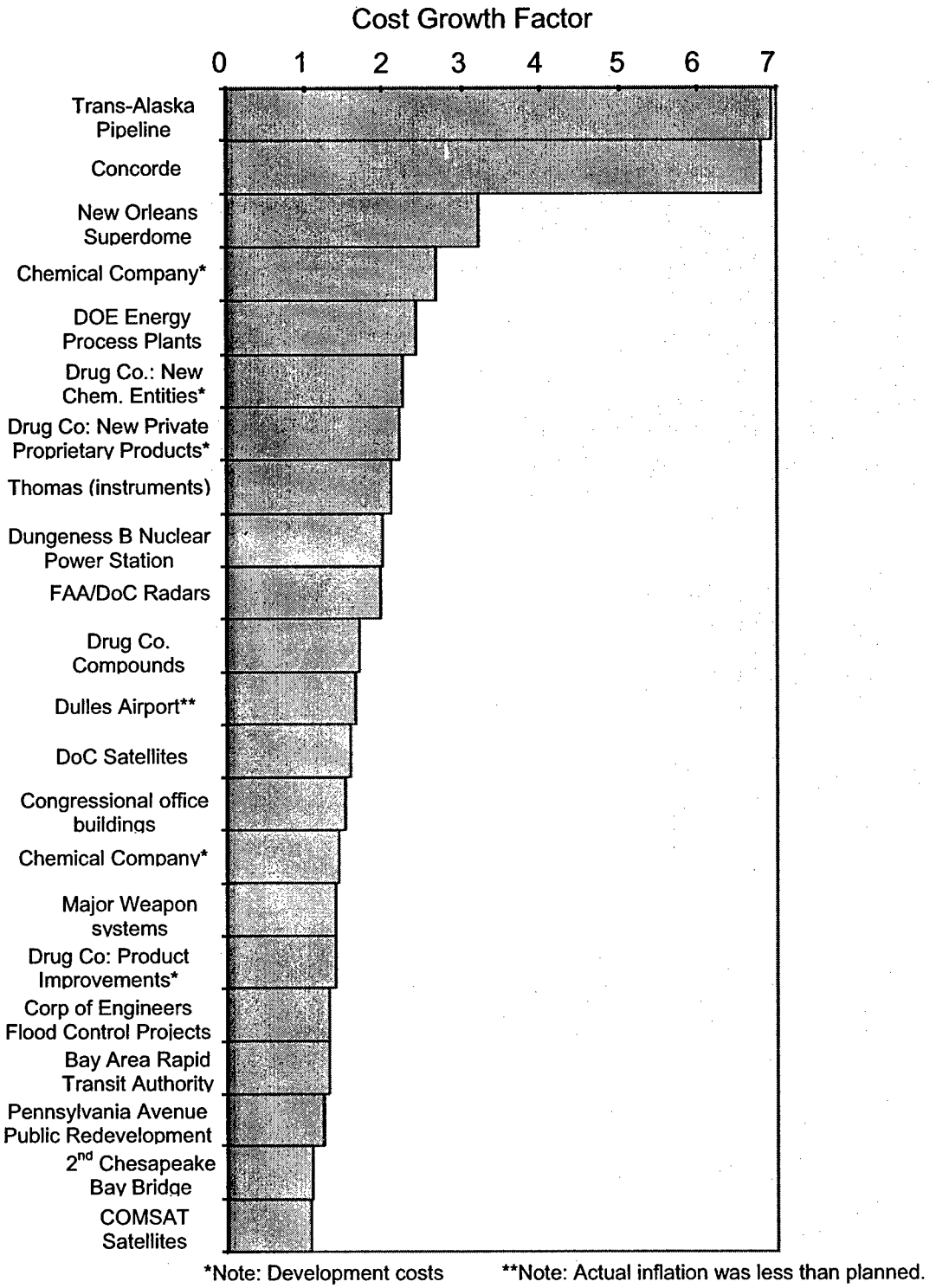


Figure 7. Cost Growth on Various Projects. (Biery, 1985, 12)

Applying a theoretical economic perspective to the defense procurement system, Kirkpatrick (1995) develops a model whereby unit cost increases can arise from a logical and rational procurement policy and not necessarily as a result of technological complications or from military authorities indulging their egos. The main cause of unit procurement cost growth in their model stems from competition between one nation and its rival(s) to achieve a dominant military capability. This vicious cycle comes about as one nation (A) develops a particular superior weapon, which spurs its enemy (B) to make improvements to its weapons and overcome its inferior position. Next, nation A must invest more resources to gain the superior weapon and the cycle continues. As the performance requirement increases, so do the costs of successive generations of the weapon system which usually results in smaller buy quantities. This is a rational procurement policy for the two nations and shows why cost growth has been more pronounced in defense than in the non-defense sector[9]. No matter the reason for the high cost growth, it is real and it puts even more strain on an already strained system. As a result, the ability to attract and retain competent and dedicated military personnel has taken on added significance.

Public Choice Analyses of Defense Procurement.

There is a large Public Choice literature that applies to Defense procurement. First there is the bureaucracy literature that was highlighted earlier in the chapter. From this literature we find that bureaus tend to produce too much output at an efficient price

[9] "For those few civilian goods where the users compete directly against each other and only the winner receives the reward (such as race horses, ocean-racing yachts, and designer accessories), the rise in unit cost has been much faster than the general rise in retail prices" (Kirkpatrick, p. 264).

or too little output in an inefficient manner. The principle components of a senior bureaucrat's utility function[10] include salary, power, patronage, the output of the bureau, security and perquisites of office. Agents within a bureau, according to this rational choice literature, will seek to maximize these elements within their utility set which can be detrimental to the bureau and more generally to national welfare.

There are several reasons why agents within a bureaucratic organization have more room to pursue their own individual interests than would be possible in private organizations. First, there is no residual claimant within a bureau—no single individual can legally take any surplus of the bureau for themselves. The lack of a residual claimant in a bureau reduces incentives to minimize costs through innovation or other means. Additionally, the output of the defense market (as with most bureaus) is difficult to define or measure. Moreover, those within the bureau understand the costs of their activities better than their sponsors. Consequently, it is difficult to monitor the output to determine what level of efficiency has been achieved. Whether a bureau tends to maximize its budget or pursue other goals depends upon its constraints and upon its relationship to its sponsor (Congress). Although bureaucracy models are difficult to test directly, there have been some attempts to do so—the results of which have been mixed. On the other hand, there is ample evidence of waste to suggest the theories have at least some merit.

Another related strand of Public Choice research focuses on the role that Congress plays in Defense affairs. Of course the Constitution explicitly provides the power to spend to the Congress along with the power to "raise an army". However, lawmakers

[10] See Niskanen (1971) for more on the motivations of bureaucrats.

have various means with which to serve their own interests through the defense market that may be very inefficient in social terms and beyond that which the Constitutional framers would have envisioned.

Although a certain level of oversight of the defense procurement complex makes good business sense, too much of a good thing can be stifling. According to Gansler (1989), the size of congressional staffs[11] approximately tripled from around 6,000 staffers in 1960 to about 19,000 in 1985. Additionally, these figures do not include thousands of other analysts available to the Congress through various other agencies (e.g., defense specialists at the GAO, CBO etc.). However, the staffs available to the Pentagon "those who have to answer the mail from Congress, have remained relatively small [less than 5,000] during the same period" (Gansler, 1989, p. 110). Additionally, Gansler highlights the growth of congressional micromanagement as evidenced by the increased studies, reports, laws etc. as depicted in table 6.

Table 6. The Growth of Congressional Micromanagement, 1970-1985 (Gansler, 1989, p. 111).

	Number				
	1970	**1976**	**1982**	**1985**	**Percent increase, 1970-1985**
Requested studies and reports	36	114	221	458	1,172
Other mandated actions for DoD	18	208	210	202	1,022
General provisions in law	64	96	158	213	233
Number of programs adjusted					
In authorization	180	222	339	1,315	631
In appropriation	650	1,032	1,119	1,848	184

[11] Some of these staff members are committee or subcommittee staff, not directly on the staff of a representative or senator (since there are limits on the number of direct staffers a senator or representative is allowed to have).

Whether Congress has increased its oversight over the Defense Department in order to make it more efficient (or to calm public outrage of government waste) or whether it has done so to increase their own power and better service their constituencies is not easy to discern. Unfortunately as we will see in the next section, the increased micromanagement has mainly served to make the system more complex without any offsetting improvements.

The act of trading votes among legislators (logrolling) has been the subject of much scholarly debate. Much of the earlier debate centered upon the normative properties of logrolling—whether it should be regarded as beneficial or not. More recently there have been attempts to determine the extent to which logrolling actually occurs in Congress. Since it is difficult to detect when a logroll has taken place the empirical evidence on logrolling is difficult to sort out. However, Stratmann (1992) found evidence of logrolling on a 1985 agriculture bill. In another study, Stratmann (1995) found evidence of logrolling between legislators representing city, farm and labor interests in their constituency. The empirical evidence on logrolling related to defense contracts is also less than compelling[12]. Again, many Public Choice scholars accept the premise that logrolling is a tool used by lawmakers to advance their own interests (and perhaps the interests of their constituency) although such behavior is typically difficult to prove.

Finally, defense contractors contribute funds to congressional campaigns, through their Political Action Committees which may affect lawmaker's decisions to support

[12] See Carsey and Rundquist, 1999a; Rundquist et. al, 1996; Carsey and Rundquist, 1999b; Mayer, 1991.

specific defense programs. Public Choice researchers call this activity rent seeking[13], and it is closely related to the literature on interest group theory. If special interest groups are able to influence congressional voting, the outcome may favor localized interests at the expense of broader national security objectives. Additionally, the funds used by special interests to buy influence are wasted since they generally are not used to create valuable outputs.

Support for many of the Public Choice arguments above are readily apparent within a 1992 GAO report on the weapons acquisition process. This report argues that procurement problems persist in large part as a result of the acquisition culture—the behavior of various participants, principally DoD and Congress. In fact, the report argues:

> "this culture has evolved as the acquisition process has become a vehicle for meeting the diverse needs of its participants through the steady initiation and sustainment of programs. While individual participants see their needs as rational and aligned with the national interest, collectively, these needs create incentives for pushing programs and encouraging undue optimism, parochialism, and other compromises of good judgment. Under these circumstances, persistent performance problems, cost growth, schedule slippage, and difficulties with production and field support cannot all be attributed to errors, lack of expertise, or unforeseeable events. Rather, a level of these problems is embedded as the undesirable, but apparently acceptable, consequence of the process...Even critics and independent agencies benefit [from acquisition problems] in that weapon systems provide a forum for debate that helps reinforce their roles" (GAO, 1992, p. 35).

From a Public Choice theoretical perspective, Cowen and Lee (1992) develop a model of defense procurement where a certain level of inefficiency is an optimal solution.

[13] Rent seeking is the search for returns above normal through the use of government.

This simplistic model illustrates that where there are no political rents available, politicians have no incentive to approve procurement programs. Thus, if defense contractors can earn excess profits, they can use a portion of these rents to persuade politicians to support their program. Consequently, rents available from otherwise inefficient procurement programs serve to bring forth various worthwhile public goods that may not otherwise be possible to produce.

Defense Procurement Reform Initiatives.

> "Sisyphus...banished by Zeus to the nether regions of Tartarus...was condemned for eternity to push an enormous stone uphill only to have his strength fail near the summit and the stone roll back down. His plight serves as a lesson for efforts to streamline the way arms and equipment are developed and acquired".
>
> Brandt and A'Hearn, 1997, p. 34.

The reference to Sisyphus above is not meant to condemn all defense procurement reforms as exercises in futility. Rather, the intent of the passage and the article in general is to remind us that there are fundamental differences between private and public organizations, and that reforming the acquisition process is a very difficult task that seems to be repeated over and over without making much progress. One of the most important points raised in this article is that the defense procurement system was not designed for efficiency. As an example of the defense industrial base's ingrained attitude that efficiency is often not a primary consideration, consider the following comment from a Hughes Aircraft Company executive in response to the proposed contracting officer rule changes in 1996; "This is a sea change in how we do business with the government, and we don't want to sacrifice fairness in the pursuit of efficiency (Velocci, 1996, p. 20)".

Problems associated with the Defense material acquisition system are certainly not new. Indeed, "since the Revolutionary war, critics have referred to national defense acquisition as primitive practices, hobbled by complex rules, conducted by untrained personnel resulting in defense industry profiteering, poor supplies and equipment, and cost and schedule overruns...Congress first responded to early criticisms of defense acquisition on May 8, 1792, by passing the first law regulating Federal procurement, and in the next 200 years followed with over 4,000 acquisition related statutes" (Reeves, 1996, p. 1).

To present a detailed historical account of defense acquisition reform herein is neither necessary nor useful. First of all, reform attempts have been largely ineffective. Second, each successive wave of reform initiatives has been very similar to previous initiatives[14]. The common thrusts have been attempts to reduce the complexity of procurement systems, provide greater flexibility, funding and program stability, to bring weapons to the field more quickly at lower cost and to reduce fraud, waste and abuse.

In the modern era, a major push to reform the acquisition system was initiated by Robert McNamara in the 1960's. As Secretary of Defense, McNamara's prior experience with Ford Motor Company influenced his vision for reform in defense acquisition. He established the formal Planning, Programming and Budgeting System that is still in use today (although this system continues to evolve). His efforts also resulted in centralization of DoD policy decision-making, and "established requirements

[14] "From a historical point of view, it is evident that while the reform studies and commissions have changed names, many of the ideas and recommendations remained the same between Packard (1970), Carlucci (1981), Grace (1983), Packard (1986) and the Defense Management Report (1989)" (Holbrook, 2003, p. 15).

for analytical rigor in evaluating the need, costs and operational effectiveness of new weapons systems" (Reeves, p. 16). Periodically since this time, other reform initiatives have been put forth (see figure 8) trying to achieve many of the same objectives as the earlier reforms that were either not implemented or not implemented fully[15].

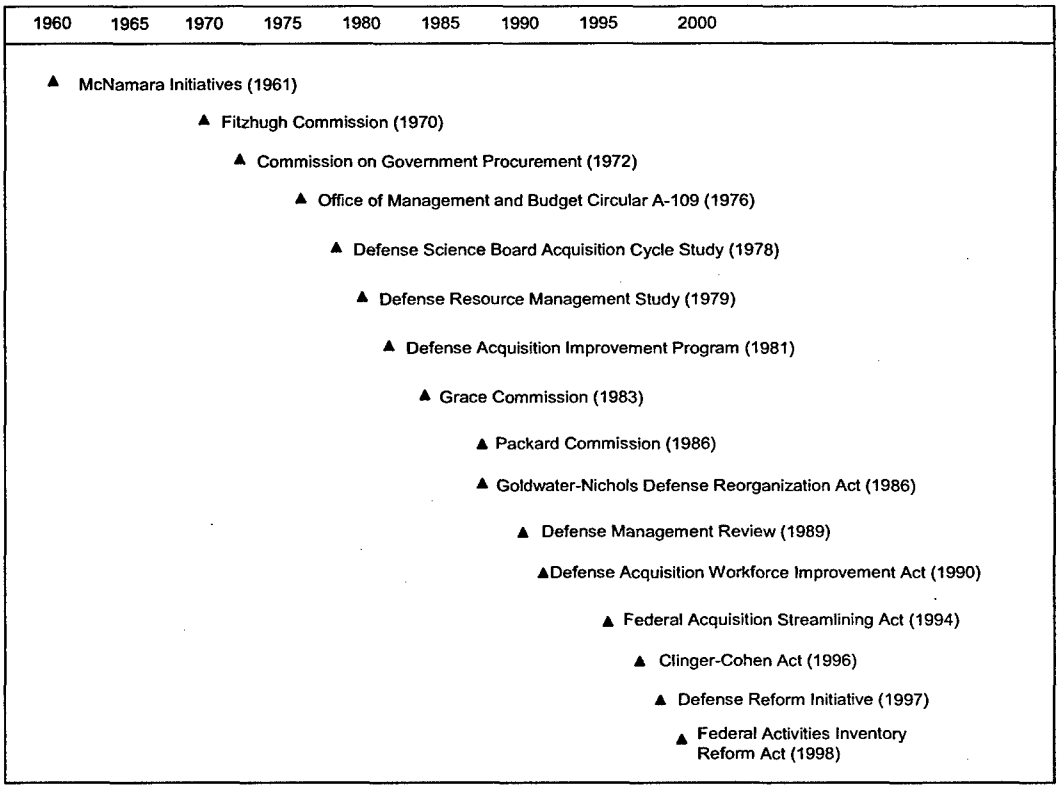


Figure 8. Key Defense Acquisition Studies and Reform Initiatives (Gansler and Lucyshyn, 2005).

As one example of the key elements of a major acquisition reform initiative, table 7 illustrates the Packard Commission's recommendations.

[15] According to McNaugher (1990, p. 188), "reformers have spent a good deal of time and effort since the 1950's trying to centralize, simplify, and stabilize the weapons acquisition process. Yet the process somehow defies centralization and stabilization, and if anything it grows more rather than less complicated...An important part of the problem can be attributed to the political milieu in which reform occurs".

Table 7. Packard Commission's Formula for Action (Holbrook, 2003).

A. Streamline Acquisition Organization and Procedures
1. Create new Under Secretary of Defense for Acquisition position
2. Each service should establish a comparable Service Acquisition Executive (SAE)
3. Each SAE should appoint Program Executive Officers (PEO)
4. Program managers report directly to PEOs
5. Substantially reduce the number of acquisition personnel
6. Recodify federal laws into a single, greatly simplified statute
B. Use Technology to Reduce Cost
1. Emphasize building and testing prototypes to demonstrate new technology
2. operational testing should begin early in development
3. Prototypes can provide a basis for improved cost estimating
C. Balance Cost and Performance
1. Restructure Joint Requirements and Management Board Leadership
2. Joint Requirements Management Board should define weapon requirements and provide tradeoff between cost and performance
D. Stabilize Programs
1. Baselilne programs and use multiyear funding
E. Expand the Use of Commercial Products
1. Do not rely on military specification
2. Use off-the-shelf products as much as possible
F. Increase the Use of Competition
1. Focus on more effective competition, modeled on commercial practices
2. Emphasize quality and past performance as well as price
G. Enhance the Quality of Acquisition Personnel
1. Allow Secretary of Defense to establish flexible personnel management practices
2. Recommend new personnel management system for acquisition personnel, contracting officers and scientists and engineers

The Reagan administration set up the Blue Ribbon Commission on Defense Management in 1985 to examine how the military acquisition system could be made more efficient possibly by borrowing from proven commercial practices. This commission, chaired by David Packard, was initiated in response to "several highly publicized cases of defense program cost overruns, systems not meeting requirements, and perceived contractor fraud in the form of reported $400 hammers, $500 toilet seats, and $700 coffee pots. By May 1985, there were 131 separate investigations pending against 45 of DoD's 100 largest contractors" (Reeves, p. 21). Although these recommendations garnered little support

initially, several recommendations were eventually implemented. Again, most of these recommendations were attempts to overcome the same problems that had been identified previously.

There were some unique motivations for reforms since the Cold War's end. First of all, the large increase in defense spending prior to the Soviet implosion had created significant opportunities to exploit the system. Although there were cases of inefficiency on a grand scale, some of the minor cases of waste seemed to generate the most amount of public indignation. According to Gansler; "in the midst of the Reagan defense buildup, almost every day's newspaper contained a story about waste, fraud, and abuse in defense procurements. However, these articles were not about millions or billions of dollars' worth of cost overruns, or about ineffective weapon systems, rather, they were about fantastic prices paid for familiar items--$9,609 for a wrench, $748 for a pair of pliers..." (Gansler, 1989, p. 195). Additionally, the end of the Cold War brought along expectations of a peace dividend. The declining share of defense spending thus created new motivations for improvement.

In response to the real and perceived inefficiencies, Vice President Gore led the National Performance Review to identify areas for improvement within all sectors of government. The findings were released in September 1993, and the recommendations related to DoD are summarized in table 8.

Table 8[16]. National Performance Review Procurement Reform Recommendations

PROC01	Reframe Acquisition Policy - Reduce rules and regulations
PROC02	Build an Innovative Procurement Workforce - Better education and training
PROC03	Encourage More Procurement Innovation -Test new methods with pilot programs
PROC04	Establish New Simplified Acquisition Threshold and Procedures -Low cost procedures for small purchases
PROC06	Amend Protest Rules -Increased communication between buyers and sellers
PROC08	Reform Information Technology Procurement -Decrease time to purchase computer equipment
PROC09	Lower Costs and Reduce Bureaucracy in Small Purchases Through the Use of Government Purchase Cards
PROC13	Foster Reliance on the Commercial Marketplace -Reduce reliance on government-specific specifications
PROC15	Encourage Best Value Procurement -Lowest Bidder is not always best
PROC16	Promote Excellence in Vendor Performance -Use past performance in contract award decisions
PROC18	Authorize Multi-Year Contracts

The Federal Acquisition Streamlining Act (FASA) of 1994 implemented and built upon the National Performance Review's recommendations in order to simplify the federal procurement system (along with other governmental functions). Later studies have sought largely to expand upon further or implement the recommendations of these studies from the earlier 1990's.

Results of Reform

A study completed in 1993 by Drezner et al. analyzed cost growth on 197 DoD weapons programs. Their results show that cost growth continued to remain, on average

[16] Adapted from Holbrook (1993) and taken from NPR (1993).

around 20 percent per year since the mid-1960's suggesting that prior reforms had made little headway—at least from a cost perspective (1993). A study by Searle in 1997 analyzed contracts completed between January 1988 and December 1995 to determine the impacts from Packard Commission reform initiatives. His analysis found no significant improvement and in fact, cost performance actually worsened in some cases subsequent to the Packard reforms.

Although much of the research concerning the effectiveness of acquisition reform has found little evidence of real improvements[17], there have been some glimmers of hope. For instance, Christensen and Templin (2002) found that certain reform initiatives implemented in the wake of the Navy's A-12 procurement debacle had resulted in some cost performance improvement on other programs.

But again, in light of the complexity of the acquisition process, the political influence and other obstacles deterring real reform highlighted above, we should not expect major improvements overnight. On the other hand, the pressures to reform in the wake of the Cold War's end are significant enough that we may actually see some real improvements in defense acquisition process just over the horizon. Defense spending has been on a downward trend since the late 1980's (as a percentage of GDP) which may serve as a catalyst for reform. Additionally, even though defense spending declined to around 3% in the last few years, this figure is a significant amount of resources when we consider the size of the U.S. economy. Additionally, "nearly two-thirds of the total

[17] See Holbrook (2003) for discussion of studies related to acquisition reform effectiveness. For instance Drezner et al, 1993 found little improvement from reforms and Searle, 1997 found that cost performance actually worsened on some programs completed after the Packard initiatives.

Defense budget is used for acquisitions that include: funds for operations and maintenance of field equipment to ensure force readiness (approx. $121 billion); procurement of major weapons systems or equipment such as aircraft and tactical vehicles (approx. $77 billion); and research, development, test and evaluation of proposed and early stage weapons systems and development of support technology (approx. $70 billion)" (Gansler and Lucyshyn, 2005, p. 2). Thus reform in defense procurement is certainly worth pursuing.

Of course, even if real reform was on the way, the current war on terrorism and other current U.S. foreign policies may impact the reforms that were implemented in the 1990's. Nevertheless, there has been a renewed emphasis toward some key reforms that seem most likely to yield benefits in the future if implemented in the right way.

For example, there was a shift from the traditional 'lowest-bidder wins' style of defense contracting to 'best value' contracting. Best value contracting now allowed evaluation of factors "including 1) technical competence; 2) proven past performance; 3) management capability; 4) life cycle costs, not just the initial price; and, 5) quality. The "best value" may not be the lowest bid offered; in fact, a Navy contract award based on "best value" resulted in the awarding of a $1.5 billion dollar contract (to build three LPD-17 amphibious assault ships) to a bidder that was $100 million more expensive than the lowest bidder" (CRS, 2000, p. 6).

Another procurement initiative was the shift in emphasis from initial system cost to life-cycle costs. This new 'cradle-to-grave' mentality offered the potential to drastically reduce the total cost of ownership. This approach "is likely to force decision-

makers to consider trading away some system performance to achieve greater cost savings. The policy, called CAIV, [cost as an independent variable] would attempt to move away from a major tenet in the Cold War culture of trying to achieve the best level of weapon performance at almost any cost. With the goal of lower costs and shorter schedules, the policy would require DOD program managers to examine the weapon system's entire life-cycle — including research and development, production, operation and support— and its cost patterns and objectives" (CRS, 2000, p. 6).

Congressionally-mandated troop reductions had several consequences. First, there were voluntary 'early-out' incentive programs. When these failed to achieve the reduction goals, there were forced troop-reductions. Additionally, defense organizations were required to review personnel functions to determine the true nature of these positions. Although not new to the DoD, "interest in outsourcing and privatization has increased, largely due to federal efforts to reinvent government and other like initiatives. The move toward increased outsourcing had been boosted by success stories in the private sector, and by studies that estimated DOD could reduce costs and substantially increase efficiency. The Commission on Roles and Missions study, for example, concluded that DOD could achieve a 20% cost saving and greater efficiency by relying on the private sector to perform "commercial" activities, such as data processing, equipment maintenance, base maintenance, and installation services" (CRS, 2000, p. 10).

It should be noted that although the acquisition system is riddled with problems, given the relatively huge volumes of activity and money involved, corruption is relatively rare and federal contractors contribute much in value to our national defense.

Additionally, this same system has produced very capable weapons systems that have been able to dominate other nation's military capabilities. Of course, we might ask, what else could we have purchased with a better, more efficient system, or could we have done equally well with less resources. Another important point to remember is that military weapons are becoming increasingly complex. When the demand for high-tech systems reaches a certain level, there are various risks that accompany the normal acquisition process; technical risks (can we develop that technology), schedule risks (can it be done within the timeframe demanded) and cost risks (how accurate can our cost estimates be when we've never developed anything like this before).

Conclusion

> Democracy is the worst form of government—except for all the rest.
>
> Winston Churchill.

If we are to have a national defense system then it makes sense to have it controlled by civil authorities within the government. Unfortunately, the Defense Department, along with all bureaucratic organizations may be regarded as necessary evils in democratic societies. A bureau is necessary since there really is no better way to organize the production of certain types of collective goods. A bureau is evil, because there are many things that hinder the achievement of efficiency or work directly against efficiency. Rather than hold idealistic or naïve beliefs about public officials and public

organizations we may advance our knowledge and improve upon democratic institutions only by acknowledging the same things that Public Choice theorists recognized early on; self-interest is a primal trait of individuals and people will generally respond to incentives.

Besides all the theoretical arguments that point to the inefficiencies related to government organizations, there are many concrete examples of government fraud, waste and abuse. Some argue that the defense procurement program, e.g., is designed to be inefficient and we should expect the problems we get. But there must be room for improvement even within a system that is, by design, far from perfect. If this were not the case, how would we explain the long history of attempts to reform the military market? Many of the documented cases of fraud, waste and abuse in the defense market are not a necessary part of government; they are often the result of self-interested individuals (from DoD, Congress, or defense contractor organizations). Proper incentives and disincentives may help overcome individual inclinations and channel behavior toward more efficient outcomes. On the other hand many individuals may actually believe their actions are in line with the social interest when in fact they are not.

Rigid, uncreative and inefficient government organizations or processes are a drag on the national economy and erode private incentives. Even though the defense acquisition process may not always place efficiency considerations above other considerations, and even though it could never achieve the efficiency of private organizations, and is at the mercy of many stakeholders and the political process, there is and will always be room for improvements in the system. We can only hope that the

stewards of public funds will continue to sincerely pursue efficiency enhancing processes. But it will be wise to remember that "intelligent initiatives aimed at reforming that [acquisition] process will be more successful if they are grounded in the world in which they operate—a free-enterprise democratic society which is at once political, military, social, and economic" (Brandt & A'Hearn, p. 38).

An important point to note is that the analysis and propositions presented in this chapter are not meant as an indictment upon all those involved in the production of national defense. Most definitely, there are devoted government employees in every sector of the government. But if we do not recognize the limitations and influences related to this market, and the large amount of national resources at stake, then we will miss some important opportunities to improve the system, and to protect our national security and personal freedom.

Chapter 3. Military Member Commitment as a Club Good[18]

We few, we happy few, we band of brothers;
For he today that sheds his blood with me
Shall be my brother. Be he ne'er so vile,
This day shall gentle his condition;
And gentlemen in England now abed
Shall think themselves accurs'd they were not here
And hold their manhoods cheap while any speaks
That fought with us upon Saint Crispin's day.

Shakespeare, Henry V, IV, iii

Chapter Overview

Through the lens of rational choice economic theory, we have analyzed various aspects of the military market, and in the process we have identified obstacles that hinder the achievement of efficiency. When we turn our attention to combat troops, do not many of these same problems crop up limiting the effectiveness of fighting units? No doubt the motivations and constraints facing a combat troop during battle are drastically different than say, a businessman or a civil service employee deciding whether to feign sickness, or to take an extended lunch break. Indeed in many respects we would expect shirking to be more common in the combat setting.

[18] The general idea for this chapter was motivated by, and various tools used herein are adapted from Iannaconne's application of club-good theory to model religious phenomenon (see Iannaccone; 1998, 1992) and from Iannacconne's Religion, Economics and Culture class at George Mason University in 2004.

Despite the potential for performance problems, the historical record of U.S. combat troops suggests that something about the institutional framework within the military has been very effective in channeling behavior toward efficient[19] outcomes. Of course, there have been cases of desertion etc. but for the most part the performance of U.S. military members has been admirable and quite stable over the years. Thus, the real question is not why do some soldiers run away during a conflict, rather why do so many stay and fight valiantly.

Although the terms commitment and performance are often used synonymously and are in fact closely related, the distinguishing characteristics are important for the analysis of combat troop behavior. The readiness of our military is important as a deterrent device and as an actual fighting force. But military troops are not always engaged in real battles with real enemies. Much of their time is often spent outside of battle preparing for an unknown future enemy. Consequently, a very important question remains; how do we know they are ready? The assurance of commanders is no guarantee. In fact, there is really no guarantee how an individual soldier will respond when asked to "charge the hill". Commitment may be the best indicator of future performance. Unfortunately, commitment is difficult to measure. Nevertheless, there are

[19] The term "efficient" as used here is not necessarily related to the typical welfare implications economists associate with efficiency. For example, employing a larger force to accommodate a certain level of shirking may in fact be an optimal, efficient solution from a military commander's perspective compared with attempting to eliminate shirking completely. Furthermore, warfare is generally viewed as a negative-sum (inefficient) "game" by economists. Efficiency as it is used here refers to the degree of contractual compliance of combat troops. As free-riding (or shirking) declines, efficiency from a military commander's perspective, is increasing. Further, although individually it may be rational and optimal for combat troops to avoid charging the hill, it is likely to be very inefficient for the unit collectively.

different ways to build commitment among team members as well as ways to signal one's commitment.

By examining this submarket within the overarching military market, we may find clues that will help bring about a higher level of efficiency in other areas of government. Although the institutional structure that comprises the combat soldiers world cannot be fully supplanted into other areas of government, analyzing and understanding this structure will be very beneficial. Further, we must understand what makes the system work in order to preserve it, and to understand how and when it is most likely to fail. This will be accomplished through the use of club-good theory.

Club-Goods

Pure public goods are defined as those goods which are non-rival in consumption (i.e., consumption by one person does not diminish the amount available to another) and non-excludable (i.e., the good cannot be excluded from non-payers). The non-excludable property of public goods leads to the free-rider problem since individuals might rationally decide to withhold their contribution and depend on others for public goods provision. Since free-riding often leads to sub-optimal levels of public goods provision, the solution has often been for government to provide public goods[20] through levying taxes on its citizens.

[20] As has been pointed out by various Public Choice scholars, the government "solution" often does not solve the problem but actually creates a worse outcome than the initial problem it was intended to overcome. Additionally, most of what the federal government provides is in fact more private than public. For instance, transfers are not public goods, nor is education, monopoly rights or other regulatory provisions.

At the other end of the spectrum from pure public goods lies a private good—a good which is both rivalrous and excludable. Private goods are rivalrous since one person's consumption of a unit of a particular good reduces the amount available to others for consumption by an equal amount. For example, if a person consumes an apple, that apple is no longer available for others to consume. Private goods are also easily excluded from those unwilling or unable to pay. Government intervention is not normally required for the provision of private goods since they can be allocated efficiently through competitive private markets[21].

Key Contributions to Club Theory.

Because many goods do not fit the strict requirements of these two polar cases and in fact occupy the space somewhere between, economists began developing tools to accommodate this middle terrain: one tool that emerged was a club-good model. The origins of club theory can be traced to economists searching for efficient solutions to road congestion. Pigou (1920) suggested that rather than build new roads to accommodate congestion, a tax could be collected from individual users to cover the marginal social cost which would lead to an optimally efficient solution. Knight (1924) demonstrated that if the road(s) were privately owned, tolls would be set at an efficient level eliminating the need for a government solution.

[21] Externalities can arise in private markets; for instance when a private manufacturer's production process pollutes an adjacent private or public space. As Coase (1960) has shown, as long as property rights are properly defined, and transactions costs are non-existent, then externalities will be dealt with efficiently. In certain situations, transaction costs can be significant in which case there could be a role for government.

Another early advance toward contemporary club theory came from Tiebout (1956). Although earlier public finance theorists claimed there were no "market-type" solutions available to determine the level of expenditures on public goods, Tiebout demonstrated that their argument holds only for federal expenditures[22]. Tiebout's analysis is framed around city residents contemplating their relocation options. The following assumptions are incorporated into his model:

1. Consumer-voters are fully mobile[23] and will move to that community where their preferences are best satisfied.

2. Consumer-voters have full knowledge of differences among revenue and expenditure patterns for the communities available to them.

3. There are a large number of communities to choose from.

4. Restrictions on employment opportunities are not considered[24].

5. Public services provided by one community exert no externalities on other communities.

6. There is an optimum community size (in terms of the number of residents) for each package of community services[25].

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[22] Of course the 'pure public good' that is often discussed in the literature is non-excludable such that Tiebout's localized model is essentially a solution to a different problem. But the fact remains—individuals can obtain many or most of the collective goods they desire by selecting the community in which they live based on the goods offered by various communities. Boosting the applicability of Tiebout's model, Foldvary (1994) points out that most civic goods are actually localized or 'territorial' in his words, such that the standard 'market failure' arguments associated with goods of a non-excludable nature applies to only a very limited range of goods.

[23] Tiebout acknowledges that his model does not capture the effects of moving costs and that mobility may be viewed as a cost of registering demand—the higher the moving costs, the less optimal the allocation of resources will typically be.

[24] This is an especially strong assumption—employment opportunities are likely to be a very significant consideration for those contemplating their relocation options.

[25] Again, since in this model there is an "optimum community size" which is less than the population, then it does not necessarily, as Tiebout implies, solve the public goods problem. Rather, what it does show is that, given the underlying assumptions of his model and disregarding scale economies, social goods can be produced efficiently at a local level. Moreover, his club-model is relevant to the phenomenon we are interested in—impure public goods.

> 7. Communities below the optimal size work to bring in new members in order to lower average costs, while those above the optimal size do the opposite and those already at an optimum strive to maintain their size.

Given these assumptions, individuals are expected to partition themselves into various jurisdictions according to their tastes and the level and types of local public goods provided by different jurisdictions. Ultimately, an equilibrium will be established where each community provides a revenue and expenditure pattern that reflects the preferences of its residents. Otherwise, unhappy residents would seek out a new community. An interesting point of this model is that "there is no attempt on the part of local governments to 'adapt to' the preferences of consumer-voters. Instead, those local governments that attract the optimum number of residents may be viewed as being 'adopted by' the economic system" (p. 420). This model is often labeled the "voting-with-the-feet" model and has been widely cited in the literature[26].

Olson's book, "The Logic of Collective Action" (1965), was also related to club theory[27] and contributed significantly to the general body of knowledge on group

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[26] The assumptions of this model as well as the efficiency properties obtained have been challenged by several researchers. On the other hand, some economists, most notably Milton Friedman (1953) argue that all models abstract from reality and are therefore based on unrealistic assumptions—what really matters is predictive ability rather than realistic assumptions. Additionally, some models provide the pure or ideal case from which later models can build upon depending upon their unique environment. Finally, even if injecting realism into Tiebout's model diminishes the efficiency that may be obtained, it does not necessarily follow that a solution more efficient than the voting-with-the-feet outcome exists in reality or that a better solution could be created.

[27] Unlike the bulk of club theory, this work by Olson articulates the negative aspects of clubs. Although Olson's theory is rather general in nature, he spends a considerable amount of time discussing the implication to the political sphere, highlighting the exploitive and inefficient nature of interest group activity. Other researchers argue that the U.S. political marketplace is much more efficient than Olson portrays. For instance, Becker (1983) claims that interest groups in the political market are no different than similar groups in the private market. In his model, the pressure of those expecting to benefit from a particular piece of legislation is equalized by pressure from those that stand to lose from the legislation. Additionally, his model shows that only groups of efficient size will survive to provide pressure. Whereas Olson sees the goals of interest groups mainly as public goods/bads, Becker plays down the publicness

formation and dynamics. His arguments turned standard group theory on its head. First, he argues that group theory must distinguish between different sized groups. In other words, the ingredients for success within small groups cannot be applied to a larger group simply by scaling-up the small group results to accommodate the larger group. The reason is that members of a group have not only a common interest, they also have purely private interests which are often different from others within the group. Moreover, "though all of the members of the group have a common interest in obtaining this collective benefit, they have no common interest in paying the cost of providing that collective good[28]. Each would prefer that the others pay for the entire cost, and ordinarily would get any benefit provided whether he had borne part of the cost or not" (p. 21). This "free-riding" phenomenon is more problematic in large organizations[29] since it is more difficult (or costly) to monitor all members carefully, and because each member of a large group perceives his own contribution relative to the total contributions of the group to be so small that withholding his contribution will not noticeably affect the amount of the collective good provided.

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aspect and focuses on private benefits. Also, Becker ignores the motivations and behavior of voters, political parties and politicians. Finally, he also fails to address Olson's argument that various entry barriers may keep certain groups from organizing; thus they will not be able to counteract the pressure exerted upon them. Consequently, Becker's theoretical model results in a much more favorable view of interest groups. Wittmann (1989, 1995) also provides theoretical arguments that democratic governments are efficient.

[28] Olson argues that groups may overcome the free-rider problem by offering private benefits (selective incentives) to individual members. For example, AARP offers low-cost insurance which attracts members while the membership fee is used for lobbying efforts. Stigler (1974) points out that selective benefits could be provided by private firms at normal profit (without adding a fee to pay for collective goods) which would erode the ability of a pressure group to survive. Thus, he argues, the existence of pressure groups cannot be explained solely through these selective incentive mechanisms. A counter-argument to Stigler is that most pressure groups are non-profit organizations with tax advantages that allow them to provide benefits to members at low cost.

[29] Although free-riding tends to be more problematic the larger an organization is, that is not to say that free-riding is absent within smaller, homogeneous groups. Smaller groups including clubs must overcome free-riding in order to increase efficiency and the means to do so varies across groups.

Buchanan's "An Economic Theory of Clubs" (1965) is usually credited with touching off the interest and growth in the literature that ensued over the next four decades. Moreover, he was the first to address, in terms of economic efficiency, the dual problems faced by clubs; provision and membership. The example Buchanan used was a swimming pool (club). In figure 9, a person is deciding whether to join others (who are identical to him) in a swimming club.

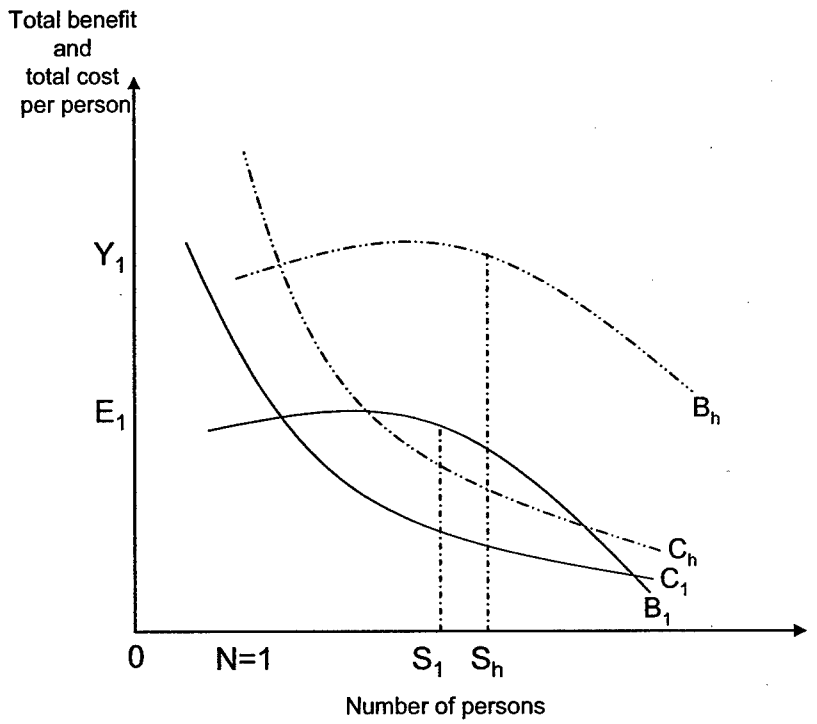

Figure 9. The Costs and Benefits of Joining the Club (Buchanan, p. 7).

The full cost of the club is Y_1 which is a fixed cost of the one pool of a given size. If this individual values this facility at level E_1, then he would clearly not purchase the good (at least not by himself). However, as more and more members are added to this

club, the total costs per person fall (as traced out along the C_1 curve). Additional membership at some point also results in congestion which reduces the benefit available to each person (traced out along the B_1 curve). Consequently, for any given sized club facility, there will be an optimal membership size. The optimal point in the first example is at S_1, where the slopes of the total cost and total benefit functions are equal. S_2 represents an optimal membership size for a larger facility and of course the same process can be used to determine optimal membership size for any other sized club facility. Buchanan also provides similar geometrical representations to show how optimal facility size may be derived for each possible membership size.

Following Buchanan's initial model, Ng (1973) claimed that Buchanan's model does not guarantee a Pareto-efficient outcome since he maximized average net benefit when he should have been maximizing total net benefit. Berglas' (1976) analysis shows that Buchanan's model does indeed lead to Pareto optimal solutions, but only in certain situations[30]. On the other hand Berglas, shows that the model offered by Ng is Pareto inferior since Ng's model maximizes total benefit minus costs for each club instead of the whole community. Later, Helpman and Hillman (1977) found that Ng's analysis contained a mathematical error and that Ng and Buchanan (along with Berglas) were in fact looking at two distinct club problems; whereas Ng's analysis proceeded from a centralized decision maker making choices to determine an efficient club outcome, the environment characterized by Buchanan (and Berglas) was that of decentralized decision-

[30] Berglas demonstrates that Pareto optimality may not be obtained by the Buchanan model when there exists externalities in consumption and increasing returns to scale. Thus, under these conditions there is no reason to assume the competitive market cannot provide the same collective good as efficiently or more efficiently as a club.

making. Hence, neither Buchanan (or Berglas) nor Ng were necessarily incorrect since they proceeded from different assumptions.

Club Properties.

Cornes and Sandler (1996, p. 33) define a club as a voluntary association that derives mutual benefits from sharing member's characteristics, from sharing production costs, or as a good characterized by excludable benefits. Thus, the good produced by the club may be simply the presence of other club members as in a bridge-playing club. Although there are many different variants of club good models, there are some relatively common properties that generally tie club-good models together[31].

Voluntarism. In privately owned and operated clubs, membership is assumed to be voluntary. That is, individuals who expect the joint net benefits from club goods and from the consumption of non-club goods to exceed the utility they may derive from not being a club member will join the club. Indeed it would make little sense to join a club if doing so would lower an individual's overall utility. Moreover, volition is one of the necessary conditions required for certain collectivities to achieve Pareto optimality.

Finite memberships. As depicted above in figure 9, increasing the number of members of a particular club may impart both benefits and costs. Increased membership reduces the costs per person of providing the club good. On the other hand, although the marginal utility derived from additional membership may be positive for small groups, owing to camaraderie, eventually crowding will overcome this effect and lead to negative

[31] Of the various club-good properties, some are emphasized more in certain models than others. These relatively common properties are taken from Cornes and Sandler (1996).

marginal utility beyond some optimal group size. Thus, clubs must resolve the dual problems of goods provision and membership size. These decisions have been modeled as being resolved simultaneously or in two separate stages.

Excludability. If the benefits associated with a particular good can be withheld costlessly by the individual or organization that provides it, the good is said to be excludable[32]. A counterexample would be a good such as a fireworks display, where once the good is produced it is extremely costly (or practically impossible) to exclude someone from the benefits. As we have seen, the non-excludable property of certain goods leads to the free-rider problem and results in economic inefficiency. On the other hand, private goods are fully excludable as long as property rights are properly defined and enforced. However, many goods are not private and exclusion mechanisms often involve some amount of costs[33]. Thus, the exclusion mechanism will be put into place if the collective benefits of using the exclusion device are greater than its costs.

Optimality. Much of the literature on collective goods seeks to determine whether various institutional forms of collective provisioning are optimal or economically efficient. For instance, since voluntary provision of pure public goods is highly susceptible to free-riding behavior, the equilibrium is usually depicted as suboptimal or that the public good will not be produced at all. Although the standard

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[32] There are also varying degrees of excludability associated with particular goods. If the costs of exclusion are less than the benefits, then it is possible and worthwhile to implement exclusionary barriers.

[33] "Exclusion costs include the value of the resources expended to erect and to man the barriers that force preference revelation. The exclusion mechanism might consist of a toll booth, a guard, a fence, or a ticket office; only those individuals who paid a user fee or toll could pass through the exclusion device and use the good" (Cornes and Sandler , 1996, p. 4).

treatment has been for government to provide the public good[34] based on efficiency arguments, Foldvary (1994) asserts that the standard optimality conditions

> "presumes that the good in question is a global collective good, universally non-excludable. Few civic goods fit that category. As indicated above, a system is 'efficient' relative to some norm or standard, and the realistic alternative to voluntary provision is imposed provision. If people will not reveal their true demands in a voluntary system, they will not do so under an imposed governance either, for even though they may suffer penalties for not telling the truth, the governors may have no means of determining what the truth is; prisoners may lie under duress or say what they feel their captors want them to say[35]. Hence, if neither a unilateral nor a multilateral governance can be Pareto-optimal under the Samuelson conditions, a decentralized provision of collective goods is no less Pareto-optimal a priori than centralized provision. The market fails only relative to an unrealizable ideal system, not relative to governmental provision" (p. 20).

Rather than government providing social goods, Foldvary suggests that some (or most) civic goods or services can be provided through decentralized, voluntary means as opposed to government (unilateral) provision[36]. Social goods impact the value of space and economic rents generated by these goods can be collected by the owner of this space. Because of this capitalization of land rents, Foldvary claims: "the theory of market failure is likewise turned on its head, since the fact that the public does pay for the goods implies

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[34] We must be careful not to associate government provision with efficient production. As many Public Choice scholars, and other researchers have shown, government production is typically highly inefficient. The point here is that without government coercion, a valuable public good may not be produced at all, but we should not lose sight of the fact that "government failures" are possible as well.

[35] Even if individuals could be counted on to reveal their true demands to their governors, the many public choice arguments that have already been elucidated would suggest the imposed solution would be far from socially optimal.

[36] As Foldvary points out, all groups have some form of governance. Whereas voluntary governance consists of multilateral agreements among equal parties, he defines unilateral government as "the political process, the public-sector governance of today's countries, states and cities, [which] may encompass many persons who agree to some particular rule, but not all who are subject to the rule make an explicit agreement to enact it (otherwise it would be classified as a market process); therefore the rule is unilateral and imposed with respect to any person subject to the rule who has not or would not agree to it" (p. 9).

that a private agent can collect the payment in return for providing the goods, and that government imposes needless costs if it interferes with such an arrangement and substitutes other methods to pay for the goods" (p. 1). Foldvary's theoretical exposition of private contractual means to bring about social goods is supported by several case studies where social goods have in fact been provided on a relatively large scale without governmental assistance[37].

Cornes and Sandler categorize club-good models along several dimensions as depicted in table 9.

Table 9. Taxonomy of Clubs (Cornes and Sandler, 1996, p. 355).

	Utilization	
Membership	Fixed	Variable
Homogeneous (population partitioned)	A	B
Homogeneous (population not partitioned)	C	D
Mixed (population partitioned)	E	F
Mixed (population not partitioned)	G	H

Utilization is assumed to be fixed or variable depending on whether all members consume the entire supply of the shared good or whether consumption varies across members within the club. If utilization is variable, then some type of variable fee or toll is typically assessed on individuals. Clubs also differ with respect to the characteristics

[37] The examples provided include Walt Disney World, the contractual community of Arden Delaware and several others.

of members within the club—whether members can be considered homogeneous or mixed. A final distinction among clubs has to do with whether all members of a population are considered to be members of a club (i.e., all members of a population are *partitioned* into one club or another) or whether some individuals are outside the club (which is considered as non-partitioned).

More on Club Size.

The most successful groups will tend to be small with relatively homogeneous members[38]. First of all, as Buchanan and Tullock (1962) demonstrated, larger (smaller) groups have higher (lower) decision making costs. They argue that

> "purely individual decisions involve costs...since it requires conscious effort...There is no reason to expect that the individual's behavior in confronting political choices is fundamentally different from that which describes his purely private choices. In either case, he must reach a decision. The essential difference between individual choice and collective choice is that the latter requires more than one decision-maker. This means that two or more separate decision-making units must agree on a single alternative; and it is in the reaching of agreement among two or more individuals that the costs of collective decision-making are reflected, which is the reason why these costs will tend to be more than the mere sum of individual decision-making costs taken separately. On a purely individual basis each party must decide the alternative that is more "desirable"—most likely to further his own individual goals, whatever these may be. Only after these private decisions are

[38] Although there are sound theoretical arguments for this tendency of smaller, homogeneous groups to be more successful, there are many examples that run counter to this tendency. Foldvary's (1994) case studies demonstrate that large heterogeneous groups can be highly successful. In his view the role for government in overcoming market failures is extremely limited, other than to define and enforce property rights, to eliminate barriers for private development and to provide those few public goods that are truly public.

made does the process of reconciling divergent individual choices, of reaching agreement, begin" (p. 97- 98).

When decision rules are employed that require unanimous agreement of the groups members, there are no "external" costs imposed on individuals—since the consent of all group members is required before a policy is put into place, no policy would be approved that would injure one or more group members. However, as the decision rule moves closer to unanimity and the external costs fall, the decision making costs naturally rise[39]. The following figure depicts the two costs and shows the optimal, cost minimizing point as K.

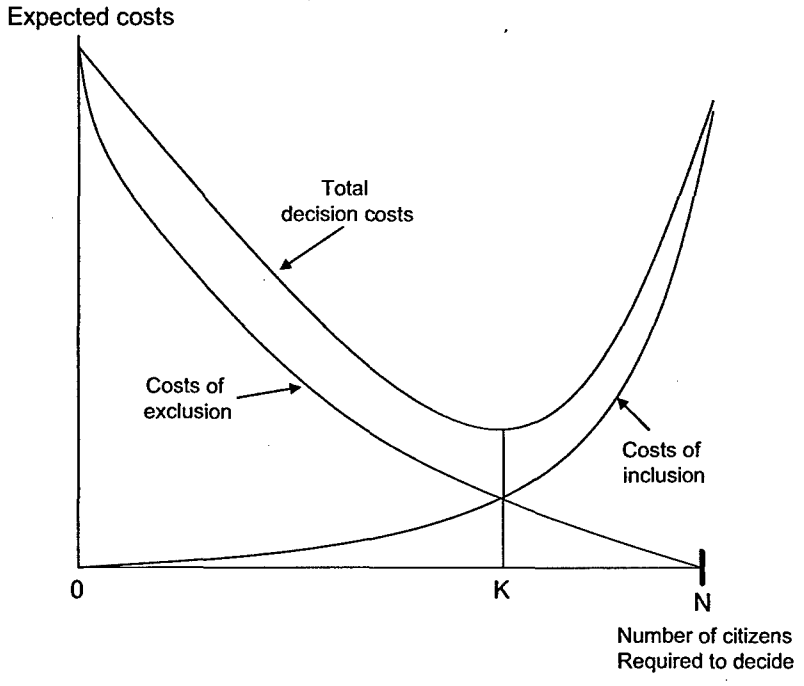

Figure 10. Buchanan and Tullock's Optimal Majority Rule (Adapted from Munger, p. 220)

[39] Examples of decision making costs they provide include defining and amending proposals, explaining it to members, providing payoffs to overcome strategic maneuvering of individuals and so forth.

Thus, the amount of inclusiveness in the decision rule depends on the nature of the choices being voted upon. For instance, when voting on issues regarding property rights, the optimal level of inclusiveness is much closer to unanimity than for other issues where the potential external costs are lower. On the other hand, when important decisions for a group are especially time-sensitive, the decision authority will likely be in one (or a few) hands, e.g., a President has the authority to respond quickly to enemy attacks, whereas building consensus among multiple leaders would be more time consuming and potentially devastating in some instances.

As noted earlier, Olson's (1965) work also demonstrates that successful groups will tend to be small and homogeneous[40]. Interestingly, his theory does not rest on self-interested assumptions, for he claims "even if the member of a large group were to neglect his own interests entirely, he still would not rationally contribute toward the provision of any collective or public good, since his own contribution would not be perceptible" (p. 64). Additionally, he notes that even if there exists perfect consensus among the members of a large group about the desire for a particular collective good as well as the precise means that should be employed to obtain the collective good, it does not follow that the group will necessarily be able to achieve its stated goal, and for the same reasons as stated previously. Conversely, Olson shows that small groups are more

[40] Olson does mention a special case where a large group can overcome the free-riding problem and be successful. His example is a federal group—a group divided into a number of small groups. If the central organization provides some service to the smaller federated groups, this overarching good may provide the incentive structure to compel each small group to contribute toward the collective goals of the whole group (p. 63).

successful since the contributions of its members is more perceptible as is the share of the groups output that each member receives[41].

Social Justifications for Clubs.

Although some of the theoretical arguments justifying the efficiency or existence of clubs seem plausible, there are counter arguments that appear to weaken the notion of clubs as a collective good producer. While Berglas' claims that Buchanan's club model does result in efficiency (given the underlying assumptions), he also points out that competitive firms can provide the same goods as efficiently as a club so that other explanations for the creation of clubs is necessary[42]. Olson's theory would imply that voluntary provision of collective goods may not be forthcoming unless there are some private goods tied in to the package to induce individuals to join or contribute. He also acknowledges that large scale 'clubs' may be possible through some type of federated framework of smaller groups.

Of course a plethora of clubs do exist in reality. Certainly, tax advantages and other economic advantages that apply to certain types of groups could induce the formation of a club. Foldvary also illustrates that the private market (to include voluntary associations or clubs) can and often does provide collective goods so that government provision is neither needed nor warranted. Although his model is much akin to the standard club theory, he incorporates site rents into his model which are capitalized by

[41] As mentioned previously, there are contrasting views on the efficiency properties of interest groups and democratic governance in general; most notably from Becker (1983) and Wittman (1989, 1995).
[42] Berglas suggests that additional benefits arising from creating a club could include: individual preferences with regard to the composition of the club membership, tax advantages and savings in the cost of revenue collection.

property owners to pay for civic goods. But, there may be other factors, perhaps non-economic that can justify the existence of clubs as well. Indeed Olson discusses the possibility that social incentives[43] are more likely to lead members of a small group to work toward the achievement of the collective good more so than in large groups[44]. But again Olson argues that social incentives are effective only because they are selective since "it is in the nature of social incentives that they can distinguish among individuals: the recalcitrant individual can be ostracized, and the cooperative individual can be invited into the center of the charmed circle" (p. 61). As noted already, Berglas also suggests that (among other things) a club's existence may be explained by individual preferences with regard to the composition of the club membership.

We can think of many examples where clubs exist and individual *economic* incentives to belong appear very low or where market solutions would appear to be sufficient. But even if these non-economic[45] inducements to join a club have a very small impact on behavior, they could at the margin, explain why a club is formed when a private market alternative would have, in a purely economics sense, seemed equally attractive or efficient.

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[43] The social incentives Olson refers to include the desire to win prestige, respect, friendship, as well as other social and psychological objectives that sometimes motivate people.

[44] Social incentives are less effective in large groups, since everyone cannot possibly know everyone else within a large group. Consequently, a member of a large group will not significantly be affected socially if he fails to contribute towards the group's goals.

[45] Even though particular incentives may seem non-economic, they may in fact be more economic upon further inspection. For instance, even if one claims that his bridge-club association imparts no economic benefits to him—he seeks only camaraderie from this association, it does not necessarily mean there are no expected (economic) benefits. Close friends are often called upon for special favors which are more economic than not; a monetary loan, investment advice, childcare, business contacts and networking in general all serve economic ends. That is not to say that non-economic incentives cannot influence behavior, but it may be important to distinguish between what is economic and what is not.

Variants of club theory have been used to analyze a diverse range of non-market phenomena and organizations including: swimming clubs, military operations, international agreements or alliances as well as religious organizations. Such research typically seeks to determine the equilibrium outcome stemming from voluntary "club" association as well as the efficiency properties of particular arrangements. As Mueller (2003) remarks; "since *the* task of public choice is the revelation of (differing) individual preferences for public goods, club formation and voting-with-the-feet, in part, solve the public choice problem by limiting its scope" (p. 202).

The Nature of the Military Club

> "Four brave men who do not know each other will not dare attack a lion. Four less brave, but knowing each other well, sure of their reliability and consequently for their mutual aid, will attack resolutely".
>
> Colonel Ardant du Picq, p. 80

The United States has enjoyed much success in various military campaigns throughout its relatively brief history and much has been said about the fighting character of the American fighting man[46]. The attacks on American soil at Pearl Harbor in 1941

[46] As pointed out by Moskos (1970), during WWII through most of the Vietnam War, the American warfighter was generally held in high regard, especially in the popular culture. But apart from the mass media portrayals, "serious literary accounts of warfare reject the values of honor and valor. Soldiers are consistently portrayed in such accounts as having no meaningful understanding of their role in the nations' war aims. Rather, military life for the solder, in combat and in garrison, is viewed as a nasty detour in life's direction. Moreover, when heroic acts are performed they are seen as idiosyncratic and individual and not

certainly boosted American support for the war effort. Similarly, such direct attacks led many civilians to join the military with fervent energy and patriotism. But the initial excitement to defend the homeland does not necessarily translate into a high level of commitment[47] of military men on the battlefield when confronted by continuous hostile enemy engagement. It would seem even more difficult to develop and sustain high levels of commitment among individuals forced to engage in policing type excursions and other types of policy driven military campaigns when the connection to national security is less clear. And finally, how does the military ensure the optimal level of commitment across all periods, both wartime and peacetime to guarantee readiness at a moments notice. Without making normative statements about the use of military force to police the world, we may simply agree that having a reliable military is important on several levels—most importantly for our national security. Further, it is important to note that even the most high-tech arsenal may be largely ineffective without high levels of commitment within the human element of our military machine.

Although the real test of a combat soldier's mettle comes from actual combat, conditions of peace may prevail for most of his tenure. Simulated combat may help condition his skills and develop trust and teamwork, but there is no guarantee how an individual will respond under real, hostile combat conditions. Although there are many

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as being motivated by ideological or patriotic sentiments" (p. 27). Further Moskos notes the importance of small groups that bring about cohesion among individuals and foster combat performance. The American public's regard for American military members has certainly been high from the Gulf War of 1991 to the present, although the U.S. military's treatment of foreign prisoners and other incidents may have tarnished the image to some degree.

[47] There are many ways to define/characterize commitment. For now we will define commitment along the lines of the American Heritage Dictionary (1991) as " a pledge to do something...the state of being bound emotionally or intellectually to a course of action" Various terms will be used interchangeably—commitment, loyalty, dedication etc.

ways to 'signal' commitment outside of the actual fight, there is not necessarily a direct connection between commitment[48] and performance. Yet commitment may be the best proxy for potential combat performance.

There have been different philosophies regarding how to develop or maintain optimal levels of commitment. Machiavelli ([1513] 1995) argued that although a military leader should try to avoid being hated, it is better to be feared than loved since "men are less worried about harming somebody who makes himself loved than someone who makes himself feared, for love is held by a chain of obligation which, since men are bad, is broken at every opportunity for personal gain. Fear, on the other hand, is maintained by a dread of punishment which will never desert you...when the prince is with his armies and in charge of a large number of soldiers, then it is very necessary that he does not worry about a reputation for cruelty (Machiavelli, p. 94)".

On the other hand, Rousseau ([1762] 1951) argues that relying on fear to obtain loyalty can be dangerous since:

> "the strongest are still never sufficiently strong to ensure them continual mastership, unless they find means of transforming force into right, and obedience into duty. Hence the right of the strongest—a right which seems ironical in appearance, but is really established as a principle. But shall we never have an explanation of this term? Force is a physical power; I do not see what morality can result from its effects. To yield to force is an act of necessity, not of inclination; or it is at best only an act of prudence. In what sense then can it be a duty? Let us suppose for a moment the existence of this pretended right. I see nothing that can arise from it but inexplicable nonsense. For, if we admit that force constitutes

[48] Of course the problem is determining whether one's commitment, signaled to others through various means, is actually credible. Whether an individual is genuinely committed or not, he has incentives to signal that he is indeed committed to the group and its goals. An individual may not want to be ostracized by the group (excluded from the charmed circle) and more importantly he wants to ensure full access to the club goods during battle. However, individuals may be able to shirk to a certain degree which projects a negative externality on the group. We will discuss the concept of signaling in more detail later on.

> right, the effect changes with the cause: all force which overcomes the first succeeds to its right. As soon as men can disobey with impunity, they can do so justifiably; and because the strongest is always in the right, strength is the only thing men should seek to acquire. But what sort of right is that which perishes with the force that gave it existence? If it is necessary to obey by force, there can be no occasion to obey from duty; and when force is no more, all obligation ceases with it. We see, therefore, that this word "right" adds nothing to force, but is indeed an unmeaning term" (Rousseau, p. 8).

Although low commitment levels among troops is certainly problematic for military organizations, blind obedience can lead to disaster as well. German SS troops diligently carrying out their orders for the expedient destruction of Jews during World War II is one example of excessive obedience[49] and there are many others. Certainly, the military needs to develop discipline and commitment among its ranks, but not to the point where it leads to blind obedience. Consequently, the key is to develop sufficiently high levels of commitment among individuals so that we have confidence they will perform well in battle, but will act on orders within certain moral or legal bounds[50].

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[49] More generally, the tenacity of German troops in World War II to continue fighting beyond the point when it should have been abundantly clear that defeat was inevitable might be categorized as blind obedience. However, a study conducted by Shils and Janowitz (1948) found that although the "hard core" of the National Socialists were motivated by ideological concerns, the rank and file were primarily motivated by primary group dynamics. They found that "for the ordinary German soldier the decisive fact [in his determination to fight and to hold out as long as possible] was that he was a member of a squad or section which maintained its structural integrity and which coincided roughly with the *social* unit which satisfied some of his major primary needs. He was likely to go on fighting, provided he had the necessary weapons, as long as the group possessed leadership with which he could identify himself, and as long as he gave affection to and received affection from the other members of his squad and platoon. In other words, as long as he felt himself to be a member of his primary group and therefore bound by the expectations and demands of its other members, his soldierly achievement was likely to be good" (p. 284). Thus according to these authors, commitment of German soldiers in WWII was due more to the exchange type of club model that we have in mind rather than obedience through fear, ideology or other factors. This does not deny that the German officers in charge of the death camps were in some sense blindly obedient though.

[50] Adding to the problem of determining how to develop the right level of commitment is the fact that in battle, if troops hesitate upon their orders they may quickly be destroyed. However, not all battle scenes are so time critical that one cannot take a short moment to think about the order they have been given.

There is a vast literature across many disciplines on the importance of leadership and its relationship to team performance. Indeed the history of military warfare is replete with legendary military leaders whose inspiration and leadership are credited with the resulting battle victory, often against superior forces. However, leadership within this analysis will be treated as exogenous to the model. First of all, in modern warfare, the top leaders are no longer on the front lines rallying the troops just before battle[51] (or leading them in, physically toward the enemy). Additionally, a detailed analysis of the relationship between leadership and combat troop performance is beyond the scope of this research[52].

This approach considers a leader at the lowest level (e.g. a squad leader) as essentially another club member, albeit a potentially powerful club member. Lower level military leaders must also contribute significantly to the club in order to be valued by other members[53] and to ensure the club is productive. Furthermore, in those military organizations where leadership is farther removed from the troops they command (either spatially or formally), leadership can be seen as providing, promoting and enforcing the club structure but to a limited extent. In other words, the farther away the leader from his

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[51] In the most recent wars in Afghanistan and Iraq, many senior U.S. military commanders were located on a different continent (Florida) than the actual battle. Of course, the highest ranking individual on the spot (e.g. a Sergeant) fills the leadership role and can be very important. Additionally, modern combat especially of the type we are interested in, involves relatively small and autonomous units geographically dispersed such that inspiration from the highest ranking leaders is not feasible.

[52] Analyzing military leadership could require (and often has required) an entire research effort in and of itself.

[53] Traditional clubs also have "officers" or elected/appointed individuals that help establish and enforce the rules laid out in the clubs charter. Poorly performing club officials can be removed from their position through various means. An ineffective military leader can also be replaced, and during wartime, the penalties for poor leadership can be severe. For example, according to Gabriel and Savage (1978, p.43), during the Vietnam War, there were nearly 800 cases (more according to other sources) of "fragging"—attempted assassination of members of one's own unit, e.g., by throwing a fragmentation grenade in his tent. Of these cases, over half were attempted on officers or non-commissioned officers.

troops, the more difficult it will be to monitor performance, such that maintaining the strength of the club must come from other means. In this view, leadership is really a force multiplier that can either serve to increase or decrease the effectiveness of the club structure depending on the quality and locational aspects of the leader. Additionally, by treating leadership as given, we can accommodate those instances when, for example, a four person team of relatively equal rank suddenly loses their NCO or officer, and without such formal leadership still manage to carry out courageous, dangerous maneuvers without being ordered by some superior authority[54].

Certain actions or patterns of behavior have traditionally been viewed as outside the domain of economics. For example, extreme forms of sacrifice including suicide bombing, military heroics and other types of seemingly extreme behavior have often been written off as examples of madmen or brainwashed automatons—all of which would seem to be impossible to model through standard rational choice theory[55]. Economists generally eschew irrational explanations for behavior and instead have developed rational choice models, quite successfully, to explain a host of phenomenon outside typical market settings[56] to include extreme sacrifice[57]. Fortunately for economists (perhaps

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[54] The formal model will include a variable to capture the effects of leadership, but again leadership is an exogenous variable.

[55] It is important to note that rational choice theory does not rule out that people can make mistakes. Instead, rational agents are expected to learn and not commit mistakes which are systematically biased.

[56] Rational choice theories have been used to explain religious behavior, addiction, political outcomes, etc.

[57] Although the goals and methods of, say a Kamikaze versus a suicide bomber in the Middle East may be quite different, the behavior of both might be modeled usefully within the same type of model. Within the economics literature, extreme sacrifice or behavior has been examined through human capital models (Iannaccone, 1990) and afterlife consumption models (Azzi and Ehrenberg, 1975; Hevia, forthcoming). These types of models attempt to show that the costs suffered by martyrs or others are offset by what agents perceive as benefits they will receive now and in the future (to include posthumous rewards). Iannaccone (forthcoming) and Berman (forthcoming) develop club models to explain the extreme sacrifices exhibited by individuals within groups such as the Taliban, Hamas and other radical religious groups and these types

unfortunate for mankind), there is mounting evidence that suicide bombers and many other types of extreme behavior are the result of rational calculation by individuals and not the result of mental illness or other irrational factors. The ability to model extreme behavior through rational choice tools provides attractive properties. Rational choice models are highly tractable, they can help us infer motivations and assist in understanding how behavior is likely to change in response to various stimuli.

The British social philosopher H. L.A. Hart (1963) writes:

> "In moral relationships with others the individual sees questions of conduct from an impersonal point of view and applies general rules impartially to himself and to others; he is made aware of and takes account of the wants, expectations, and reactions of others; he exerts self-discipline and control in adapting his conduct to a system of reciprocal claims. These are universal virtues and indeed constitute the specifically moral attitude to conduct. It is true that these virtues are learnt in conforming to the morality of some particular society, but their value is not derived from the fact that they are there accounted virtues. We have only to

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of models often include benefits that accrue in the hereafter as well. Other researchers argue that extreme behavior such as suicide bombing is a cultural phenomenon—behavior that emerges from a type of nationalism or an ideology comprising a world view with supreme values (Bernholz, 2004). Additionally, extreme behavior is sometimes labeled as an act of desperation—committed when an individual's death or a group's extinction appears imminent. These and other cultural explanations might be used to explain Kamikaze's or other types of martyrs and terrorists. Individuals that share a very strong cultural identity, especially those that have been exposed to intense cultural conditioning may be willing to bear extreme costs even though the associated benefits as perceived by a person outside that particular culture are wildly disproportionate. The costs to a typical combat troop of charging a hill against known or suspected enemy combatants are high relative to other types of behavior. However, in most of these situations it is likely that charging troops expect there is at least a small probability they may actually survive the impending battle. The mind set of a Kamikaze or other type of suicide bomber would appear to be different since their mission *requires* their death. On the other hand, there is ample evidence of combat troops willingly throwing themselves onto a grenade to save comrades or other types of behavior where the probability of death is at or near unity. The models preferred within this research should be viewed more as present-life consumption models—where the emphasis is on incentivizing agents and/or altering agent's preferences to elicit certain types of behavior which confers benefits while they are still alive. A troop that agrees to bear a huge cost is viewed as conforming to his current belief, i.e, his behavior reflects adherence to an intense moral code, a deep respect or love for his comrades, or the avoidance of high costs associated with cowardice etc. within his culture. Although the tools used in this analysis might be fruitfully applied to various types of behavior, our primary focus is on U.S. military behavior, so to that we now return.

> conduct the Hobbesian experiment of imagining these virtues totally absent to see that they are vital for the conduct of any cooperative form of human life and any successful personal life" (p. 71).

This system of reciprocal claims[58] is the heart of rational choice theory—individuals are assumed to maximize utility, and in doing so they weigh costs and benefits of alternative actions, of which the reaction of others may impact the decision calculus in determining which course of action to take.

Properties of the Military Club.

Similar to Tiebout's (1956) voting-with-the-feet model, the military club does not attempt to adapt to the preferences of military members, rather, particular military units attract particular types of members depending on the benefits (and the associated costs required to obtain them) being offered. Additionally, military service can be regarded very much like more typical market activity. It is relatively easy to enter the military[59] and there is competition between the military services and the private sector for labor services. There are many different jobs requiring different types and levels of

[58] The notion of reciprocal claims was stated most eloquently by the great Scottish political economist and moral philosopher Adam Smith almost three hundred years ago: "But man has almost constant occasion for the help of this brethren, and it is in vain for him to expect it from their benevolence only. He will be more likely to prevail if he can interest their self-love in his favour, and show them that it is for their own advantage to do for him what he requires of them" (Smith, [1776]/1991, p. 7). Further he adds, "It is not from the benevolence of the butcher, the brewer, or the baker, that we can expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages (Smith, [1776]/1991, p. 8).

[59] Of course there are certain standards that must be met in order qualify for military service. There are, for instance, minimum physical requirements and aptitude scores depending on the type of position being sought. Additionally there are personal background checks conducted on recruits to determine criminal history etc. More typical clubs and private enterprises also have selective procedure for admitting members or hiring individuals.

commitment. The following military club properties help to define and explain the concept of the club that we have in mind.

Club-good Production. The good being produced by this military club consists largely of group-specific benefits that may arise from belonging to a well-functioning team. These benefits include camaraderie, trust and other adjectives that we will group together and label "commitment". Contrary to more typical clubs, in the military club there are positive returns to crowding (at least up to some optimal group size). Furthermore, the commitment developed outside battle can be viewed as informal contracts for future battlefield goods. In battle, one has to rely on others to provide cover, for mutual medical aid, and the many other things that only comrades in close proximity (and who value these implicit contracts) can provide.

Voluntarism. Military enlistment in the U.S. has been voluntary since the draft was replaced by the all-volunteer force system in 1973. Various branches of the military vie quite vigorously for able bodied men to fill their ranks. Although exit from the military is not completely 'free' since most enlistment contracts require two to four years of service[60], the high exit costs help foster participation or commitment. For instance, being discharged from the military for 'other than honorable' conditions can hamper future private employment prospects.

There are a variety of positions (within and among clubs) in the military that demand different costs and provide different types or levels of benefits. Members may

[60] Additionally, the stated enlistment term may be altered, even against a military members will, under special circumstances (e.g., during times of war and for other national security reasons).

negotiate their future position based on their qualifications, what level of benefits they seek and the costs they are willing to bear (or how much they wish to participate).

Finite Membership. The size of military units is mandated from above, so that team leaders have relatively little input in determining their club size. On the other hand, teams can be and often are split up as the need arises. We will investigate the effects of differing club size, although much of our effort will be focused on generating sufficiently high levels of commitment among members belonging to a group whose size is relatively fixed.

Optimality. Although maintaining optimal group size is a major concern within standard club theory, it is of secondary importance in this setting for a couple of reasons. First, since there are positive returns to crowding, the major emphasis of military clubs is on generating a sufficiently high level of participation among group members rather than finding the right mix of provision and membership size. Second, as we have already pointed out club size is not always a variable under the control of lower-level clubs.

Excludability and Excludable Benefits. Individuals can be excluded from the military (denied access) if they don't meet the basic military entry requirements. Additionally, individuals that do meet the entry requirements are only given a temporary membership, since they must successfully complete boot camp. Finally, for those individuals that do successfully complete boot camp, there are a host of other factors that could result in military members being discharged from service before the official end of their stated term.

Given that production of the "good" in the military club is commitment, it is produced and consumed jointly. If one's contribution requires physical or mental exertion, individuals might choose to contribute less than an optimal amount towards the production of the collective good depending on the risk of being identified as an easy-rider and the resulting penalties. Thus, the potential for free-riding or easy riding in the military club is no different than in other collectives. However, the club benefits can be excluded to a certain degree from those individuals who are not paying their share of the costs or are somehow reducing the effectiveness or reputation of the group (if these individuals can be identified). To the extent that easy-riders can be identified and the degree to which benefits are excludable, easy-riding can be minimized to a large extent and lead to higher levels of commitment. The specific mechanisms that can be used to identify easy-riders or otherwise increase participation will be explored after we highlight the key performance barriers unique[61] to the military environment.

Environmental Conditions/Hazards Specific to the Military.

Although enlisted troops are contractually required to obey the orders of officers appointed over them, economic theory would suggest several difficulties in ensuring performance, especially under the hostile conditions of combat. Team production problems, even within a favorable working environment can be significant (Alchian and Demsetz, 1972). Unfortunately, these problems tend to be much more severe under

[61] Although the military environment is quite unique in many respects, it may share, to a certain degree many common properties with the environments faced by civilian law enforcement officials, firefighters etc.

battlefield conditions. The nature of the free-rider problem in a combat setting is articulated well by Brennan and Tullock (1982) in the form of a Prisoners Dilemma game. For an army under attack, the optimal behavior may be for all to stay and fight whereas each individual's optimal choice may be to run away or otherwise avoid the conflict (p. 228). Although the Prisoner's Dilemma approach helps underscore the significance of the problem, it provides little in the way of a model that highlights variables important to generating or sustaining high levels of commitment among military members.

Junior enlisted troops pay is relatively low, they have little to no input into when and where they locate and they are often subject to lengthy separations from their family. On the other hand, the twenty-year retirement and health care benefits are often cited as positive benefits of service. Certainly many are attracted by college payment packages tied to their military service. But in the face of danger on the battlefield, the expected value of these benefits would be quite low. To maximize the expected value of such benefits, we would expect agents to avoid peril as much as practicable. To make matters worse, there are almost no pecuniary means available to reward desired behavior; at least not in a manner timely enough to provide direct incentives.

Mechanisms to Reduce Free-riding. There are various ways to minimize free-riding within military units, some of which are formal and demanding. However, formal rules and institutions are rarely if ever the sole determinants of individual behavior within a particular organization. More often it is the informal rules that carry organizations to

great heights (or depths). Ceteris paribus, most people would prefer to work in an environment characterized by high morale, a strong sense of trust among team members and a high level of confidence that the team will be able to achieve its goals. On the other hand, achieving this atmosphere typically require more effort from individuals. Thus there are costs and benefits that agents must weigh before they decide how they will respond. Different clubs require different costs and confer different benefit levels, and each must deal with those who fail to pull their own weight.

The Uniform Code of Military Justice (UCMJ). Typical clubs (e.g., tennis clubs) charge periodic fees for access to club facilities. They may also impose fines and exclude people who don't behave according to the established rules. The Uniform Code of Military Justice is an extensive and detailed set of rules and regulations governing the behavior of all military members and the punishments for misbehavior can be severe. Although this formal means of channeling behavior should have some effect, it is not likely to provide the level of commitment required for military operations. For instance, those legally empowered to evaluate performance and provide punishment (commanders etc.) have limited ability to monitor the behavior of many individuals simultaneously.

The military system could subsidize those behaviors it deems beneficial. However it is very difficult to observe behavior. Additionally, club members themselves could finance those aspects of behavior that confer external benefits (commitment, enthusiasm, effort, courage etc.). But again this is not practicable. There is another solution to the externality problem. Rather than subsidize certain behavior, activities that

compete with member's resources can be prohibited or penalized[62]. Such prohibitions can screen out less committed individuals and raise average levels of participation and utility for those that remain in the group.

One example is drug usage. The UCMJ prohibits and provides severe punishments for drug usage by military members. Military members are subject to random drug testing, which essentially increases the price of drug usage. The military's drug policy is expected to result in substitution away from drug use and toward more productive[63], military club enhancing activities. Thus, although drug prohibitions may lower an individual's utility, it leads to more club appropriate behavior and a more socially optimal result.

Additionally, military members must obtain approval before beginning any part-time, non-military employment. This approval process ensures that individual conduct does not reflect poorly on the military's reputation and it also ensures that other activities do not detract from a members military obligations etc.

Becker's (1968) economic approach to punishment sheds some light on devising efficient penalties for misbehavior. Because of the monitoring problem within a military, team-production setting, Becker's model would suggest a type of random monitoring with severe punishment as the efficient solution. However, it is unlikely that harsh, formalized punishments alone (or threats of punishments) would work very well to constrain or channel behavior optimally in the military environment. Monitoring can be

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[62] This idea is taken from Iannaccone (1992, p.275) where churches attempt to prohibit certain activities that may compete for members resources.

[63] The adverse effects of drug usage are widely known at this point, and no detailed explanation of the need to minimize drug usage within the military will be provided.

extremely difficult in certain military environments. Additionally, the death penalty applies to relatively few military offenses and more importantly is highly susceptible to significant political influences; no military members can be executed unless the president has personally approved the death sentence[64]. According to Sullivan (2002), there have been only twelve military executions since the UCMJ took effect in 1951, and fourteen service member's death sentences have been commuted by the president. Currently, there are 9 military members on death row, all of them convicted of pre-meditated murder or felony murder[65].

Of course there are other formal punishments available within the military justice system and we are not implying these mechanisms are impotent. Indeed, this formal system should influence behavior at the margin, but it is likely that other, less formal mechanism have had a very important effect on military member's behavior. Moreover, the Rousseauvian argument discussed earlier reminds us that obtaining loyalty solely through fear can be dangerous.

Military Training Programs. The various military training programs serve several functions. First of all, training is a highly effective screening tool. "Boot camp", the training all enlistees must pass through initially, can be a very demeaning and demanding process. Those who cannot or are not willing to follow the extreme demands, i.e., pay the initiation fee, are weeded out of (excluded from) the military system. Additional mechanisms used to determine one's commitment or readiness which serve as

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[64] Public debate over the efficacy and morality of capital punishment in general seems to have intensified over the years as well.

[65] Source: Death Penalty Information Center (DPIC) website: http://www.deathpenaltyinfo.org/.

exclusion devices are fitness and weight requirements as well as the "up or out system". If individuals do not make the next rank within a specified timeframe, they are considered unworthy of continued service and are discharged from the military.

"Blanket parties" are well known among military circles as effective performance enhancing measures. Since boot camp emphasizes the team nature of performance, when one recruit's behavior is found to be lacking (either due to inability or shirking), all members might be punished equally to pay for the sins of one. As a consequence, teammates might "encourage" a poor performer to either increase his effort or persuade him to volunteer to be discharged from the training program for "failure to adapt to military life". The term comes from members throwing a blanket over the head of the poor performer asleep in his bunk, and roughing him up a bit to ensure he understand his sub-par performance will not be tolerated[66].

The training also serves to cultivate commitment of those who survive the training. Although some of the training is geared to develop specific combat skills (improve shooting ability, hand-to-hand combat and other tactics), much of the training is geared to develop trust and teamwork. The training process assists in developing common bonds through stressful experiences which reinforce the need for interdependencies and will facilitate exchange among members later on.

Those military functions that require the most commitment have higher fees and provide higher benefit levels. The entry process for the Army's special forces component—the legendary Green Beret is a good example of an organization with very

[66] The concept of fragging has already been identified as a means to eliminate problem members on the battlefield.

high costs (and potentially high benefits). To become a Green Beret, each candidate undergoes an extremely intense screening and training process[67]. First there is a brutal assessment and selection course, from which only about 850 of the initial 2,000 candidates will graduate. These 850 soldiers enter into the qualification training phase which yields some 600 graduates. The entire process usually entails about 18 to 24 month of intense training to deliver these elite members. After their initial training, these special forces members are assigned to an operational fighting group, where of course, their training continues. This process is a very powerful and important screening and commitment building tool. Benefits arising from being a member of an elite organization along with camaraderie etc. are the rewards for the high costs these troops have endured.

Military training also strives to develop unit-specific pride. Each member of a unit is continually educated about the unique heritage of their unit and reminded of their responsibility to live up to the legacy of commitment and valor of those that served before them. Moreover, there are often various forms of 'healthy' competition between similar units to develop team spirit and generally improve the team dynamics. Alchian and Demsetz (1972, p. 790) show that in those activities where team production is most important is where we usually observe team loyalty and spirit most strongly encouraged. Their analysis can also be used to explain the enormous emphasis the military places on training; an emphasis separate from that needed solely to build optimal team spirit and loyalty[68].

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[67] Taken from the following Army website: http://www.army.mil/soldiers/Oct2000/pdfs/usasoc.pdf

[68] The example in Alchian and Demsetz that relates well to military training is where particular teams in a sports league, realizing that not only absolute skill is relevant to consumers but skills relative to other teams

The All-Volunteer Force. The voluntary nature of military service can be viewed as a mechanism to reduce shirking. That is, individuals self-select into the military similar to the process of individuals deciding to join a more traditional type of club. Only those individuals who expect the utility they derive from the military club to outweigh not being a club member will join. But due to the nature of military service—the importance of ensuring individuals perform as required and the strong incentives to free-ride in this setting, other devices are likely needed.

Signaling as a Mechanism to Reduce Shirking. The notion of signaling was thrust into the limelight of economics by Michael Spence[69]. Spence's (1973) seminal article on signaling presented a typical labor market situation in which there are informational problems between an employer and potential employees. His model assumes there are two types of employees—good and bad, and that employers cannot tell ex ante the good from the bad. Employers are willing to pay more for good employees if they can somehow identify them. Good employees are willing to invest in a 'signal', in this case education to differentiate themselves from the bad employees and secure a higher wage

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too means that players are induced to overpractice relative to the social marginal value of their enhanced skills. It may also appear the military invests excessively (in training etc.) relative to the actual technical skills that are developed, but that does not mean there is overinvestment relative to the social value of the investment. First of all, the stakes are much higher in the military—since national security depends on military readiness. Additionally, in the military, training also serves to develop cohesion and other less tangible skills that are so crucial for military units. Moreover, U.S. military authorities do not typically know the number and quality of future adversaries well in advance, so that a determination of the skills needed can be ascertained. Finally, military authorities want the ability to overwhelm the enemy so that their will is broken quickly, whereas in sports, a single extra point defines the victor. Of course particular sports teams may also want to dominate their opponent but it is not nearly as important as it is for the military.

[69] Spence's work on signaling theory was apparently influenced by an earlier work from Akerlof entitled "The Market for Lemons" published in 1970. He also attributes the introduction of the term "signal" to Robert Jervis.

for their higher quality. The signal will not effectively distinguish one type from the other unless the costs of signaling are negatively correlated with productive capability. Thus, Spence assumes that good types pay less per unit of education than bad types. The equilibrium in his model shows that good types are willing to buy more education whereas bad types accept a lower wage rather than pay the relatively higher price for education. The result is that employers find that a particular level of education is a reliable enough signal to distinguish good and bad types and consequently will offer them differential wages as a result. This equilibrium obtains even if education contributes nothing towards productivity, since the education signals which individuals were more productive to begin with.

According to Becker (1960), sociologists have commonly defined or modeled commitment as "consistency of behavior" (p. 33). In other words, a "committed" person follows a consistent course of action relative to a particular goal. Becker criticizes this approach as a useless tautological scheme, whereby theories are posited to explain behavior by referring to unobservable preferences—and the preferences have been deduced from observed behavior. In an attempt to avoid the tautology, Becker extends Schelling's (1956) approach to bargaining by generalizing his notion of side bets to constrain behavior in various social settings. He claims individuals find their options constrained by both explicit and implicit side bets. For instance, an individual finds it advantageous to 'signal' a reputation for dependability, so that for example, when offered a job he does not want, he will take it anyway to avoid diminishing his reputation.

Within the economics literature, Akerlof (1980) presents a model where social customs may continue to exist even if the customs are detrimental to individuals. This may occur where there are significant sanctions to individuals, through loss of reputation for violating the behavior established within the customs. Similar to Akerlof's analysis, Bernheim (1994) offers a model of social interaction where individual behavior is reflective of both intrinsic utility (from direct consumption) and of status. His analysis suggests individuals will conform to a particular standard of behavior, even if such behavior is counter to their prevailing preferences, when the importance of status is sufficiently high.

The notion of signaling has been used in many different contexts and is relevant to the environment we are studying. An individual military person has many ways to signal his type as well as many reasons to do so.

Reputational Considerations. A strong (positive) reputation of the military is important in many respects. First, if the military exhibits signs of weakness it becomes a less effective tool. Second, it is more difficult to garner support for military spending without a strong reputation. Third, a poor reputation poses significant recruiting problems for an all volunteer-force.

From a microeconomics perspective, reputation takes on added significance within a club environment. Individuals find it worthwhile to signal character traits such as work ethic, cooperative attitude, strength, moral courage etc. for a number of reasons. First, individuals build a strong reputation for cooperation so that they provide the right signal to the team. Poor performers can be ostracized to some degree from various group

functions. Additionally, poor performers may be given the most unpleasant "details"—the additional duties that are associated with military life such as latrine detail, kitchen police or other unsavory work assignments. Additionally, individuals signal their quality in training in order to obtain the tie-in goods—those goods which are highly useful on the battlefield such as mutual medical aid. An occasional poor performance by one member might be overlooked if his reputational capital is high enough. Second, military members change teams every so often, and they carry their reputation with them (through the decorations they earn, their performance reports etc.). Finally, individuals want to signal various qualities to future civilian employers. These signals are transmitted not only to other teammates but to leaders as well; leaders who evaluate and document member characteristics on performance reports (which can affect promotion and future civilian job prospects) and reward favorable qualities through bestowing awards (which also can impact promotions and provide signals to future employers) on deserving members.

Deviant Norms. Related to the notion of signaling is the concept of deviant norms. By establishing norms that are costly or deviate from those generally held, individuals can signal their commitment by complying with these deviant norms and in the process can reduce externality problems[70]. Requiring members to conform to distinctive dress and grooming standards prevents those less willing to conform from entering service, but it also promotes a type of cohesion among members that do enter. Additionally, using a sectarian definition of religious commitment, Iannaccone (1992, p. 285) claims that participation level and sacrifice demanded are correlated and that deviant

[70] This idea is developed from Iannaccone (1992, p. 276).

norms of conduct are maintained specifically because they increase individual members degree of participation or contribution to their group.

There are several deviant norms within the military. For example, there are highly restrictive rules on personal grooming, dress and appearance. Military uniforms are one of the most visible displays of club membership. Further, there are very exacting standards about how the uniform is worn, how the various accouterments may be displayed and so on. A military member often signals his commitment by the cleanliness of his uniform, the crispness of his creases, the absence of wrinkles or lint and the shine of his boots. These rules also specify the length and style of hair that is allowed. A haircut that is near the limit of the rules signals laziness, non-conformity and lack of commitment. At the unit level, additional norms may be imposed that are within the overall rules but are more severe—to signal a special commitment to one's unit and so that one group can distinguish themselves from other groups.

To further assist in enhancing actual battlefield performance, several additional measures are in place. Awards and medals are given for courageous acts, which may improve promotion prospects within the military as well as marketability after an individual's military service ends. Moreover, having served "in the trenches" may provide promotional advantages beyond what the awards and medals might generate. Indeed, it is from the most dangerous positions that many of the top military leaders emerge. In the Air Force, pilots have typically assumed the highest leadership positions.

In the Army, infantry and other "front lines" experience typically have translated into greater leadership opportunities[71].

The Formal Military Club-Good Model.

The institutional structure described above can be distilled formally into a club-good model. To begin our formal analysis we will assume club membership is relatively homogeneous. This homogeneity results from self-selection into various types of military units as well as from the various screening mechanisms that have been described. The utility derived from military service is due in large part to the collective nature of the good. As one member displays his dedication, it spills over and increases other member's levels of commitment and the utility they derive from strong intra-group relationships. On the other hand, low levels of commitment/participation will project negative externalities on the group. Military members can be expected to derive utility from private market (non-club) consumption as well. Mathematically, a member's utility function can be represented as follows:

$U_i = f(Q,C)$ where U is twice continuously differentiable, strictly quasi-concave, and strictly increasing in all its arguments. $Q^i = f(\overline{R}, R^i, N)$ and reflects the utility an individual derives from the quality of the group (morale, camaraderie, teamwork, cohesion, level of trust, level of skill etc.).

An individual's production of club goods, R^i, depends on time devoted to club activities, r, and an individual's club capital, H_M. H_M can be viewed a stock of ones prior

[71] Although promotions could be used as rewards for courage or sacrifice, it also makes sense that top leaders know their core business very well if not personally.

participation, commitment, skills, reputation etc. Consequently, R^i =f(H_m, r). N is the number of members in a particular group or club.

Average participation, $\overline{R}$ =f(a, R, N) or $\overline{R} = a\sum_{i=1}^{N}\frac{H_m^i r^i}{N}$ or $\overline{R} = a\overline{H}_m\overline{r}$ where (a) is a leadership multiplier; initially we assume a=1.

C is the utility derived from private, non-club participation. C=f(T,R) where T is the total time or effort available for an individual. To maximize utility, a club member must allocate their efforts between club and non-club production.

The expanded utility function is: $U_i = u[q(R^i, \overline{R}, H_m, N), C]$. Additionally, C=T-R, so that adding in the constraint we have: $U_i = u[q(R, \overline{R}, H_m, N), c(T-R)]$. A summary of these relationships will be helpful.

U=f(Q,C) where $\frac{\partial U}{\partial Q} > 0$, and $\frac{\partial U}{\partial C} > 0$ and $\frac{\partial Q}{\partial C} = 0$

Q^i = f($\overline{R}$, R^i, N) where $\frac{\partial Q}{\partial R} > 0$, $\frac{\partial Q}{\partial \overline{R}} > 0$, and $\frac{\partial Q}{\partial N}$ depends[72] on N*

C = f(T,R) where $\frac{\partial C}{\partial T} > 0$, and $\frac{\partial C}{\partial R} < 0$

R^i = f(H^i_m, r^i) where $\frac{\partial r}{\partial H_m} > 0$, and $\frac{\partial R}{\partial r} > 0$

$\overline{R}$ = f(a, R, N) where $\frac{\partial \overline{R}}{\partial a} > 0$, $\frac{\partial \overline{R}}{\partial R} > 0$, and $\frac{\partial \overline{R}}{\partial N}$ depends on N*

[72] The effects of a change in group size (N) depends on whether the group is already at the optimal size (N*) or not. These effects will be discussed later on; for now we assume the group is maintained at the optimal size.

To determine an individual's optimal level of club participation, we compute the first order conditions of the utility function with respect to one's club production, R.

$$\frac{\partial U}{\partial R} = \frac{\partial U}{\partial Q}\frac{\partial Q}{\partial R} + \frac{\partial U}{\partial C}\frac{\partial C}{\partial R} = 0 \equiv H \ \ at\, R^* \text{ where } R^*=r(H_m, T, \overline{R}, N, C)$$

Note: For a given level of club participation, r, by an individual, a higher level of club capital, H_m, results in increased club production (through increased skills/experience and familiarity with other club members etc.).

A member's utility will be maximized where the marginal benefit $\left(\frac{\partial U}{\partial Q}\frac{\partial Q}{\partial R}\right)$ from efforts directed toward club production is equal to the marginal cost $\left(\frac{\partial U}{\partial C}\frac{\partial C}{\partial R}\right)$ of club participation (effort not available for private production/consumption).

However, since the marginal benefit component includes benefits that are external to the individual (through the Q variable), individuals might shirk or "easy ride" off the effort of others within the group which leads to an inefficient result (Iannaccone, 1992, p. 278). To avoid this, the club should subsidize individual participation so that individuals will internalize these externalities and bring about a more optimal solution for the group. Unfortunately, providing subsidies to individuals within the group is not practicable. Thus, the second-best solution is to implement various prohibitions and penalties which serve to increase the cost of particular behaviors or commodities—those behaviors or commodities that detract from the club's efficiency.

By applying the implicit function theorem, it is possible to determine the effect on R* that results from a change in private/non-club consumption/production.

$$\frac{\partial R^*}{\partial C} = \frac{\frac{\partial H}{\partial C}}{-\frac{\partial H}{\partial R}} =$$

$$\frac{\frac{\partial U}{\partial Q}\frac{\partial Q}{\partial R}\frac{\partial Q}{\partial C} + \frac{\partial Q}{\partial R}\frac{\partial U}{\partial Q}\left[\frac{\partial U}{\partial Q}\frac{\partial Q}{\partial C} + \frac{\partial U}{\partial C}\frac{\partial C}{\partial C}\right] + \frac{\partial U}{\partial C}\frac{\partial C}{\partial R}\frac{\partial C}{\partial C} + \frac{\partial C}{\partial R}\frac{\partial U}{\partial C}\left[\frac{\partial U}{\partial Q}\frac{\partial Q}{\partial C} + \frac{\partial U}{\partial C}\frac{\partial C}{\partial C}\right]}{-\left[\frac{\partial^2 Q}{\partial R^2}\frac{\partial U}{\partial Q} + \frac{\partial^2 U}{\partial Q^2}\left(\frac{\partial Q}{\partial R}\right)^2 - 2\left(\frac{\partial^2 U}{\partial C \partial R}\frac{\partial Q}{\partial R}\right) + \frac{\partial^2 U}{\partial C^2}\right]} =$$

$$\frac{\overset{+}{\frac{\partial U}{\partial Q}}\overset{0}{\frac{\partial^2 Q}{\partial R \partial C}} + \overset{0}{\frac{\partial^2 Q}{\partial R \partial C}}\overset{-}{\frac{\partial^2 U}{\partial Q^2}} + \overset{+}{\frac{\partial Q}{\partial R}}\overset{+}{\frac{\partial^2 U}{\partial Q \partial C}} + \overset{+}{\frac{\partial U}{\partial C}}\overset{-}{\frac{\partial C}{\partial R}} + \overset{-}{\frac{\partial C}{\partial R}}\overset{0}{\frac{\partial Q}{\partial C}}\overset{+}{\frac{\partial^2 U}{\partial C \partial Q}} + \overset{-}{\frac{\partial C}{\partial R}}\overset{-}{\frac{\partial^2 U}{\partial C^2}}}{-\left[\underset{-}{\frac{\partial^2 Q}{\partial R^2}}\underset{+}{\frac{\partial U}{\partial Q}} + \underset{-}{\frac{\partial^2 U}{\partial Q^2}}\left(\underset{+}{\frac{\partial Q}{\partial R}}\right)^2 - 2\left(\underset{+}{\frac{\partial^2 U}{\partial C \partial R}}\underset{+}{\frac{\partial Q}{\partial R}}\right) + \underset{-}{\frac{\partial^2 U}{\partial C^2}}\right]} =$$

Since $\frac{\partial Q}{\partial C} = 0$, several terms drop out yielding $\frac{\partial R^*}{\partial C} =$

$$\frac{\overset{+}{\frac{\partial Q}{\partial R}}\overset{+}{\frac{\partial^2 U}{\partial Q \partial C}} + \overset{+}{\frac{\partial U}{\partial C}}\overset{-}{\frac{\partial C}{\partial R}} + \overset{-}{\frac{\partial C}{\partial R}}\overset{-}{\frac{\partial^2 U}{\partial C^2}}}{-\left[\underset{-}{\frac{\partial^2 Q}{\partial R^2}}\underset{+}{\frac{\partial U}{\partial Q}} + \underset{-}{\frac{\partial^2 U}{\partial Q^2}}\left(\underset{+}{\frac{\partial Q}{\partial R}}\right)^2 - 2\left(\underset{+}{\frac{\partial^2 U}{\partial C \partial R}}\underset{+}{\frac{\partial Q}{\partial R}}\right) + \underset{-}{\frac{\partial^2 U}{\partial C^2}}\right]} = \frac{-}{+} < 0$$

The first term of the numerator is positive, the second term is negative and the third term is positive. However, the negative second term is a product of two first order partial derivatives and most likely overcomes the other two positive terms (which include second order partials—assumed to be relatively small) in the numerator. Overall, the

numerator should be negative. Each of the terms in the denominator is negative as computed (and also as defined by the assumptions of our model), but the negative sign in front makes the denominator positive overall. With a negative numerator and positive denominator, the overall relationship is negative.

Given this relationship, deviant norms and drug prohibitions which serve to increase the price of non-club commodities should divert effort away from non-club consumption/production toward club-related activities. Finally, for those on the margin of deciding to enlist in the military, an economic boom (downturn) may hamper (improve) recruiting efforts.

For a given level of individual participation (r), an individual's club production is increasing in the level of club capital (H_m). For many combat positions, the human capital an individual accumulates as a result of club involvement is highly club specific. To the extent that club capital is military specific, policies that eliminate positions "not inherently military" reduce private market opportunities since military skills will be less transferable to the private market[73]. Such policies may result in recruitment problems for those with a relatively low value of Q and high value on C. On the other hand, these downsizing effects may not have a significant effect on those who place a sufficiently high value on Q relative to C or those who have little private capital.

The effects of leadership on club productivity can be significant as reflected in the equation for average participation: $\overline{R} = a\overline{H}_m\overline{r}$. The farther the leadership multiplier, a, falls below 1, the poorer the quality of leadership, and the less productive the leader's

[73] Even highly club-specific capital may have some value on the private market. For instance, some employers may value honorable service as a signal of employee commitment, discipline, conformity, etc.

group will be. Conversely, as (a) rises above 1, leadership serves to bring about higher levels of group production.

There may be situations where the costs and benefits of the club are poorly aligned. For instance, if the quality or cohesion of a particular group is relatively low while the expected costs are suddenly increased, there may be performance problems—problems relative to the new expectation of costs. This is really a partial equilibrium result whereby this club may disintegrate[74] rather quickly unless the quality (cohesion) is allowed (or coerced) to adjust accordingly.

Thus far, we have assumed that the optimal group size, N* is always maintained for each club. However, the effects of changes in group size is straight forward. The marginal utility derived from adding members is likely to be positive for smaller groups due to camaraderie, etc., but eventually crowding will overcome the camaraderie effect and marginal utility will become negative (Cornes and Sandler, 1996, p. 357). In other words, when the group size is smaller than the optimal size ($N<N^*$) adding members increases marginal utility. However after N* has been reached, adding members reduces marginal utility. This occurs because it becomes more difficult to monitor individual's behavior as group size expands, so that opportunistic members may find it optimal to shirk due to the monitoring problem and the shirking imparts negative externalities on the group.

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[74] Even strong clubs that are highly cohesive can break down as a result of various factors. For example, the cohesiveness of German troops in World War II eventually broke down as allied forces eventually overwhelmed them—inflicting major casualties and breaking their will to fight. Thus, clubs do not exist in a vacuum and exogenous variables can slowly (or sometimes quickly) unravel the fabric holding the club together.

In smaller groups, shirking is more likely to be detected. If an individual shirks, and their reputational capital is sufficiently low, the individual caught shirking will be denied certain club goods (excluded from the charmed circle, given lower guarantees of mutual protection/aid, or expelled from the group, i.e., discharged[75] or killed). It is likely that the required level of participation (r) for new members is higher than required for incumbent members, especially if new members have little reputational capital—i.e., they have much to prove.

If a member is punished then Q appears less attractive to him. Consequently, he might like to exit the club; however, his enlistment contract precludes early exit unless his offense is harsh enough. If it is harsh enough, then the member will be discharged under dishonorable conditions or incarcerated, which limit his private production/consumption opportunities. Thus, many offenders will re-double their efforts in order to gain full access to club benefits and boost reputational capital.

At first glance it might seem odd that individuals would favor subjecting themselves to demanding behavioral rules and restrictions such as those found within a military organization. However, such formal and informal rules might be preferred by those within a group since in the larger scheme of things, they offer a way out of the classic prisoner's dilemma problem. In other words, these mechanisms may bring about a higher level of individual utility as well as greater social utility than could be achieved otherwise. In times of great stress, a group's cohesiveness is crucial to its survival and of course to the individuals that make up the group.

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[75] Discharged member's can lose their military pension as well.

Support for the Model.

Although ideology and patriotism may have a marginal impact on an individual's decision to enlist in the military, ideological variables are typically found to have little influence on individual behavior on the battlefield. For example, some of the relevant literature in psychology defines organizational commitment as a combination of three component processes[76]: 1) affective commitment (AC) which represents a member's emotional attachment to or identification with the service or unit. 2) continuance commitment (CC) which is the need to remain with the unit e.g., due to the time invested in the military or the difficulty of finding a civilian position and 3) normative commitment (NC) which is the commitment that arises out of a moral obligation—in a sense a "calling" to serve. These studies generally find that AC and CC are important in explaining or predicting outcomes such as attrition, morale and performance, whereas the effects of NC are less clear[77]. Thus, rather than ideological concerns driving behavior within military groups, it is more likely that individuals respond as a result of the connections they have developed with others in the group and in response to the incentives they face. From a broad perspective, this line of research provides general support for the model.

Our club-model predicts that as non-club activities are prohibited, there will be a substitution toward club activity. One example of this is drug usage within the military. The UCMJ formally prohibits drug usage by military members. However, the efficacy of

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[76] See Meyer & Allen (1997).

[77] See for instance, Tremble, Payne, Finch, and Bullis (2003), Gade, Tiggle, and Schumm (2003), Heffner and Gade (2003) and Karrasch (2003).

such prohibitions depends on the monitoring mechanisms in place and whether violators are dealt with appropriately. During the Vietnam War, drug use by U.S. military personnel was widespread. Gabriel and Savage (1978, p. 48) claim that many within the U.S. military leadership not only knew about and tolerated drug use, some may have profited from the drug trade. Essentially, the price of non-club consumption (drug use) was low which led to relatively high levels of drug consumption[78][79].

Today, military members are subject to random drug testing, and offenders are subject to harsh penalties which essentially increase the price of drug usage. The drug deterrence program is expected to result in substitution away from drug use and toward more productive[80], military club enhancing activities.

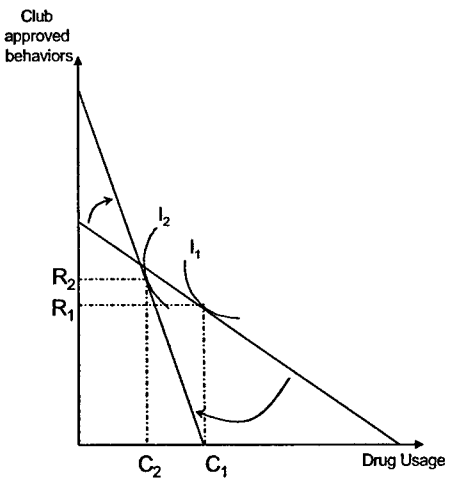

Figure 11. Substitution Effect from Prohibitions on Drug Usage

[78] The authors also claim that "even though the French operated in the identical area under similar conditions, there is no evidence that the French Army in the first Indochina war experienced a drug problem, or that the French command would, in any case, have tolerated the widespread drug network accepted by the American command in Vietnam" (Gabriel and Savage, p. 48).

[79] They include other factors as contributing to poor cohesion such as rotating individuals out regularly from a unit instead of rotating full units in and out together.

[80] The adverse effects of drug usage is widely known at this point, and no detailed explanation of the need to minimize drug usage within the military will be provided.

As depicted in Figure 11 above, an individual (in the absence of a viable drug deterrence program) might maximize his utility by consuming C_1 amount of drugs and R_1 amount of club activity. The addictive nature of drugs might eventually lead this individual to a corner solution where he spends essentially all of his time involved with the consumption of drugs and there is nothing left to devote to the club. Implementation of an effective drug deterrence program increases the costs of drug use as represented by the rotation of the budget constraint above and should lead to less drug consumption[81] and a higher level of club participation. The utility of the individual may fall (from I_1 to I_2) at least in the short term since his options are constrained. However, the increased level of participation in club appropriate behavior leads to higher group utility and likely to a better outcome for the individual in the long run as well.

The commitment and performance problems associated with the U.S. military in Vietnam deserve further attention. We can analyze these problems within the context of the club model that has been developed. Gabriel and Savage (1978) attribute the bulk of the U.S. Army's problems in Vietnam to poor leadership, which corresponds to a very low (a) variable in our formal model. They assert that:

> "under the doctrine of "equity", a requirement that all officers must serve at least one tour in Vietnam, the quality of individuals allowed to hold commissioned rank steadily declined from year to year" (p.10)...If there

[81] Of course the military's "zero-tolerance" drug policy doesn't eliminate drug use by military members completely, but may be expected to bring about abstention by certain types of individuals. As Becker and Murphy (1988) note, certain types of individuals are more prone to addictions (e.g. those that heavily discount the future) than others. Additionally, they show that permanent price increases have more effect on drug demand (particularly long-term demand) than temporary price increases. The military drug program is essentially a permanent increase in the price of drugs since random testing occurs throughout a military member's career. Further, a program that randomly tests individuals is more likely to detect those who are more frequent users than those who are relatively casual users. Of course those users identified by these random tests can be discharged from the military or otherwise penalized severely.

> were too many officers of low quality, it was even more destabilizing to unit cohesion when it became clear to the troops that their high-ranking superiors often absented themselves from combat by positioning themselves in relatively safe areas to the rear" (p. 11)...At the other extreme, one often encountered the young but career-minded officer who felt that he had to 'make his command time pay' in terms of personal career advancement. In these instances the troops were often led by an officer who sought to use them as means to his own advancement rather than to care for their welfare. Accordingly, the troops were likely to perceive him as an officer who didn't care about them or their welfare—a man likely to risk their lives to improve *his* combat record" (p. 12)...Equally destructive of unit cohesion were the brutally disruptive rotation policies in which officers were required to serve only six months in front-line units while enlisted men, 'the grunts,' had to serve twelve months or until their DEROS (Date Estimated Return Overseas) was reached. The rationale for this policy was based on the notion that rapid rotation of officers would provide a large number of officers with command experience and would have the added advantage of "blooding" the officer, so that a large proportion of the officer corps which stayed on after the conflict would have combat experience. This rationale notwithstanding, the rotation policies operative in Vietnam virtually foreclosed the possibility of establishing fighting units with a sense of identity, morale, and strong cohesiveness. The assignment of individual as opposed to unit DEROS dates, plus the frequent rotation of officers, made it clear that the policy was virtually every man for himself" (p. 13)...As an indicator of disintegration, desertion increased radically in Vietnam despite a simultaneous reduction in both the losses and the number of troops actually deployed" (p. 43)...By any comparison, there is nothing in the American experience in Vietnam remotely approaching the losses in [other] historical cases, and very little in terms of comparative battle stress. It seems fair to say that the American Army in Vietnam underwent no catastrophic reverses and suffered few losses compared to the countless incidents experienced by other Western armies. It is this 'minimal combat stress' which throws into ever starker relief so many indicators associated with discohesion within the American military force in Vietnam" (p. 39).

The use of deviant norms to elicit high levels of commitment among members of a group is not a new phenomenon. From an anthropological view, Sosis et al (forthcoming), found that very primitive societies engaged in costly ritual performance in

order to promote and signal commitment and intra-group trust especially among males who must organize for warfare.

Iannaccone (1992) develops a club model to explain why those religious groups that require persistently higher costs (e.g., dietary restrictions, Sabbath laws, distinctive clothing, celibacy, geographic isolation, painful initiations, etc.) of members are most successful in terms of growth of membership and participation among members. These seemingly unproductive costs can screen out those whose participation otherwise would be marginal while increasing the participation of those who remain. He claims that "heterogeneity is problematic because people with low levels of participation have an incentive to free-ride off groups with high average levels of participation. Less committed members threaten to swamp groups that would otherwise have high levels of participation" (p. 281). Additionally, he notes that prohibitions can raise average levels of participation and utility even in homogenous groups where the increased prices (from prohibitions) result in substitutions toward club-appropriate behavior. Moreover, the "indirect gains from screening and increased participation can more than offset the direct costs of the behavioral restrictions, so that net group utility increases[82]" (p. 289). He finds empirical support for his model by utilizing data from various religious groups.

Within the military psychology literature, researchers have studied the concept of morale and its relationship with performance and other variables. Along these lines, Shamir et al (2000) in a study of Israeli Defense Force (IDF) members, found the

[82] He notes that "the costs are not ideal solutions: instead of subsidizing group participation, they tax alternative activities; instead of simply excluding the uncommitted, they penalize all entrants. But when the ideal is impossible, the next-best must suffice. Groups of perfectly rational people may thus embrace stigma, self-sacrifice, and bizarre behavioral standards" (p. 289).

strongest predictor of perceived combat readiness was identification with the unit. Although conducted outside our group of interest, this study does provide general support to the model outlined above. For example, they claim:

> the relationship between collective identification and collective efficacy is likely to be reciprocal: Members may attach high collective efficacy to groups with which they identify, and the strength of identification with the unit may be one of the factors on which members base their beliefs about the unit's efficacy. The extent to which identification may increase perceptions of combat readiness has clear practical implications for unit leaders, who may strengthen the social identification of members in at least three ways: (a) by skillfully using slogans, symbols (e.g., flags, emblems, uniforms, songs), rituals, and ceremonials that emphasize the collective identity, its uniqueness, and superiority; (b) by emphasizing the shared values of unit members and showing how unit goals are consistent with members' core values; and (c) by engaging in various inclusive behaviors, such as referring to "us" rather than "me" and "you", including members in decisions, and showing support and consideration for members' needs. These behaviors are likely to increase the distinctiveness and attractiveness of the unit for members, increase their identification with the unit, and consequently, increase their perceptions of collective efficacy (p. 116).

The model implies that in those areas where the demands are most severe are where the benefits should remain high. In a study involving Norwegian Navy officer recruits, Bartone et al. (2002) found that unit cohesion was increased through the experience of stressful exercises and through previous familiarity with other team members. Consequently, where cohesion is critical is where training etc. are (or should be) most demanding. Likewise, those that have endured the most stress (up to a point) are likely to be the most cohesive.

More recent pushes to downsize the active duty military by civilianizing or privatizing positions "not inherently military" may impact recruiting efforts since fewer

military positions that provide skills transferable into the civilian marketplace will be available. On the other hand, individuals who have little private capital anyway or who value club-type benefits sufficiently may not be affected by these downsizing policies so that recruiting problems will depend on the characteristics of the supply pool. In fact, Drillings and Fischl (1999) found that from a sample of African-American high school students in the District of Columbia, individuals of lower socio-economic status had a higher propensity to enlist in the military than those of higher status[83].

Policies that employ reserve force members in more combat roles than has typically been the case, may result in performance problems at the margin if these non-active troops have had fewer opportunities to develop the cohesiveness required of these types of groups. To put it another way, many reserve troops have a lower expectation of serving in a combat situation since they are typically not used as first-responders, and also assume they will not be deployed for extended periods. On the other hand, such problems may be mediated to the extent that guard members serving on active duty together have already developed tight relationships within their community settings. Additionally, the likelihood or extent of performance problems will depend on the amount of pre-battle training employed to develop cohesion. Moreover, this is a partial equilibrium result since over time, individuals joining the reserve forces will adjust their expectations based on the new policy.

Obtaining data on this conjecture is not practicable since it is very sensitive. However, there have been several incidents fairly recently that tend to support this claim.

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[83] See Nieva et al (1996), Nord et al (1986), and Bachman et al (1998) for additional research on enlistment potential and socio-economic status.

First of all, the alleged prisoner abuses at the Abu Ghraib prison in Iraq were carried out largely by Army reserve troops[84]. Additionally, there was an instance when an Army reserve supply platoon refused to deliver supplies into a more hostile area of Iraq because they claimed their equipment was of poor quality and they lacked proper protection[85]. Finally, we should not that, considering the extent to which reserve troops have been used on the front-lines in Iraq, it is rather surprising that we have not heard many more incidents of performance problems. Thus, the mechanisms in place may be working quite well to develop cohesion sufficiently across all types of military members.

Our formal model also predicts that changes in private market variables will affect recruiting efforts. Since individuals derive utility from private, non-club commodities, if conditions change the relative prices between club and non-club commodities, this may affect recruiting efforts at the margin. That is, as the relative price of club-goods increases, individuals will be less likely to enter into the military. A study by Dale and Gilroy (1985) found that of several variables they examined, the unemployment rate and the ratio of military to civilian pay had the strongest impact on enlistment rates based on U.S. Army accession data from 1975 to 1982[86].

On the other hand, the military uses various mechanisms to induce enlistment as current conditions require. For instance, Fernandez (1983) found that a $2,500

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[84]The prison was guarded by the 372nd Military Police Company which is an Army reserve military police unit of which seven members were apparently involved in the scandal while another member of the unit was responsible for reporting the alleged abuses. It is important to note that many individuals do not agree that what happened at Abu Ghraib should be classified as abuse—at least not torture. The extent to which prison guards were allowed or encouraged to use various tactics may never be known.

[85] This story was reported through several sources; see for instance: http://seattletimes.nwsource.com/html/nationworld/2002064795_reluctant16.html

[86] For additional support see Dertouzos (1984), Murray and McDonald (1999), Daula and Smith (1986), Asch and Hosek (1999), Brown (1984) and Horne (1984).

enlistment bonus for combat arms positions in the Marine Corps resulted in a 10% increase in enlistments based on 1979 survey data. According to the Associated Press[87], the U.S. Army in fiscal year 2005 experienced the first recruiting shortfall since 1999 and the largest shortfall in 25 years. Consequently, the Army recently announced larger bonuses for enlistments and re-enlistments will be available to recruiters in 2006. Maximum payments to new recruits will double from $20,000 to $40,000 and from $10,000 to $20,000 for reservists while maximum re-enlistment bonuses for active duty soldiers will increases from $60,000 to $90,000. Additionally, the Army has expanded its supply pool by increasing the percentage of recruits it will accept that fall below certain aptitude levels (doubling the previous 2% acceptance rate). Finally, the age limit for enlistment will also be increased from 35 to 42 years.

We would expect there to be some optimal group size depending on the function of the group. If military commitment is derived largely by the close personal ties among members of a group, at some point there must be diminishing returns to group size, as it becomes more difficult to develop tight relationships with larger numbers of people. In fact we do see the groups most likely to encounter hand to hand combat for example, organized into relatively small groups. The Army's smallest fighting unit—a squad, usually consists of nine or ten soldiers. The 'fire-team' in the Marines consists of three members. Special Operations Force units tend to be very small as well depending on its function. The high intensity training Marine Corps personnel are subjected to is well-documented, and Special Force members are typically subjected to an extreme training

[87] Source: MSNBC website: http://www.msnbc.msn.com/id/6448213/did/10897030/

regimen as well. Again, the stronger the need for cohesion among individuals, the smaller the optimal group and the more demanding their training tends to be.

Conclusion

Although much has been written about the importance of morale and cohesion to the effectiveness of a military unit, there is no consensus on how to capture these concepts within a formal model. Through the lens of the club-good model presented in this chapter, we may increase our understanding of how high levels of camaraderie may be developed and sustained within military units and how this may translate into well-functioning teams even under very stressful and demanding environments. This methodology allows us to explain the seemingly irrational behavior of military members in a setting devoid of the signals and incentives found in private markets.

On the other hand, depicting camaraderie and courage as a consequence of exchange may at first seem odd if not offensive to some readers. In other words, courageous acts are often cited as and indeed are often admired *because* they are believed to be selfless acts. Yet this model portrays individuals within a military unit acting largely out of self-interest. The model may not be able to explain absolutely everything that happens within a military unit. However, this does not diminish the usefulness of the model. Just as private firms are assumed to maximize profit, there are most certainly other objectives held by individuals within a firm. But the simplicity of profit maximization yields robust empirical results. Additionally, firms that struggle to make a profit will cease to exist over time.

Chapter 4: U.S. Marine Corps Culture and Performance

> "Man does not enter battle to fight, but for victory. He does everything that he can to avoid the first and obtain the second...Absolute bravery, which does not refuse battle even on unequal terms, trusting only to God or to destiny, is not natural in man; it is the result of moral culture. It is infinitely rare, because in the face of danger the animal sense of self-preservation always gains the upper hand"
>
> Colonel Ardant du Picq, p. 94.

Chapter Overview

The last chapter applied club theory to explain how the behavior of individuals in a military unit can be constrained or channeled towards more cooperative and more collectively optimal solutions. The club-good approach takes self-interest as given and highlights the importance of incentives for controlling or directing behavior. Thus the model emphasizes the exchange relationship that drives individual actions rather than more ideological influences.

Although all of the elements of the club-model presented earlier can be considered "cultural", the emphasis on culture in this chapter is a bit different. Preferences are viewed as malleable to some extent and an agent may find it worthwhile to invest in transforming his agents' preferences in order to channel behavior. Within the preference-altering model, incentives still play an important role. Consequently, this

chapter and the previous one are not mutually exclusive; in fact they may overlap to a large degree. The major difference is that the club-good model emphasizes the exchange mechanism between military members more whereas the cultural model focuses more on how agent's preferences can be manipulated or alternatively how their valuations of certain alternatives can be changed[88].

This chapter will describe what culture is and what it means in a military setting. Further, we will show why military culture is important and how it has evolved over time. Game theory shall be used to further illustrate how culture may channel behavior toward more cooperative or optimal solutions.

The Meaning and Importance of Culture

In experimental economics, higher levels of cooperation are observed than rational choice theorists predict (Kim and Walker, 1984; Isaac et. al, 1984; Isaac et. al 1985) and relatively high levels of cooperation are often observed even among strangers in one-shot games (Marwell and Ames, 1981). Of course, the results of such experiments may be misleading. For instance, subjects of experiments are often playing with someone else's money or where the payoffs and losses are relatively small. Economists readily admit that rational choice theory is not a perfect model of human behavior. But the advantages of using rational choice theory overwhelm the disadvantages, especially in terms of simplicity, tractability and explanatory power. More importantly, there really is

[88] Particular individuals, especially members of particular types of groups may respond to behavioral influences differently than other individuals. Although we will emphasize the Marine Corps and other "elite" military units in this cultural analysis, that is not to say it does not apply, e.g. to individuals in units generally held as "less elite". Likewise, a particular elite troop may not respond to the preference adaptation methods very well. Nevertheless, we will illustrate this cultural model by emphasizing the Marine Corps, even though other groups might be as relevant.

no better way at present to model human behavior. At the same time, the importance of culture, institutions etc. are being increasingly recognized by economists and other social scientists.

The meaning of culture is hard to pin down precisely and often depends on the context. However most people know what culture is generally even if they find it difficult to articulate. Webster's Dictionary (1993) defines culture as: a) the act of developing by education, discipline, social experience: the training or refining of the moral and intellectual faculties; b) the body of customary beliefs, social forms, and material traits constituting a distinct complex of tradition of a racial, religious, or social group; c) a complex of typical behavior or standardized social characteristics peculiar to a specific group, occupation or profession, sex, age grade, or social class.

North (1990) defines culture as "the transmission from one generation to the next, via teaching and imitation, of knowledge, values and other factors that influence behavior" (p. 37). In his view, people impose constraints upon themselves to provide structure to their environment—to reduce the costs of interaction. Institutions, or informal constraints are more important where there is more uncertainty about the future—where the environment is more complex and when the issues likely to be confronted tend to be rather unique. Although formal rules underlie these informal constraints, the formal rules "are seldom the obvious and immediate source of choice in daily interactions" (p. 36).

Similarly, Denzau and North (1994) claim that individuals sharing common cultural characteristics can enjoy lower transactions costs than might be possible between

random individuals. In order to make decisions under conditions of uncertainty, individuals develop mental models to make sense of their complex world. The ideologies that flow from these mental models and the various institutions of a particular society help order interpersonal relationships. The degree to which individuals share common experiences and culture, will determine the degree of convergence in their mental models, ideologies and institutions. Further, a higher degree of convergence will allow individuals to enjoy more transactions (cooperation) than otherwise might be possible.

Certain types of culture are more conducive to enabling democratic regimes to emerge (Congleton, 2003). Moreover, even in countries where democracy has been established, there are no guarantees it will survive as highlighted by numerous examples in Latin America. Even among relatively mature democracies, there are widely divergent outcomes in terms of economic growth, political stability, redistributional politics and other criteria. It is quite clear that culture may significantly impact both the health and the long-term viability of most any group one can imagine.

Corporate Culture. Camerer and Vepsalainen (1988) describe culture as a mechanism for overcoming the management problem—the difficulty of specifying employment contracts that cover all future contingencies employees will face. In their definition, corporate culture specifies broad, tacitly understood rules that direct behavior under unspecified contingencies. As the costs of monitoring and communication fall, the informal culture becomes less important and the number of written rules expands to control and direct behavior.

There are of course important differences between military organizations and private enterprises. Yet they both face some common problems such as how to motivate employees within a team environment, what kind of organizational culture should be developed and how to develop it. Since the performance of private corporations is relatively easy to measure, we will review some key research on corporate culture so that we may be able to apply lessons learned from the corporate world to the military market.

To form the basis of our corporate cultural examination, we will review the research of Kotter and Heskett (1992) reported in their book entitled *Corporate Culture and Performance*. This research studied various U.S. corporations in order to determine the relationship between corporate culture and long-term economic performance. They describe organizational culture as existing on two levels—differentiated by the degree of visibility and resistance to change. At the deeper, less-visible level culture represents those shared values that tend to persist intertemporally even as membership changes; at this level, culture is very difficult to change. At the more visible level, culture reflects behavioral patterns—the style that new employees are encouraged to follow by others within the organization. Although this level is also difficult to change, it is less difficult than the deeper level.

Kotter and Heskett developed cultural strength indices using survey data across 207 firms from twenty-two different U.S. industries and then devised three different methods to determine economic performance. They also conducted more in-depth investigations of subsets of their original sample to evaluate other cultural aspects against their performance measures. Consequently, they grouped corporate cultures into one of

three categories: 1) strong cultures—where most managers share a set of relatively consistent values and methods and where new employees adopt these values quickly; 2) strategically appropriate cultures (SAC)—where the cultural content (e.g., the common values and behaviors) fits its context (i.e., the objective conditions of its industry, the business strategy of the firm etc.); and 3) adaptive cultures—cultures that anticipate and adapt to environmental change rather well.

They found that although one or the other type of culture has often been associated with success, there is nothing inherently conflicting in the three types and in fact all three are important to long-term success. The following cultural traits, according to these authors, contribute to long term success.

- Top Management should: clearly differentiate adaptive values and behaviors from more specific practices needed today; constantly communicate the core values and behaviors; become living embodiments of the culture they promote; provide strong leadership while not strangling leadership initiatives from below.
- Long term success usually comes from a culture that emphasizes results for shareholders, customers and employees, values lower level leadership and creates an environment attractive to highly capable people.
- Additionally, strategically appropriate cultures are not conducive to long term success unless "they contain norms and values that can help firms adapt to a changing environment" (p. 142). Further, an adaptive culture promotes risk-taking, trust, and proactive practices, where members actively support other's efforts to identify all problems and implement workable solutions.

- Holding on to a good culture requires being both inflexible with regard to core adaptive values and being flexible with regard to most practices and other values.

The authors note that although overcoming resistance to cultural change is difficult, it can be done with highly competent leadership at the top of the organization. Successful cultural change requires leaders to create a sense of crisis—"making the status quo more dangerous than launching into the unknown" (p. 116).

Additionally, they caution that although strong cultures can enable a group to take quick and coordinated action against a competitor, this same strong culture can also lead intelligent people to walk together off a cliff.

Finally, unadaptive cultures are "often characterized by some arrogance, insularity, and bureaucratic centralization…In such cultures managers tend to ignore relevant contextual changes and to cling to outmoded strategies and ossified practices" (p. 142). In adaptive cultures "managers pay close attention to all their constituencies…and initiate change when needed to serve their legitimate interests, even if that entails taking some risk" (p. 143).

Game Theory and the Effects of Culture

To understand the effects of culture on behavior we will begin by reproducing in table 10 the prisoner's dilemma problem from Chapter 2.

Table 10. Prisoner's Dilemma on the Battlefield.

	Soldier B charges the hill	Soldier B runs away
Soldier A charges the hill	(3,3)	(4,1)
Soldier A runs away	(4,1)	(2,2)

In the prisoners dilemma matrix in Table 10 above, soldier A and B are in the same proximity on the battlefield and are deciding (of their own volition or as commanded) whether to charge a hill where enemy forces are expected to exist (although these enemy forces may be hidden from view). The numbers in parenthesis are payoffs associated with each particular outcome—a higher number being more desirable. The standard neoclassical economic assumptions are that both agents are self-interested and rational. From soldier A's perspective, if both charge the hill they each receive a payoff of three. However, suppose that A is unsure if he can trust B completely, then if A charges, and B runs away, A receives only one and B receives four. This is so because if only one charges the hill, he is less likely to overcome the enemy and more likely to be injured or killed. The one who flees may have a better outcome since the enemy's attention will be directed, at least temporarily, to the one who does charge. On the other hand, if A is certain that B will not run away, his best option is to run away himself, which yields A four and B one. Soldier B perceives the strategy exactly as Soldier A, so that the most rational choice for each, individually, is to run away no matter what his comrade does.

Unfortunately, this equilibrium is inefficient. First off, if they could both somehow be sure that the other will cooperate (charge the hill), then they both would

achieve a higher payoff individually than could be obtained otherwise. Of course from a national security perspective, having the soldiers charge rather than run away is certainly a desirable outcome (excluding the case where it may be optimal to retreat).

Initially, it may seem that this example is unrealistic since it represents a simple example involving only two military agents, whereas in reality there are a large number of military agents on the battlefield. But the problem of free-riding (or not cooperating) becomes more severe with larger numbers of 'players'. That is, in very large groups it is much more difficult to detect agents breaking the rules—which serves to increase the incentives to defect (or not cooperate).

There is another approach with which we could frame the problem and the analysis; an approach which considers cultural aspects not yet considered. If a type of moral culture can be instilled into military members which takes certain actions out of one's choice set (or makes them very costly in some sense that is not necessarily economic), then the game has been fundamentally altered. Even though the payoff may appear to some people just as they are in the matrix, those who share a certain culture may view the payoffs altogether differently.

Consequently, to a member of a particular culture, the payoff matrix may appear as follows:

Table 11. Perceived Payoffs as a Result of Moral Culture.

	Soldier B charges the hill	Soldier B runs away
Soldier A charges the hill	(15,15)	(10,-10)
Soldier A runs away	(-10,10)	(-15,-15)

Although the payoffs have not actually changed, they are perceived differently by those who possess a certain type of moral culture. Based on this payoff matrix, the Nash equilibrium is for both to charge the hill, whereas it would be extremely damaging to personal utility to run away (or otherwise fail to cooperate). Thus culture may take the defect option virtually out of the choice set completely, allowing more cooperation, higher individual utility and a better functioning military system.

The Nature of American Military Culture

For our characterization of military culture we will use the definition set forth by Haynes (1998): "culture is a sociologically (not genetically) based ideational framework that either presents decision-makers with a limited range of options or acts as a lens that alters the appearance and efficacy of different choices" (p. 5). This definition can apply equally well to different levels in a military hierarchy.

For example, the top leaders of each military branch are charged with developing and maintaining "the right culture" for those within their organization. These top leaders determine what the culture of their organization should be[89] based on their perceptions of their environment, their history and by the nature of their service's primary function. From this perspective, we can understand how the different branches of the U.S. military have developed different cultures.

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[89] As already mentioned, cultures can be very difficult to change. Additionally, the informal culture may not be aligned with the formal culture in some cases. Consequently, it often takes strong leadership to ensure the organization's culture is being maintained as required or is on the right track. There are other exogenous factors that can significantly affect the culture as well, e.g. overwhelming enemy forces, expanding the ranks too quickly to prepare for an impending crisis.

Some of the key cultural attributes from each service is worth highlighting. The Air Force culture has focused heavily on technology[90], authority tends to be highly centralized[91] and is often characterized "more like a modern corporation than a military institution (Haynes, p. 72). The Army's culture, although influenced by the requirements of land warfare, tends to reflect the greater social culture more so than the other services[92]. This is the case because the Army is not as isolated from the rest of society as is the Navy and Marine Corps, and because of its large size which causes it to be viewed as a threat and scrutinized more by the public. Navy culture has emphasized independence and technology—eschewing centralized command structures and highly prescriptive doctrine[93]. The Marines culture takes a more balanced view on the role of technology, emphasizing the human element of war. Additionally, the Corps "categorically rejects the principle of centralization of control and decision making in combat" (Warren, 2005, p. 15).

A democratic nation's military culture will to some extent reflect, or be constrained by, its civil culture, so that it will be accepted and maintain the publics trust. From the beginnings of the national army in 1775, national defense was influenced by a fear of a standing army of professionals. Consequently, defense was provided primarily

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[90]As Haynes notes, "the Air Force is free to exploit the American cultural preferences for technology because the relationship between advanced technology and success in the Air Force's combat medium is more direct [than is so for the Army and Marine Corps] (Haynes, p. 77). Murray (1999) notes that for the Air Force, "the demands for tanker support, suppression of enemy air defenses, and the interplay between air-to-air fighters and bomb-droppers inevitably requires a mechanistic approach to military operations in the air" (p. 36).

[91] Murray notes that "the nature of air war, with hundreds if not thousands of aircraft launched against targets on the ground and in the air, will demand a degree of top-down organization that ground operations do not" (p. 36). Operationally though, air power must sometimes be executed in a decentralized manner.

[92] See Haynes, p. 39.

[93] ibid, p. 66.

through militias along with additional call-ups for special emergencies. This same fear also resulted in a strong emphasis to maintain clear civilian authority over the military.

Common to virtually all bureaucracies, military promotions are from within the organization—individuals that have been in the trenches and 'paid their dues" are the ones with greatest potential to rise to the top of the organization. Consequently, all the services are dominated by leaders from their combat elements. Further, all the services utilize 'up or out' systems which requires members to do the right things in order to get promoted, otherwise they must separate from the military. Thus, the military culture rewards sacrifice or courage.

Since preferences vary across individuals, the military system provides mechanisms to develop more fully the desired character of its members. At the lower level units we can readily observe their organization goals, mission statements, mottos etc. Each unit also has formal and informal rules or identifying attributes. The bottom line is that each unit seeks to develop a common culture among its members, so that in a future contingency, they will "do the right thing". Members will be conditioned through various types of indoctrination to feel the worst option is to let down their comrades, to be a coward or bring dishonor to their unit, service or country.

In order to facilitate cultural transformation of recruits, all American military members must complete some form of 'basic training, as a rite of passage or an initiation fee, which is usually followed by more specific technical training in their fields of expertise. Additionally, there are a variety of ceremonies, traditions and rituals that serve to enrich and distinguish a particular culture. At every phase of training, values such as

honor, courage, commitment, teamwork and integrity are continually being ingrained into individuals. Additionally, military personnel wear distinctive uniforms and agree to be bound by a highly restrictive set of laws contained within the Uniform Code of Military Justice, all of which serve to develop a common culture.

Developing a culture of loyalty can be dangerous as well. In order to minimize the potential for abuse by our military forces, several measures are in place. For instance, all military members swear an oath to support and defend the constitution and to obey *lawful* orders. Laws concerning the conduct of war are derived primarily from the United Nations Charter, the Hague conventions and Geneva Conventions[94]. Although these mechanisms have not eliminated atrocities, individuals found to have committed crimes during war, especially those from democratic polities, have often had to answer for their actions.

Positive Analysis of U.S. Marine Corps Culture: An Institutional Case Study

In this section, we will explore the evolution of Marine Corps[95] culture from the Vietnam War era forward. Focusing on the Marine Corps makes sense because it is typically viewed as an elite organization with a very distinct culture. Moreover, the Marine Corps is not shrouded in as much secrecy as other elite military units (e.g., the Army's Green Beret, Navy Seals etc.), which is attractive in terms of accessibility.

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[94] These agreements are intended to minimize suffering, atrocities and are especially applicable to the treatment of medical facilities and medical personnel, civilians and prisoners of war.

[95] The cultural foundations of the Marine Corps may be very similar to that of other elite forces such as the Navy Seals, Delta Force, the Green Beret and so forth. Additionally, many individuals within standard, less elite units may also possess strong cultural traits similar to those within the elite units. Although we will focus on the Marine Corps, we will periodically refer to other branches or units where it helps clarify a point or is otherwise relevant to the analysis.

Second, the Marine Corps often faces some of the toughest combat action, where cooperation is of paramount importance and where it would seem very difficult to obtain. Finally, focusing on the relatively recent era will make our analysis more meaningful/relevant for today and tomorrow.

A resolution of the Continental Congress established the Continental Marines on November 10, 1775, and they were disbanded after the Revolutionary War. Thus, although the Marine Corps did not come into continuous operation until 1798, Marines celebrate their birth as November 10, 1775. The Marines history is steeped in tradition and its performance in World War II elevated its status as a highly aggressive, formidable fighting force.

In the modern era, there are several unique mechanisms through which the Marines seek to instill the right culture into their members. All Marine Corps officers must attend The Basic School (TBS), a single point of entry which provides a common baseline of training, regardless of specialty. Additionally, according to Shelton (2000) "delaying selection of a military occupational specialty (MOS) until during TBS is another critical aspect to cultivating identity as 'Marines" versus some subgroup" (p. 28).

Recruit training in the Marine Corps is notoriously tough and emphasizes cultural assimilation and bonding over technical training. Haynes (1998) notes that the Marine Corps "history, small size, and emphasis on warfighting engenders a semper fidelis, "band of brothers" mentality that makes the Marine Corps the most cohesive of military institutions" (p. 87). Warren (2005) adds that the success of the Marine Corps "rests on a number of pillars, including the Corps' remarkable facility to transmit its values and

habits of mind effectively to more than thirty thousand new recruits a year. On the individual level, the transformation that recruits undergo at the recruit depots in Parris Island, South Carolina, and San Diego, and in the officer candidate schools in Quantico, Virginia, is both profound and, in the vast majority of cases, permanent" (p. 8).

Additionally, although the Marines are not averse to technology, they appear to have continually emphasized the importance of the human element in warfare more than other services (Haynes, 1998). For instance, in the Marine Corps, there is a tight bond between officers and enlisted men. As General John Lejeune writes almost a century ago: "A spirit of comradeship and brotherhood in arms came into being in the training camps and battlefields [of World War I]. This spirit is too fine a thing to be allowed to die. It must be fostered and kept alive and made the moving force in all Marine Corps organizations...The relation between officer and enlisted men should in no sense be that of superior and inferior nor that of master and servant, but rather that of teacher and scholar[96]".

Warren (2005) highlights the Marine Corps understanding of the importance in modern war of being able to act in a decentralized manner: "since modern war especially is 'not the monolithic execution of a single decision by a single entity but necessarily involves near-countless independent but interrelated decisions[97], the Marine Corps categorically rejects the principle of centralization of control and decision making in combat' (p.15). Additionally, Warren argues that "it was in the jungles and countryside

[96] General Lejeune's guidelines in the Marine Corps Manual of 1921 as quoted in Krulak p. 176.
[97] The inner quote is cited by Warren from "Warfighting", Washington D.C.: US Marine Corps, 1997, pp. 13-14.

of the Caribbean and Central America that the Marine Corps came to accept the principle that quick, intuitive decision on the ground by corporals and sergeants were far preferable to sitting on one's hands until orders came down from the colonel ten miles away at the command post" (p. 32).

Although there are certainly many pacifists and others who do not hold the military in high regard, Warren states that "the Marines enjoy an unusually close relationship with the American public. Both the Marine Corps in general and the individual Marine occupy a unique place in the American imagination. Marines have long understood that their existence is contingent on preserving their high name and public reputation. It is essential that the Marines of today hold to the high standards of performance of the past; if they do not, if the American people's reverence and respect evaporate, the brotherhood believes, the Corps will falter, and its mission will be handed over to its sister services" (p. 25).

Marine Corps Culture: 1963 to 1973.

Although the Korean War did not achieve the objectives set out by U.S. officials, the performance of the U.S. Marines was generally held in high regard. According to Warren (2005), "The New York Times spoke for a great many Americans when it opined that the legislative action anticipating PL416[98] "is a direct reaction to (1) the magnificent record on the ground and in the air of the Marines in Korea; and (2) the persistent attacks

[98] Public Law 416 was signed by President Truman on June 28, 1952, which officially established the size of the Marine Corps, distinguished it as a separate service within the Department of the Navy, and reserved a spot on the Joint Chiefs of Staff for the Marine Corps Commandant.

upon the Marine Corps by high officials inside and outside the Pentagon during and since the 'unification' fight[99]". Thus, the elite status of the Marines was largely intact at the beginning of the Vietnam War.

Although the Marine Corps performed exceptionally well during the first part of the Vietnam War, the elite status of the Marines and the culture began to decline during the latter part of that struggle due to several factors. Conducting a guerrilla type war, with various engagement rules and for an effort which did not enjoy the support of the American people negatively impacted the Marines culture[100]. The cultural strength of the Corps was impacted as the war progressed and the need for Marines escalated. As the number of recruits swelled rapidly, the screening mechanisms became less efficient. Additionally, an organization that had emphasized adaptability found itself constrained by political and military rules of engagement. For example, the Marines favored a pacification[101] strategy rather than the war of attrition forced upon them by the Army and other political forces. Warren (2005) argues "most serious scholars today believe the United States consistently focused on chimeras. The big-unit battles on the ground—those involving battalions or larger units—were invariable won by the Americans. But these "victories" were less important strategically than the battle for the allegiance of the people in the villages, and for the enormous and closely related task of building a viable, independent South Vietnamese government" (p. 212).

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[99] As cited by Warren from the New York Times, June 28, 1951.

[100] Colonel Robert Barrow remarked on these guerilla tactics, "I think that is the worst kind of warfare, not being able to see the enemy. You can't shoot back at him. You are kind of helpless. It is easy to become fatalistic, as indeed a lot of our young men did" (Smith, 1988).

[101] "The Marines' thinking reflected their extensive experience with third-world insurgencies in the Caribbean and Central America in the first third of the twentieth century, which put a premium on doing a great many things with comparatively few troops" (Warren, 2005, p. 217).

Another problem for the Marine Corps which "led to decreased combat performance and even a rise in criminal behavior...was the upheaval caused by the gradual drawdown of Marine forces, in which men in units slated for redeployment out of Vietnam who had yet to complete their thirteen-month tour were shuttled from one unit to another" (Warren, 2005, p. 272). The destructive effect on unit cohesion and performance for a similar rotation policy in the Army was discussed in the previous chapter.

All of these factors led to a general decline in the Corps cultural foundation and resulted in serious behavioral problems. For instance, during the early 1970's, although the Marine presence was smaller in Southeast Asia, the number of atrocities against civilians, friendly-fire incidents, fragging, drug-related behavior and racial problems within the Corps had escalated[102]. However, much of the Marine Corps combat performance was still admirable, especially among the reconnaissance units and combined action platoons[103]. Nevertheless, many particular Marine Corps incidents, as well as incidents involving other services and the wars final outcome would cast a dark cloud over the U.S. military for the next several years.

Thus, not even the strong, tradition bound culture of the Marine Corps is impervious to its environment. Although many of the factors that led to problems within the Marine Corps were external, some were not. Leadership failed to anticipate and

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[102] See for instance Warren (2005, p. 272-273) and Gabriel and Savage (1978).

[103] Warren (2005, p.271) states that "while 'elite within the elite' units, such as the reconnaissance units and many combined action platoons, maintained excellent discipline and outclassed the VC and NVA in combat in most engagements, there is little reason to doubt historian Allan Millett's assertion that "the regular infantry showed signs of slackened enthusiasm and professionalism. Marine operations, therefore, showed striking contrasts between very good and very bad".

resolve racial discrimination. Similarly, the effects of a disruptive rotation policy should have been anticipated. Marine Corps leadership also failed to adequately address the problems related to drugs and fraggings as expeditiously as they should have. Of course fighting according to their own doctrine and tactics was in some cases impossible since they were constrained by particular strategies and by political agendas and rules.

To sum up the Marine Corps' experience in Vietnam, one could argue that even though there were moments of brilliance, as a result of various factors over time, the Corps' culture was failing along all three dimensions; strength, fit and adaptation. Again, although the Corps had little control over many of these factors, the tightly bound culture could not fully withstand the threats it confronted. Moreover, it would take time and strong leadership to repair their culture and regain their status.

Marine Corps Culture from 1973 to 1991.

The military in general had suffered serious blows, in terms of its culture, its perceived effectiveness and public image in general as a result of the Vietnam experience—the Marine Corps was no exception. Implementation of the all-volunteer force in 1973 may have initially intensified the problems[104]. But eventually, through strong leadership and a new focus, the elite image would eventually return.

Warren argues: "the senior officer corps hardly disputed that the Marine Corps in 1975 was in bad shape. It stood out among the services for its rates of desertion, drug and

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[104] Although the Marine Corps had historically been successful in attracting "volunteers", except for periods during the Vietnam War, (e.g., when rapid manpower expansions were required), they were not volunteers in the pure sense. The draft program had served to drive young men into the Marines, to avoid the Army etc. But the implementation of an all-volunteer force in 1973, made it difficult, especially in light of public sentiment about the Vietnam War, to attract true volunteers that were considered of high quality. Various factors would eventually result in the Corps being able to obtain sufficiently high quality recruits. See Millet (1991, p. 611) for more on this topic.

alcohol abuse, and imprisonment. It was clear that in the new era of the all-volunteer military, the Marines were not able to attract enough quality recruits. It was meeting its numbers, but only by taking in thousands of under-qualified young men. Twenty percent of the recruits in 1972 had been Category IV mental types—meaning of borderline intelligence—and by 1975, almost half of the recruits hadn't finished high school...Just under half the enlisted recruits who joined the Marines between 1972 and 1975 washed out before completing their first enlistment. It was not only a numbers problem but a critical identity problem: the Corps was losing its reputation as an elite force." (p. 280).

The rebuilding of the Marine Corps during the 1970's and 1980's can be attributed to great leaders such as Louis A. Wilson and Fred Haynes. Haynes, under the direction of Wilson led a review of the Marine Corps missions, structure and personnel policies[105]. The findings of this study, delivered in 1975 suggested that more high school graduates and less drop-outs would significantly boost the quality of its force. Also approved was a recommendation that first-term retention goals be abolished and that marginal/substandard performers be discharged expeditiously[106].

General Alfred Gray who took over as Commandant in 1987 sought "to reinvigorate the warrior ethos...opting for forced marches in combat gear over workouts in Nikes and shorts in the gym" (Warren, p. 295). Gray instituted a new mandatory reading list and was influential in combining a diverse set of existing schools into the Marine Corps University.

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[105] Warren, p. 285

[106] As cited in Warren (2005, p.286), "in one day [General Haynes]...supervised the discharge of more than 150 substandard Marines from the 3rd Division in Okinawa.

As a result of the renewed emphasis on serious study of the business of warfare, a highly acclaimed official publication was written, Fleet Marine Force manual Number 1, *Warfighting*. This encapsulation of battle lessons learned throughout the Corps history "places great emphasis on guile, speed, audacity, and rapid, decentralized decision making by all Marines, from corporal to general. It advocates striking at the enemy's most vulnerable point rather than attempting to destroy his forces through a slug fest, as General Westmoreland attempted with his attritions strategy in Vietnam" (Warren, p. 296).

The changes implemented by Commandants throughout the 1970's and 1980's focused on improving recruiting policies, boot-camp training and attacking the Corps' drug problem—efforts which appear to have been so successful that "by 1985 the Corps had reached a plateau of cultural excellence. The Marine Corps had drastically reduced its discipline problems and reduced its drug problem to less than four percent of Marines testing positive in random urine analysis...had attained longer enlistments, better recruits, and better training and educational incentives...Marines began to re-feel the traditional 'esprit de corps', and validated their fighting ethos during the 100-hour ground war of DESERT STORM" (Quintrall, 1997, p. 30).

Latent discontent with the direction of the Vietnam War eventually led to the passing of the Defense Reorganization Act of 1986—also known as the Goldwater-Nichols Act[107]. This legislation implemented measures to weave together more closely the services and the field command structures; an attempt to integrate their capabilities

[107] Simmons, p. 277.

and to place individual service interests aside. One benefit of this act not perceived immediately "was that Marine forces assigned to unified commands slipped out from Navy fleet control and became full-fledged 'components'" (Simmons, 2003, p. 278). Although the parochial interests of each service would frustrate efforts toward integration, the need for better joint capabilities would become increasingly apparent.

Marine Corps Culture from 1991 to 2001.

As the Soviet Union imploded in the late 1980's, there was talk of a peace dividend and a new world order that would be much more peaceful than that of the past. A new reality began to set in when Iraq invaded Kuwait in 1990. The quick and decisive defeat of Iraqi forces bolstered public confidence in the U.S. military once again and the Marine's elite status[108].

The end of the cold war seemed to signal an increase in new types of missions as well. Warren (2005) remarks that "since the early 1990's, the Marines and other American military services have been engaged in a delicate balancing act, adapting doctrines and training regimens to meet the pressing requirements of operations other than war while attempting to maintain the capability to fight major regional wars against regularly constituted armies...While the total number of people on active duty in the services has declined from 2,170,000 in 1987 to about 1,400,000 in 1998, the number of deployments has moved in the opposite direction: between 1990 and 1997, U.S. forces were deployed thirty-six times compared to twenty-two between 1980 and 1989. The

[108] Even though the Iraqi Army had far greater numbers of soldiers, tanks etc. than the U.S., their will to fight would prove to be very hollow as Lt General Boomer, the Marine Corps field commander during the Gulf War, had estimated (Warren, 2005, p. 306). Of course, the Marines (and U.S. forces in general) were praised for their performance and technological superiority which resulted in the quick, decisive victory.

U.S. Marines have been the force of choice in the majority of these deployments" (p. 316).

During this period, a highly acclaimed addition to recruit training, called "the crucible" was implemented in 1996 by the Marine Corps Commandant, Lt. Gen. Charles C. Krulak. Krulak "foresaw ethnic conflict, religious strife, and clan warfare showing no respect for national boundaries...To fight in this environment of chaos the primacy of the individual Marine would take on greater importance" (Simmons, 2003, p. 329). Based on his vision of the emerging security environment, Krulak created "the crucible"—an extension of recruit training that in the words of Warren "is 54 hours of pure hell, in which recruits must work together and solve a baffling set of tactical problems while placed under extreme stress, with very little sleep and even less food...The crucible...has been universally praised by old-salt Marines, by military training experts, as well as by the young Marines who make it through the ordeal...[it] appears to be an appropriate, even necessary, addition to a training regimen that was already second to none in the world for general purpose troops". (Warren, p. 345).

Additionally, Krulak[109] "popularized the notion of the three-block war where Marines "in one moment of time...will be feeding and clothing the displaced refugees—providing humanitarian assistance. In the next moment, they will be holding two warring tribes apart—conducting peacekeeping operations—and finally, they will be fighting a highly lethal mid-intensity battle—all on the same day—all within three city blocks".

[109] Quoted in Warren (2005, p.345) from Krulak's speech to the National Press Club, October 10, 1997

Besides the expanding types of new missions in this period, downsizing and a newfound respect of the U.S. military's capabilities were over-riding themes.

Marine Corps Culture from 2001 to present.

The terrorist attacks of September 11th, 2001 brought on a new era for America and its military. As the War in Afghanistan proceeded, the Marines (although in mostly a secondary role) performed very well. The Corps' relationship with special operations forces was strengthened during the War in Afghanistan. In November 2001, the Marines signed an agreement to train under Special Operations Command for the first time in history—perhaps a trend away from amphibious operations and a movement toward special operations roles and support of other special operations forces[110].

Although the Marine Corps has had some serious problems in the past, they seem to move past them rather quickly in most cases. Although proclaiming something over and over does not necessarily make it true, what has surfaced repeatedly within this research is a culture within the Marine Corps that encourages criticism from within and without. That same culture also proclaims to highly encourage vision, innovation and adaptation. The Marines may have more incentives to promote such a culture since they have a long history of attempts by politicians and other military services to take over their functions.

Visionary leaders helped prepare the Marine Corps for the future. For example, Warren (2005) argues:

> "General Al Gray, commandant of the Corps in the late 1980's and early 1990's, didn't have Bin Laden in mind when he

[110] Warren (2005, p. 329).

> introduced maneuver-warfare doctrine to the Marines in 1989, but the mind-set approach to war behind that doctrine are clearly conducive to combating terrorism. As we have seen, the Marines' current doctrine places extraordinary emphasis on out-thinking the enemy, on keeping him off balance by striking at his weakest points...Its emphasis on decentralized decision making and bold action, too, seems appropriate for taking on modern terrorist groups. The creation of 'special operations capable' Marine expeditionary units—another Gray innovation—as well as a strong emphasis on urban combat training, and preparing Marines to fight the three-block war that General Chuck Krulak has championed, also promise to put the Marines in good stead for confronting modern terror" (p.327).

Of course the type of fighting in Iraq is of the worst kind; a guerilla war against a very different culture and a determined, ruthless enemy fighting in urban areas where it is virtually impossible to distinguish between friend and foe. Thus far the Marines have performed very well, and there are no major signs of cultural disintegration within their organization. Further, even though Marines are proud of their accomplishments, when senior U.S. officials laud their performance, they tend to take a more critical view. This mentality not only helps them survive as an organization, but helps them adapt and be better prepared for future deployments[111].

Although Marine Culture has, and likely will continue to change, their culture remains the most distinct of the services and the most distinct from American society. If civil culture in America continues in decline, as some sociologists declare, the impacts to the Marine Corps could be important. If Marines thrive on their distinction, then they must remain different. But there will likely remain social pressure for the Marines to

[111] For instance, as a result of their experiences in Afghanistan and Iraq, they realize their poor anticipation of keeping the peace in Iraq, their tactical intelligence problems, insufficient night-fighting capabilities and so forth. (Warren, 2005, p. 340).

become more like society or to evolve as society evolves. The debate about whether the "civil-military gap" is widening, how much of a gap is acceptable and what that means will no doubt continue.

Normative Analysis of Marine Corps Culture

When analyzed within the framework of the corporate culture model, the Marine Corps' culture earns high marks. They seem to have found a balance between cultural strength, strategic fit and adaptability. The strength of the culture is well documented as is the combat record. Yet this same strong culture has found ways to promote innovation and forward vision. Indeed, it is argued that the continuous threats to its very existence have required the Marine Corps to stress innovation, adaptability and candid self-criticism from all ranks[112]. Due at least in part to these threats, the Corps has for the most part maintained its image of elite status. This elite status has been maintained by visionary leaders who have understood the importance of forward thinking and adaptability. A culture that promotes cohesion and sacrifice throughout the ranks serves to boost the fighting capability of its troops which reinforces their elite status.

Just as private firms are successful in the long term only by nurturing the right culture; a culture that motivates employees to work hard, rewards innovation and risk taking, and provides the right vision to adapt to an ever-changing environment, a military organization's long-term success also rests on similar cultural traits. The Marines record

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[112] "The Corps demands a very high level of commitment from its people, in part because it has always felt besieged by critics and the bureaucratic forces of the Department of Defense that have so often threatened to eviscerate their service, and in part because their experience tells them that this deep commitment gets the job done on the battlefield" (Warren, p.22).

is not perfect; the Vietnam era presented both internal and external challenges. Even if Marine Corps leadership had perfectly anticipated all the threats it would face and dealt with these threats to the best of their ability, some of the problems may have been unavoidable. No institution can be expected to be immune—to be totally resistant to its environment. After Vietnam, the Corps worked diligently to repair their culture and restore their good name. Their efforts eventually paid off in terms of minimizing errant behavior and restoring public trust. In fact, according to a Gallup poll reported in the New York Times (May 27, 2003), Americans who expressed a great deal of confidence in the military rose to 79 percent in 2002 from 58 percent in 1975 while confidence in the people who ran organized religion fell from 68 to 45 percent and confidence in Congress declined from 40 to 29 percent over the same period.

The Marine Corps certainly has a strong culture, the effects of this culture often felt long after Marines separate or retire. The Corps is known for leaders who subject themselves to the same risks as their followers. They encourage criticism from all ranks and from outside their organization. They strongly promote innovation and risk-taking. They have been able, in most cases to adapt rather quickly to a changing strategic environment, and on the battlefield they are adaptive and innovative as well. It is not likely the Marines are satisfied to rest on their laurels though, for they know their very existence has always been under threat by forces within their country, and from future threats on the battlefield.

Those who point solely to the UCMJ or other formal institutions to explain the behavior of combat troops miss something very important. The camaraderie among

combat troops, the esprit de corps that so many of those in battle have talked and written about, and the attachment one retains to the Marine Corps long after the battle is over and even after retirement could not be generated simply through formal mechanisms. For instance, how do we explain a soldier throwing himself on a grenade to save other soldiers? It is clear by his actions, that such a man is playing a one-shot game, and to say he cooperated would be quite an understatement.

Uncertainty about the future results in incomplete labor contracts. Incentives and disincentives can assist in channeling behavior toward more desirable outcomes. On the other hand, an intense moral culture training program can alter preferences and influence behavior in a combat setting. There is no doubt the Marine Corps invests heavily to develop a culture that promotes courage, sacrifice and teamwork. They are known for their slogan, Semper Fi, for "leaving no Marine behind", being proud they are the "first to fight", "taking care of their own" and so forth. Military historians, researchers in military psychology and other social sciences validate the importance of moral culture on the battlefield. Thus, the game theory formulations earlier in the chapter may be a good way to view combat troop behavior. Those sharing a strong culture in battle have confidence in each others commitment, allowing more cooperation and a better outcome for the group than might be achieved without such a strong culture.

Future challenges. There has been much written about the civil-military gap—a gap which results from "tension between military and civilian cultures caused by different values, experiences, and interests in foreign and security affairs" (Flynn, 1998, p. 1). While Flynn agrees the gap can become too wide as a result of various factors, he

argues that at the level of values, a gap is unavoidable and necessary[113]. On the other hand, others argue that the gap is worrisome if not dangerous and must be carefully managed or eliminated[114].

Related to the civil-military gap debate, Dunivin (1997) claims that since the military's core activity is combat, the traditional military culture can be described in terms of a combat, masculine warrior (CMW) paradigm. Since soldiering has been viewed traditionally as a masculine role, there existed a deeply entrenched cult of masculinity in terms of norms, values, and lifestyles that pervaded the American military culture. Further, she shows how this traditional cultural paradigm has and must continue to evolve from an exclusionary model to a more inclusionary one. For instance, the full assimilation of blacks into the military is one instance of this shift toward an inclusionary model as is the entry and increasing roles of women. Snider (1999) argues that the debate on military culture as presented by Dunivin and others is off the mark. For instance, he argues that much of the debate on the need to change military culture assumes there is one homogeneous military culture, which is false and misleading. Additionally he argues that many in this debate are simply focused "on the composition

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[113] Flynn (1998) argues that "these gaps are the result of tension between military and civilian cultures caused by different values, experiences, and interests in foreign and security affairs...There will always be some difference between military and civilian values in a democratic society. The nature of military service requires discipline, obedience, and a willingness to subordinate individual ends to mission accomplishment. These values are in conflict with a civilian world rightfully dominated by the tenets and rights of individual liberty" (p. 20). Hillen (1999) provides a similar perspective.

[114] Ricks (1997) argues that "over the last thirty years, as American culture has grown more fragmented, individualistic, and consumerist, the Marines have become more withdrawn; they feel they simply can't afford to reflect the broader society. Today's Marines give off a strong sense of disdain for the very society they protect...The U.S. military's new contempt for American society is especially troubling because it comes at a time when the end of the Cold War has cut adrift the U.S. military from its traditional roles...many in the Marines...seem to define the enemy as chaos...take this view to extremes—and some Marines do—and you wind up believing the next war the U.S. military fights could be here at home" (p. 22-23). Collins (1998) provides a thoughtful perspective on issues related to this theme.

of our armed forces and on issues of gender and sexual preference as they are either included or excluded from 'military culture'" (p.12). Instead, he argues, "the purposes of the military and its ability to fulfill those purposes should drive the debate, not its racial or gender composition" (p. 25).

Although the Marine Corps attempt at racial integration was initially handled poorly, they have since done a much better job. Of course the Corps has not yet fully integrated women into their ranks. Although the debate and the pressure regarding gender-based issues, policies related to homosexuals and other social issues are likely to continue, it is not clear what these forces will portend for their culture. While the Marine Corps must avoid clinging to personal biases, they must also avoid yielding too quickly to social or political pressures. The over-riding concern when addressing these types of issues must be how a particular change will impact their force readiness—their cohesion, their commitment and their ability to fight and win wars. Unless they are able to address these issues in an open and candid manner, they will not be able to maintain the "right culture" to sustain them in the tough battles of the future.

Additionally, the Marine culture may be impacted by the expanding roles and missions forced upon it. Although the U.S. military has a long history of involvement with military operations other-than-war (MOOTW), which include peace-keeping, humanitarian assistance, drug wars, disaster relief etc., the increasing types and numbers of these new missions may have important effects on military culture and ultimately performance.

Although the Pentagon has struggled since the end of the Cold War to define or redefine itself due to uncertainty about the emerging security environment, some strategists allege the Pentagon cannot let go of the Cold War mentality that it had developed over the previous decades. Barnett (2004) argues that even in the face of increased U.S. involvement in the 1990's in these smaller types of conflict, "there was virtually no rebalancing of the U.S. military to reflect the increased load. We knew we needed a greater capacity within the ranks for nation building, peacekeeping, and the like, but instead of beefing up those assets to improve our capacity for managing the world as we found it, the Pentagon spent the nineties buying a far different military—one best suited for a high-tech war against a large, very sophisticated military opponent. In short, our military strategists dreamed of an opponent that would not arise for a war that no longer existed" (p. 4).

Barnett suggests reorganizing the U.S. military into two rather distinct forces. The first is the "big-stick" warrior force that specializes in waging and winning wars through high-tech major warfare that has been characteristic of the U.S. military in the recent past. The second force—a sort of constabulary force is designed to win the peace through a force "that specializes in relatively low-tech security generation and routine crisis response" (p. 302). His grand strategy for this reorganization is for the U.S. military to promote, and in some cases force globalization[115]. In his view, removing

[115] Barnett (2004) means globalization in terms of global economic connectivity. "With that growing connectivity around the planet, we see the rising need for political and security rule sets that define fair play among nations, firms, and even individuals, not just in trade but in terms of war, which—as we have seen with 9/11 and the resulting war on terrorism—is no longer restricted to just organized violence between nation-states. That global system of security rules is the most important peace dividend of the Cold War; these rule sets allow globalization to flourish and advance, and by doing so, they have effectively killed

disconnected societies is the only way to achieve long-term peace. Barnett describes these "disconnected societies" as those living in a Hobbesian world—a world where life is "solitary, poor, nasty, brutish, and short[116]". To move a society from this Hobbesian nightmare to the more Kantian peaceful existence, you must think of progressing these disconnected societies from "Hobbes to Locke[117] to Kant, or from conflict to rule sets to peace" (p. 166). Thus globalization creates interdependencies among nations that will provide long-term global security, individual prosperity and freedom unprecedented in human history. This strategy is in some ways a drastic change in U.S. policy and will certainly continue to draw a large number of critics. Of course implementation of such a strategy must be directed by the civilian leadership and be acceptable to the U.S. public, and perhaps a world already wary of U.S. intentions in the global war on terror. But regardless of the merits of this strategy of globalization, it does seem clear that smaller conflicts are on the rise whereas nation-on-nation conflicts are becoming less frequent. Consequently, the Defense Department must continue to look for ways to posture itself appropriately for a security environment quite different than the Cold War era.

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great-power war, a destructive force that haunted the international community for close to two centuries" (p. 82).

[116] Hobbes (1651/1934, p. 65).

[117] Normally, a particular society does not transition from a Hobbesian world directly to a Lockean world. The political philosophers Hobbes and Locke had divergent views on the state of nature. If a society was characterized more as Hobbesian, then the best outcome individuals within that society could hope to obtain would be to hand over all their rights to Leviathan—an all powerful ruler that provides them order (protection) out of their anarchy. Locke's more benign state of nature coupled with natural rights allowed individuals to form social compacts to elevate them from an oppressive existence to one based upon liberty. See Rowley (1998) for more on the different perspectives of Hobbes and Locke. Thus, even if the current state of nature in Iraq for instance is characterized more like the Hobbesian jungle than Locke's state of nature, in Barnett's view, the U.S. military may act as the temporary Leviathan which can be the protector during a transition from their brutish anarchy to the insertion of a new rule set that provides individual freedom similar to the West. Thus, he assumes the leap can be made from the continuum described by Hobbes to a different one described by Locke.

Additionally, if America's military does become the agent for globalization to the extent advocated by Barnett, the organization of our forces to accommodate this new strategy will be difficult to accomplish. For instance, Barnett suggests the Marine Corps are better suited to the constabulary force role rather than the "big stick" force. Although Marine Corps troops have at times proven to be effective peace keeping troops etc., the long term effects on their culture from increased usage in these roles is not clearly understood. Additionally, although the Marines have recently integrated rather well with other branches, they historically "are the least inclined to operate with the other U.S. military services[118]" (Haynes, 1998, p. 93).

Hillen (1999) argues that the way in which a military is organized and conducts its missions has a profound influence on its culture. In his view, "the military is hardworking and disciplined precisely because it prepares with an uncommon sense of urgency for battlefield tasks that require those very attributes...If you remove the task, you remove the need for the culture underpinning those missions. There is a reason civilian law enforcement agencies do no have the culture of the military—it is because of what they do (or, more precisely, what they do not do). Using the military to correct the failings of other institutions would cause military culture to atrophy, denying politicians the very instrument they hoped to use for domestic tasks" (p. 48).

The recent increased integration between the Marine Corps and the Special Operations units might serve as the right type of mix for Barnett's big stick force more so

[118] Haynes (1998) explains that "the deep culture that distinguishes and sustains the Corps also engenders a narrow perspective captured in the Marine aphorism that: 'There is a right way, a wrong way, and the Marine way'. The Marine culture and the Marine way of doing things runs so deep that Marines do not readily accommodate elements of other services that are different from their own" (p. 93).

than utilizing the Marines as constables. On the other hand keeping (or achieving) the peace can be more dangerous or difficult than winning the war as evidenced by the current situation in Iraq. The Marines seem to be handling the difficult task in Iraq rather well so far (considering the extremely difficult situation), so perhaps they should be included in both types of forces. The Corps' "first to fight" mentality and their long history of training for small wars, would seem highly useful as part of the big stick. On the other hand, their experience with pacification strategies might render them as useful in the constabulary force. But again, the long-term effects of using Marines for peacekeeping as their primary function, is not well understood. In other words, training an individual to believe he is an elite warrior and then having him serve in delicate peacekeeping operations could be difficult to achieve. If the elite warrior ethos is to describe mostly special operations troops in the future, and the Marines are to be used in the delicate, often messy task of peace-keeping, the Marines might well adapt to this as their primary role. However, it might drastically change what it means to be a Marine, and that might have unintended consequences—consequences that may be acceptable but need to be studied and understood.

Conclusion

Although tactics and technology are important in the conduct of warfare, understanding one's culture is extremely important as well. We must look past the formal institutions to truly, fully understand a culture. Formal institutions certainly have an impact on the informal institutions. On the other hand, informal rules, values—all those things that are part of a group's culture can have profound consequences on

individual behavior and what a team is able to achieve collectively. Moreover, culture has profound consequences for the very survival of a group.

Cultures are impacted by many influences and may evolve over time with unintended consequences. To maintain the right culture or to change an organizations culture can be very difficult, but it can be done with the right leadership. Additionally, culture might be best understood along three dimension; strength, fit and adaptability. The best type of culture for an organization depends on its function. Although not every unit in the U.S. military can (or should) be an elite organization, the analysis contained herein could be useful for any organization looking to define/redefine itself or attempting to understand how and why their organizational culture is important.

Chapter 5. Dissertation Conclusion

> "The broad range of human actions characterized by such activities as the anonymous free donation of blood, the dedication to ideological causes such as communism, the deep commitment to religious precepts, or even the sacrificing of one's life for abstract causes could all be dismissed (as many neoclassical economists dismiss them) if they were isolated events. But obviously they are not and they must be taken into account if we are to advance our understanding of human behavior. If our understanding of motivation is very incomplete, we can still take an important forward step by taking explicit account of the way institutions alter the price paid for one's convictions and hence play a critical role in the extent to which non wealth-maximizing motivations influence choices".
>
> Douglass North, 1990, p. 25

The tools of economics have been increasingly used to examine non-market processes and have yielded useful insights about human behavior and the social consequences of individual actions. Application of economic principles, especially the tenets of Public Choice theory to the military market is another useful extension to the body of knowledge. The military market involves such a large portion of our national resources that making even small improvements can provide significant returns. Additionally, our national security—our way of life—depends in part on our ability to deliver efficient military capability on behalf of our citizens. Finally, due to the amount

of resources involved and the political influences on this market, a model that emphasizes rational choice theory and individual action, while considering the political environment and accounting for the cultural/institutional framework is particularly well-suited to examine a market of this nature.

We mentioned in the last chapter that although tactics and technology are important in the conduct of warfare, understanding one's culture is extremely important as well. To fully grasp one's culture, we must understand not only the formal institutions, but the informal institutions as well. Informal rules, norms and values all bear significantly upon individual behavior and what a team is able to achieve collectively. Moreover, culture can be extremely difficult to change, and cultures overly resistant to change are likely to find their very survival in danger.

Our application of economic principles to the defense procurement industry seems especially fruitful. If we accept the theoretical Public Choice insights relative to the procurement system we can understand the limitations on real reform that are available. In other words, although attempts to reform the defense procurement system will continue, there are particular aspects of the system that may difficult if not impossible to change. Political interests have a very significant impact on efficiency and these political forces are not likely to abate any time soon. As the defense industry attempts to adopt more practices from the private market, there may be room for some improvements. However, there are some fundamental differences between the public and private market which cannot be altered, so that modeling the defense industry after the private market can only be done to a limited degree.

We have also developed economic tools to explain the behavior of individuals assigned to combat units. Club theory and cultural arguments both enhance our ability to understand the dynamics of combat troop behavior. Although these two approaches have been treated separately in this analysis, they are more complementary than they are exclusive. The distinction we have made between the club model and cultural model are essentially due to the treatment of preferences. In the club model, preferences are effectively treated as given and the emphasis is on constructing incentives to direct behavior towards more socially optimal outcomes. On the other hand, the focus in the cultural model is how preferences may be altered in order to influence individual behavior and collective outcomes. In both models, individuals are influenced by their cultures, whereas neither model suggests that incentives are unimportant.

Indeed, we expect all agents to respond to incentives at the margin. Consequently we are not suggesting that elite units focus exclusively on preference altering mechanisms or that "more regular" units focus only on incentive structures while assuming preferences are completely rigid. Since individuals will respond to various methods differently, both methods should continue to be employed. However, this research does suggest that for those types of units in which individuals are expected to face the greatest risks, development of these troops should include more cultural conditioning and more intense group training in general.

The ability to adapt to a changing environment has probably never been so critical. Some of the newer threats come from smaller, relatively autonomously and highly adaptive groups. Terrorist groups do not adhere to ethical standards set forth by

the Geneva Convention and typically embrace the most despicable tactics in order to maximize the terror effect; an approach that can be very difficult to counter. These small groups of terrorists can inflict major damage as evidenced by the al-Qaeda attacks on the U.S. in 2001. Not only must the military have the right vision in order to adapt proactively, they must figure out a means to ensure real change actually takes place. They must continue to overcome resistance to change and suppress the parochial tendencies of each service. This may require modification of top level corporate cultures within the different services—a difficult task for any organization. Thus, effecting real cultural change will require strong leadership at the top with vision and an ability to create a sense of crisis—"making the status quo more dangerous than launching into the unknown" (Kotter and Heskett, p. 116).

Efforts to adapt to a changing environment must also consider the longer term effects such changes may have. There will remain a need to have highly committed individuals within the U.S. military. Arduous training and cultural assimilation are important in developing individuals willing to bear high costs, but there are other considerations as well. Traditions, heritage and recognition for one's willingness to take on the most dangerous tasks also help develop one's identity—an identity that becomes self-fulfilling. If some of these variables are modified, they may alter an individual's perception of his identity and erode that which helps sustain him during difficult times.

The Marines, for example, take great pride in being different—being known as aggressive and dependable and able to endure high costs. This self-perception of uniqueness and perhaps elitism is part of what sustains them and pushes them forward

when many others would hesitate or run. Consequently, any realignment or transformation of military forces along the lines of Barnett's (2004) recommendations must consider the cultural impacts of any such transformation. For instance if Marines are to be used in the future more as a constabulary force, then they may lose their identity as an elite organization that comes from being the big-stick force. U.S. forces in Iraq now trying to win the peace and maintain order face very hostile conditions, yet they must show a great deal of restraint at the same time. Unfortunately, it can be very difficult to develop highly committed, aggressive soldiers and then ask them to exhibit the kind of restraint required by constabulary forces.

The combination of a changing threat environment, personnel draw-downs and shrinking budgets in the face of high operational tempo has heightened the need for efficiency within the DoD. The era of "do more with less" calls forth the need for better integration across the military services. There have been some advances but the need for more "jointness" will likely continue to grow. The increased emphasis on joint procurement mentioned in the second chapter is one step in the right direction. Weapon systems developed and procured for multiple services should help alleviate some of the interoperability issues that have plagued particular joint missions in previous battlefield scenarios. Additionally, there are potential economies of scale associated with joint procurement methods.

Jointness does not necessarily mean more centralized control over all forces. As we have discussed above, the need for decentralized decision-making in modern combat environments may be even more important in future battlefield scenarios. A better joint

capability will involve efforts to more clearly define roles and capabilities while reducing redundancies as much as practicable. This will create a more seamless capability and provide more synergy from a total force perspective. A better integrated force will still require different roles and capability sets which will require different types of cultures. In other words there is no "one culture fits all" approach that could be applied across the DoD. Cultural distinctions have and should continue to be used as ways to develop pride and cohesion among those within particular groups.

Many of the barriers to improved joint capability are (or have been) found at the macro level, since the troops in the trenches care mostly about each other (their code of honor etc.) and how their behavior is perceived by others within their group. Although there had been various attempts to better integrate the U.S. military services in the twentieth century, real change was only to come after the Goldwater-Nichols Act of 1986, and the positive effects were rather slow even after this legislation. The reforms that came out of this law eventually eroded the barriers such that towards the turn of the century, "jointness [had] largely supplanted service parochialism; it is now the way to get things done and for officers to get ahead" (Roman and Tarr, 1998).

The key improvements coming out of the Goldwater-Nichols Act resulted from: increased authority for the Chairman of the Joint Chiefs of Staff (JCS); independent support staff for the Chairman; a new joint career track for officers; a requirement that officers in joint assignments receive the same promotion opportunities as officers on service staffs; and a requirement for joint duty before becoming a flag officer.

Of course a bureaucracy of DoD's size will always experience problems and need to continuously fight off the individual services' tendencies to put their own interests ahead of the common good. On the other hand, there appears to have been significant advances toward a joint vision and joint capability in the relatively recent past.

As these macro cultures have changed, it has been done without fundamentally altering the cultural frameworks that exist (and need to continue to exist) at the lower levels. Future transformations of our military will need to ensure the right cultures are maintained in these smaller groups as well. Additionally, in those cases where different types of units are likely to share a particular mission and require special interdependencies, they will need to train together to develop a sense of trust and understanding between them. An example of this is the 2001 agreement for the Marines to train under the Special Operations Command for the first time in history.

As far as Barnett's recommendation for the U.S. to export security throughout "the gap", many economists would agree with the long-term positive impacts of globalization. However, it is not clear that Barnett has fully considered the costs of implementing such a strategy. As of this writing, the struggle to "connect" Iraq continues and is becoming a very costly endeavor. Whether U.S. efforts in Iraq pay off in an economic sense is yet to be determined. Even though U.S. national security strategy was altered shortly after the terrorist attacks of 2001 (to formally acknowledge the potential use of pre-emptive military force), our civilian leadership has not yet gone as far toward exporting security as Barnett deems necessary. President Bush and his administration have broadcast their vision to "export democracy", although the details of this vision are

not yet clear. Additionally, a strategy similar to Barnett's would certainly meet resistance from the legislature, the U.S. public and international bodies. Thus, although military authorities are involved in assessing threats, and recommending national security strategy, the transformation of the U.S. military will be limited to the policies of our national *civilian* leadership—and rightly so.

That is not to say the DoD cannot or should not make some changes. It is clear the threat environment has changed significantly since the end of the Cold War and our military must adapt accordingly. There has been some progress towards that end. However, it is not clear that DoD should abandon its ability to prosecute major battle warfare. What does seem clear is that the need to counter smaller-scale, guerrilla type warfare is on the rise. Consequently, we must continue to encourage adaptive cultures, while preserving the fabric that makes primary groups work so well in the military. Otherwise, we may find ourselves impotent to carry out foreign policy initiatives, to aid our allies and ultimately to defend ourselves.

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Curriculum Vitae

Judd Fussell graduated from Crossville High School, Crossville, Alabama, in 1983. Upon graduation he enlisted in the United States Air Force where he served until his honorable discharge in 1988. He graduated in 1992 from the University of Alabama with a Bachelor of Science degree in Marketing Management. After earning his Air Force commission through the Officer Training School program in 1994 he was assigned as a cost analyst to the F-16 Systems Program Office located at Wright-Patterson Air Force Base, Ohio. In 1997, he received a Master of Science in cost analysis from the Air force Institute of Technology, Wright-Patterson Air Force Base, Ohio. Next, he was assigned to the Space Based Infrared Systems Program Office at the Space and Missile System Center, Los Angeles AFB, Los Angeles, California. In Los Angeles, he worked as a Senior Cost Analyst for the Defense Satellite Program and as Chief of Business Operations for the Space-Based Infrared, Low-Earth Orbit Satellite development program.

Major Fussell entered George Mason University in the fall of 2003 under Air Force sponsorship. Upon graduation he will join the Air University faculty at Maxwell AFB in Montgomery, Alabama. His duties will include teaching graduate level economics to senior military and civilian comptrollers and resource managers across all services of the Department of Defense.