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Civilian substitution for military personnel: an analysis of the issues

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FOR
MILITARY PERSONNEL:
AN ANALYSIS OF THE ISSUES

by

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Civilian Substitution for Military Personnel: An Analysis of the Issues

by

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ABSTRACT

Efficient manpower utilization is essential to minimizing the cost, and a key element in that is the maintenance of the optimum balance between civilian and military manpower resources. Economic efficiency dictates that as the cost of military personnel begin to rise relative to the cost of direct hires, the Services would have an incentive to increase the use of direct hires, and vice versa. In our empirical analysis, results indicate that although DoD responded correctly to factor price changes measured in current dollars, DoD did not respond to changes in the real price of civilians. It should have substituted military personnel for civilians as the real price of civilians inreased. In addition to the data analysis, this research reviews the issues on the concept of military-to-civilian conversions, determines the advantages and disadvantages of such conversions, examines the associated factors and their impact, and investigates the premise that such conversions could be detrimental to the military's mission even though they may be cost-effective.

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I. INTRODUCTION

A resource allocation issue that has received a great deal of attention over the past several years is the substitution of civilian employees for military personnel, known as civilianization. A continuing dialogue has centered on this issue in an effort to reduce the increasing manpower costs of the All-Volunteer Force (AVF). Proponents of civilianization have brought considerable pressure to bear on the Department of Defense (DoD) to substitute civilians for military personnel wherever possible.

However, in the rush to identify potential civilian substitutions, critics of DoD policies have frequently been more concerned with whether civilians can be used than with whether they should be used. That is, many substitutions have been made on the assumption that civilians are less expensive than military personnel, without a determination of whether such substitutions were in fact cost-effective. [Ref. 1: p. I-5-1]

Once the assumption that civilian personnel are less expensive is accepted, it is easy to see how the policy question turned to potential substitution opportunities, rather than to whether such substitutions would reduce costs. In other words, measuring the cost implications of a civilian substitution effort has, as a practical matter, become

secondary to the concern for how many civilians should replace military personnel.

The problem of determining what positions could potentially be manned by civilian personnel is not a trivial matter, given the softness of the criteria that must be used to make these allocation decisions. Historically, manning decisions have been the result of numerous factors, including military requirements, personnel management constraints, cost-effectiveness, and tradition. [Ref. 2: p. 292] "Military requirements" means, for example, that there are some job assignments such as the infantry that are intrinsically military in nature. The remainder of the jobs could theoretically be manned by either military or civilian personnel on the basis of the job tasks alone; but many of these jobs are, in fact, best manned by uniformed personnel in order to satisfy certain personnel management constraints, such as the maintenance of an adequate rotation base or the provision of sufficient career opportunities.

In addition to the fact that attention has primarily focused on civilianization potential, it is important to recognize that civilians have for the most part been viewed as direct-hire government employees. This is perhaps nowhere more evident than in the Congress, where the emphasis has been on urging DoD to perform various activities in-house rather than to contract out for particular services. However, the use of contractors to perform certain activities previously

conducted by military personnel (or, for that matter, by direct-hire civilian employees) is another potentially valuable source of military-civilian substitutions. The use of contractors to provide janitorial or maintenance services is just one example.

A. BACKGROUND

A brief look at past manpower conversion actions is necessary to develop some of the aspects that affect military--to-civilian conversions. The review divides the history of manpower conversions into two periods, using the experience of World War II as a dividing line.

1. Pre-World War II Conversions

The predecessors to the present day concept of substitutability can be traced back to the colonial period. This would appear to be an obvious fact since the United States has, throughout its history, placed a traditional reliance on the citizen-soldier. A natural and high degree of substitutability between civilians and the military has, in theory, existed as a built-in feature of the American military system.

Civilians occupied staff positions throughout the Revolutionary War, although officers generally were heads of the staff agencies. Civilians were used extensively in the engineer and logistical support and service functions to include acting as drivers for the artillery horses. At the end

of the Revolutionary War, the staff and support control agencies virtually disappeared from the Army. During the War of 1812, the operation was in many ways similar to the Revolutionary War except that soldiers replaced civilians as drivers for the artillery horses. Contractual transportation was used in the rear supply lines. The generally poor performance of the Army during the war led to a major reorganization of the Army. Secretary Calhoun established the technical bureau under the direction of military officers. Much of the field labor was still accomplished by civilians, but completely under military control. Contractual supply and transportation by civilian companies was stopped. [Ref. 3: pp. 9-10]

The Mexican War was the first time the Army had to support an overseas-type operation. The strength of the Army was such that troops could not be diverted from line to logistical functions. Since the Calhoun reorganization did not provide for supply and service organizations, this effort had to be accomplished by hiring transportation, mechanics, teamsters, and laborers. From the beginning to the end of the Civil War, the Army increased in size from about 10,000 to over 1,000,000 men. This vast increase in manpower, coupled with the great geographic expanse of the war, required the hiring of large numbers of civilians. The requirements for and the functions of the civilians remained basically the same as in previous wars. Before the Spanish-American War, more

organizational changes were made. An act consolidated the former Quartermaster General, Commissary, and Pay Departments. Additionally, this act established a service corps to do the work of clerks, engineers, firemen, carpenters, blacksmiths, packers, teamsters, and laborers. [Ref. 3: pp. 10-12]

Two of the greatest problems during the World War I were getting the troops to France and the in-country labor needs of the American Expeditionary Forces. The Army owned ships that were manned by civilians, and civilian-chartered ships were utilized to transport troops to France. To stop diverting combat soldiers to labor tasks, a labor bureau established in France hired local nationals. [Ref. 3: p. 12]

2. **Conversions During and After World War II**

The concerns of the General Staff for effective manpower utilization were evident during World War II. Of about 1,000,000 civilian workers, 8 percent were in general administration overhead, 7 percent in procurement, and the remaining 85 percent were in arsenals and manufacturing, supply depot and port operations, and construction. Officers and enlistees were still used extensively for the administrative operations at posts in the United States. This concern for effective management of manpower resources resulted in one of the earliest written policy statements on civilian substitutability. War Department Circular 103, 15 April 1940 stated:

> ...While the manpower pool under jurisdiction consists of both military and civilian categories, each group constitutes an essential part in the War Department program which contemplates the use of civilians in those positions where military skills and military status are not essential...The release of general service personnel for duty with combat units is one of the primary objectives of the War Department. In carrying out that objective, the policy of the War Department is to substitute limited service military personnel, including personnel of the Women's Auxiliary Corps, for general service personnel. Replacements of military personnel by male civilians will be confined to those over draft age, or unfit for military service, and not engaged in an industry equally vital to the military or civilian effort. [Ref. 3: p. 14]

Other minor amendments of the World War II policies appeared in later policy statements and documents. Funding appears to have an increasingly limiting factor as these revisions basically reaffirmed the quoted policies within space and fund limitations.

"Project Native Son", one of the earliest Air Force conversion projects, coordinated the manpower requirements with congressional limitations and replaced 43,000 military personnel in overseas areas with approximately 31,000 foreign or native personnel during 1954 and 1955. Since the Korean War enlistments were ending, a shortage of skills occurred. While Project Native Son utilized foreign personnel in civilian substitution overseas, "Project Home Front" made similar substitutions in the United States beginning in 1955 and 1956. [Ref. 4: pp. 9-10]

"Operation Teammate" was undertaken during 1955 and extended into 1956. This was a deliberate Army program to

carry out DoD policies to reduce the number of military personnel in support-type activities with civilians and utilize the military spaces saved to create new units within the combat force structure of the Army. Operation Teammate was terminated after the Army had hired a total of 9,803 civilians to replace 10,306 military personnel. The total programmed number of 12,000 civilians was not hired due to restricted funding, reduced civilian space ceilings, and a scarcity of certain skills in the civilian labor market. [Ref. 3: pp. 16-17]

In 1962, the Army agreed to convert 638 military positions in commissaries and nonappropriated fund activities to 620 civilian spaces. Later, the Army was informed by the Office of the Secretary of Defense (OSD) to revise the plan to provide for a conversion of 577 military positions to 471 civilian spaces, without an increase in funds. This required the Army to absorb the cost of 471 civilian spaces and to either eliminate or absorb 106 civilian positions. In reality, this effort was the only implemented portion of a large planning program to convert 6,000 military positions, titled "Project 6". The planned conversions, once again, involved support and service type positions. [Ref. 3: p. 17]

The next major DoD project, called "Project Mix Fix", was initiated in January 1966 to support President Johnson's memorandum to expand the military without calling up the reserves. Sixty-thousand civilians were to be hired to serve

in place of 75,000 officers and enlistees in noncombat positions within all the Services. [Ref. 5: p. 125] The South East Asia (SEA) conflict was the primary force behind the increased use of civilians. Mix Fix was developed to provide more personnel for the SEA conflict through the civilianization of the Continental United States (CONUS) positions, rather than to trim the costs of the military. [Ref. 4: pp. 10-14] Phase I of the program was not considered complete until June 1967, when 99 percent of the conversions had been accomplished. Phase II, a follow-on civilianization program, was being planned and coordinated between OSD and the Services while Phase I was still in progress. The planning for Phase II differed from Phase I significantly. Some degree of flexibility was provided by the Secretary of Defense to categorize the program in two sections: soft skill positions, in which civilian labor market was expected to be adequate, and other positions, which the Services could plan to convert but for which the current labor market might be inadequate. [Ref. 3: pp. 39-40]

In 1973, another program was initiated, converting 48,000 military positions to 40,000 civilian positions. [Ref. 5: p. 125] The possibility of monetary savings was given as a reason because military manpower positions require additional manpower positions to be budgeted for training, transients, personnel support, medical treatment, welfare, and recreation. [Ref. 4: p. 13]

In 1977, the Air Force eliminated 1,150 jobs previously held by military members by the planned change to civilian manning of 13 aircraft and warning sites within the Alaskan Air Command. Also, the Air Force turned over complete operation of its officers' clubs to civilian employees, beginning in 1978 and extending over three years. [Ref. 5: pp. 72-73]

The city-protecting sites of antimissile firing units manned by civilians were formed into units of the National Guard and Reserve. The sites were permanent, so that the unit locations became merely work-sites for local residents. Military units of the National Guard and Reserve are already partially manned by full-time civilian employees of the military establishment. One of the most impressive examples of support functions performed by civilians is demonstrated by the Navy's Military Sealift Command (MSC), in direct support of fleet operations at sea. Civilians operate efficiently many of these ships which are averaging 30 years in age. [Ref. 5: pp. 71-72] Also, to ensure the presence of adequate technical expertise, the Navy has for years used contract civilian engineers on board deployed ships to fill the middle and upper enlisted paygrade deficit in various ratings. These technical service representatives served aboard Navy combatant vessels throughout the Vietnam War, operating within Vietnam in support of helicopter operations, and were

deployed to the Indian Ocean/Persian Gulf theater. [Ref. 6: pp. 20-23]

With all these actions, the number of direct-hire civilians rose to 1,275,000 in 1969 during the Vietnam conflict and dropped to 1,049,000 by 1973, at the beginning of the All-Volunteer Force (AVF). Civilian employment continued to drop during the AVF period, and the number of full-time permanent employees reached a low of 830,000 by the end of 1980. Then, employment started increasing with President Reagan's military build-up policy, and reached 910,000 by the year 1987. Because of the tight defense budgets, civilian employment started decreasing again since 1987, and the total employment is around 900,000 now.

Another trend is that there has been a gradual shift in the employment patterns within the direct-hire employment group, as well as an increase in the number of nonwage-rate (general schedule) civilians. The data, though, are not clear with respect to the extent to which this trend is merely a reflection of the "grade creep" problem (grade enrichment) found elsewhere in both the military and civil service personnel systems, or whether it reflects a genuine move toward a more technically-oriented force. [Ref. 2: pp. 294-295]

The Services are near the maximum numbers of military-to-civilian space conversions which can be absorbed because of previous conversions, contracting out, and other

constraints (e.g., use of civilians in combat, protection of the rotational base, and imposition of congressional or budgetary restraints on numbers of civilians). At present, there are no major conversion actions that are going to take place in DoD. However, conversions appear to be an on-going effort in various units, but they generally occur in small proportions where local commanders can make effective changes. [Ref. 4: p. 14] On the other hand, lifting the legal and budgetary constraints on the use of civilians in combat-type positions (some have already been exposed to combat in previous conflicts[1]) could make major substitutions possible in the future.

B. SCOPE OF THE RESEARCH

The current DoD policy outlines the use of civilian personnel in place of military personnel, prohibits conversions which require combat-related personnel or critical military skills, and uses cost as the primary factor to

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[1]During World War II merchant marine seamen were exposed to combat on a regular basis as a result of enemy submarine action. The U.S. Maritime Service's percentage of battle deaths, based on the total who served, was 2.8 percent, second only to the U.S. Marine Corps with 2.9 percent. Many of these ships were in escorted convoys or carried armed guards thus placing them in a quasi-combat status. The U.S. Merchant Marine, Military Sealift, Navy technical representatives, and commercial construction crews served both in-country and in hostile waterways during the Vietnam conflict. The extensive use of contractor construction employees to supplement the Army Corps of Engineers and Navy Construction Battalions was unique and example-setting. [Ref. 6: p.17]

determine the position conversions. (As a matter of fact, many substitutions have been made on the assumption that civilians are less expensive than military personnel, as indicated above.) Although cost is a factor that must be considered, there are other human resource factors that have an effect on the organization and its personnel.

The purpose of this research is to review the issues on the concept of military-to-civilian conversions, determine the advantages and disadvantages of conversions, examine the associated factors of conversions and their impact with respect to military functions, and investigate the premise that such conversions could be detrimental to the mission of the military even though they may be cost-effective.

Efficient manpower utilization is essential to minimizing the cost of any required level of defense, and a key element in efficient manpower utilization is the maintenance of the optimum balance between civilian and military manpower resources. It is within this context that this research undertakes an analysis of issues to determine the feasibility of civilian substitution.

C. THE RESEARCH QUESTIONS AND METHODOLOGY

This research examines issues related to civilian substitution for military personnel. The primary focus of the research effort concerns policy approaches used to determine whether a military billet can be converted to a civilian

position. Secondary research issues involve the military-essential criteria used in determining whether a military billet is eligible for civilianization, the military and civilian cost factors that should be included in determining the cost-effectiveness of civilian substitution, other factors that should be considered in substituting civilians for military personnel, and whether historical data indicate that military-civilian trade-offs have been made according to relative prices.

The general methodology includes the following: collecting information and reviewing the issues on civilian substitution; analyzing literature in terms of common threads, inconsistencies, problems, and so on; analyzing historical data on the trade-offs made by DoD in response to changes in relative prices (i.e., cost); and interpreting findings.

D. ORGANIZATION OF THE STUDY

Chapter 2 examines the major issues in civilianization, the "military-essential" criterion used in military-to-civilian conversions, military and civilian cost factors, and other factors being considered in substituting civilians for military personnel. In chapter 3 the historical data covering the period 1974-1989 are reviewed to determine whether previous military-civilian trade-offs have been made according to the relative prices of each input. In the last chapter, the findings of this study are summarized and interpreted.

II. MAJOR ISSUES

The Department of Defense (DoD) follows three principles in determining the mix of the defense labor force. First, the active military manpower in peacetime should be at the minimum level necessary to satisfy national security objectives. Second, the private sector should be relied on to provide goods and services to the maximum extent possible. Third, the government should conduct its operation in the most cost-effective manner possible. [Ref. 7: p. 26] These principles are reflected in the policies that determine the mix of the defense labor force.

This policy agrees with the intent of Congress, as stated in Public Law 93-365 enacted in 1975:

> It is the sense of Congress that the Department of Defense shall use the least costly form of manpower that is consistent with military requirements and other needs of the Department of Defense. Therefore, in developing the annual manpower authorization requests to Congress and in carrying out manpower policies, the Secretary of Defense shall, in particular, consider the advantage of converting from one form of manpower to another (military, civilian, or private contract) for the performance of a specified job. [Ref. 8: p. 4]

In accordance with this law, the Secretary of Defense issues more specific guidance to each service. The policy of DoD is that each position must be filled by a civilian unless there is a good reason, since this is seen as a means of maintaining an adequate force levels in an all-volunteer

environment, and since civilians are said to be less costly. As stated in DoD Directive 1100.4:

> Civilian personnel will be used in positions which do not require military incumbents for reasons of law, training, security, discipline, rotation, or combat readiness, which do not require a military background for successful performance of the duties involved, and which do not entail unusual hours not normally associated or compatible with civilian employment. [Ref. 9: p. 5]

A later directive, DoD Directive 1400.5, affirmed this basic policy in 1970, omits reference to the unusual hours criterion. It also enumerates several benefits of civilianization that:

> Use of civilian employees affords abilities not otherwise available, assumes continuity of administration and operation, and provides a nucleus of trained personnel necessary for expansion in any emergency. [Ref. 8: p. 6]

The key assumption made in some of these regulations is that civilian employees are always less costly. The idea of civilians being less costly is a product of the All-Volunteer Force (AVF). Under conscription, military manpower was cheap. Since the initiation of AVF, military manpower costs increased steadily to maintain the appropriate accession and retention levels needed to meet the Services' requirements. As a result of these increasing costs, the use of civilians in place of military personnel has become economically attractive. However, in the rush to identify substitution potential, the policies have been more concerned with whether civilians can be used than with whether they <u>should</u> be used. Many substitutions have been made on the assumption that civilians

are cheaper than military personnel, without determining whether such substitutions were in fact cost-effective. Albro, in one of the studies conducted for the President's Commission on an All-Volunteer Armed Force (on Gates Commission), simply assumed that civilians were less expensive, citing casual observations, such as the supposed lower turnover rates exhibited by civilian personnel [Ref. 1: p. I-5-2]. To illustrate the weakness of this argument, Cooper noted that direct-hire civilians have averaged turnover rates of between 20 and 25 percent, as compared with about 25 percent for military personnel [Ref. 2: p. 291]. There appears to be little difference between the two sources regarding turnover behavior.

In light of DoD's approach on the civilianization issue, recommending that civilians be used in positions which do not require military personnel for reasons mentioned earlier, the Services set forth their policies. The Army established the following policy in AR 570-4:

> National policy provides that the use of military personnel be limited to positions which clearly require military incumbents. The use of civilian employees affords abilities not otherwise available, assures continuity of administration and operation, and provides a nucleus of trained personnel necessary for expansion in any emergency. [Ref. 10: p. 2]

The Air Force layed out its basic policy regarding the use of military and civilian personnel in AFR 26-1 as follows:

> Workloads will be performed by military for reasons of military essentiality....Workloads that do not require military for military essential reasons are performed in-

house by in-service civilians or by contract. [Ref. 4: p. 3]

The common point in all these regulations is that once the assumption that civilian personnel are less expensive is accepted, the policy question turns to potential substitution opportunities, rather than to whether such substitutions would actually reduce costs. The following sections provide discussion of several criteria for civilianization--including military-essential assignment, cost, and other factors.

A. THE MILITARY ESSENTIAL CRITERION TO DECIDE WHETHER A PARTICULAR BILLET CAN BE SUBSTITUTED BY A CIVILIAN

The problem of determining what positions could be manned by civilian personnel is not a minor point, given the softness of the criteria that must be used to make these allocation decisions.

1. Former Studies

Historically, manning decisions have been the result of a number of factors, including military requirements, personnel management constraints, cost-effectiveness, and tradition [Ref. 2: p. 292]. However, Smoker notes that, traditionally, comparisons of uniformed and civilian personnel have not been made, because for certain missions involving combat or mobilization or training, military personnel were considered more valuable than civilians. Thus, Smoker points out that it is necessary to determine in what instances

military manpower is perceived to have greater value than civilians, and in what instances military and civilian personnel could perform equally well. Then it must be determined whether military or civilian personnel are the least costly resource to perform a certain workload. [Ref. 11: pp. 24-26] To determine where the use of military personnel yields a greater benefit, he examines workloads traditionally performed by the military. His list includes the following:

- Combat workloads performed by combat aircrews, perimeter defense sentries, surface-ship and submarine crews, and tank crews, etc.
- Direct combat and mobility workloads performed by field maintenance crews, munition loaders, intelligence collectors, etc.
- Training workloads required to maintain the high degree of proficiency necessary to respond to the challenges of combat, direct combat support, and mobility. [Ref. 11: p. 26]

Although these and other workloads are generally perceived to be military, Smoker notes that there are few instances where in-house and contract civilian manpower have performed tasks of this nature.[2] In his list, whether combat forces--for example, Army or Marine Corps infantrymen--should be military or civilian is obviously not at issue. And few would doubt that those who directly support the combat forces and who are

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[2]The use of logistics rapid aircraft maintenance and field teams during the Vietnam conflict are an example of in-house civilian personnel performing a direct combat support. And, the civilian airlift of cargo into Vietnam is an example of military workloads being contracted.

expected to operate in a combat zone should be uniformed personnel. The question is what constitutes the combat forces? The actual distinctions are not as sharp as they initially appear. As Binkin questioned: "...must crews flying and servicing airlift aircraft similar in configuration to those used commercially, such as the C-5, be military?"; or, "must naval support ships, such as oilers and tenders, be manned by naval personnel?" The problem becomes even more difficult to judge, when one considers that U.S. combat forces currently deployed rely on foreign national civilians for certain forms of support. [Ref. 9: pp. 52-53] Another point in Smoker's definition of military essentiality is the mobility requirements. Estimating the size of the deployed forces is straightforward: for the Army, Marine Corps, and the Air Force, it includes troops deployed overseas; and for the Navy, it incorporates sailors aboard ships or overseas. On the other hand, the number of billets in units in the United States but designated for deployment--called deployable billets--is more difficult to estimate. The number of positions in table of organization and equipment (TO&E) units provides a reasonable approximation for the Army. These are combat, combat support, and combat service support units expected to deploy during wartime. In contrast, the positions in table of distribution allowances (TDA) are defined as those remaining in the United States. For the Navy, shore establishment units are not specified for deployment so that there is no deployable

position in CONUS for the Navy. The number of Air Force personnel that might be deployed is the most difficult to ascertain. Binkin explains that it depends on assumptions about how long a war might last, expected attrition, and the like, and adds that under worst-case scenarios, the Air Force would be likely to consider its entire force as deployable. [Ref. 9: pp.53-54]

Distinction between civilian and military incumbency of a position depends upon a number of factors; but Wermuth recognizes the basic distinction as the relationship of the position's incumbent to battle, to combat against an enemy. Wermuth quotes Greenspan ("The Modern Law of Land in Warfare") in discussing this point:

> The distinction between combatants-noncombatants within the armed forces must be taken to correspond to the distinction between fighting troops and troops in service units. The fighting troops of an army carry out the actual military operations. Whereas the service troops minister to the needs of the former and supply their various requirements....The functions of noncombatant elements within the armed forces do not ordinarily bring them into actual conflict with the enemy, but except for medical personnel and chaplains....[Ref. 5: pp.11-12]

To determine civilianization potential, the general approach was to apply judgmentally a set of selected manpower utilization criteria to the position authorizations for each service. These criteria were derived from DoD manpower utilization criteria published in DoD Directive 1400.5. These seven criteria were: Law, training, security, discipline,

rotation, combat readiness, and military background [Ref. 12: p. 7].

Each of the Services has established regulations to amplify the general directives, and because of their vague form each has had wide discretion in defining the criteria to be applied in determining whether or not a position is to be filled with uniformed personnel. [Ref. 13: p. 50] Binkin gives the Air Force guidance as an example which specifies the positions that military personnel will be used:

- In a unit/position directly engaged in combat functions, and in direct combat support functions.
- In a position that requires the exercise of command control, military training and discipline and which, by law, must be exercised by military personnel.
- In a unit that has combat mobility requirements.
- In a position in which military personnel must gain experience before they can assume responsibility for a combat function.
- In a position that requires certain skills and knowledge acquired primarily through military training.
- In a position where, to properly discharge its duties, a civilian incumbent would be forced to compromise this legal rights and privileges, or would be required to take action restricted by law to military personnel.
- In a position in any area, as necessary, to allow for normal career progression, and to support the CONUS overseas rotation prescribed by the Headquarters United States Air Force.
- In a position that is ordinarily filled by an in-service civilian, when no civilian manpower authorization/skills are available. [Ref. 9: pp. 5-6]

Binkin continues that for certain positions not considered to require a military incumbent, the services are confronted with a choice: whether to fill the billet with a civilian service employee or to contract for the services. Here, he points out the prejudice of the official guidance toward contracting. The Services are guided by:

> ...the Government's general policy of relying upon the private enterprise system to supply its needs for products and services, in preference to engaging in its own commercial or industrial activity. [Ref. 9: p. 6]

With regard to in-house versus contract-out determinations, the Office of the Assistant Secretary of Defense's study on civilianization expresses the policy as that "relying upon the private enterprise for goods and services except in those instances where it is not in the national interest to do so." The study cites the Office of Management and Budget Circular No. A-76, which lists the circumstances as:

> When procurement from a commercial source would disrupt or materially delay an agency's program, when it is necessary for the Government to conduct a commercial or industrial-type activity for purposes of combat support or individual and unit retraining of personnel or to maintain or strengthen mobilization readiness, whenever the product or service is unavailable from an alternative source when needed, and finally, if procurement from the private sector would result in higher cost to the Government. [Ref. 8: p. 2]

Albro, in his study for the Gates Commission, grouped the authorized positions in each service into logical categories based upon the force component, function or skill involved. The categories were then analyzed in terms of seven

utilization criteria[3] to determine whether one or more of the criteria were met sufficiently to justify military rather than civilian manning. The analysis proceeded in five steps:

- Identification of those force components which must be prepared for combat deployment at all times (criterion of combat readiness).
- Identification of those positions which require military manning because of the skills involved (all criteria).
- Identification of those positions in the training base which require military manning (criterion of military background).
- Identification of those positions in the command and control element which require military manning (criterion of military background).
- Identification of those positions which require military manning to meet service rotation objectives (criterion of rotation). [Ref. 1: p. I-5-4]

The remaining positions were designated as potentially substitutable. A cost analysis of these spaces was conducted to determine the potential budget reductions which might be realized through civilian substitution.

A report on the mix of the defense labor force by the Office of the Assistant Secretary of Defense Manpower and Reserve Affairs indicates the same point as Albro did, that "the policy of DoD is that all spaces be filled by civilians unless there are compelling reasons otherwise." Military incumbency is justified as follows:

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[3]Seven criteria are law, training, security, discipline, rotation, combat readiness, and military background to justify a military incumbent in a position rather than a civilian.

> When there is a need in law for a military person, when the type of work to be performed involves combat or direct combat support, when the position requires military experience, when a military billet in the United States is needed to provide for breaks between overseas assignments, or when the position is used to provide training and experience to military personnel. [Ref. 8: p. 2]

Morthole, in his study of converting military authorizations for Air Force maintenance personnel to civilian positions, refers to the AFR 26-1, which establishes the procedures regarding the manpower mix within the Air Force. The regulation outlines the steps involved to determine which workloads require either military or civilian personnel. As pointed out in the previous section, AFR 26-1 states that "the workloads will be performed by military for reasons of military essentiality." Those positions that do not require a military member will be "performed by in-service civilian employees or by contract". In addition, the regulation includes criteria and coding instructions for military-essential positions, the Unsatisfactory Rotation Index program, and the Critical Military Skills (CMS) program. Morthole interprets these three instructions as a result of past conversion problems.

Military-essential criteria describe specific positions which require military personnel to perform duties. According to AFR 26-1:

> The determination on whether or not a position must be military will, in some cases, be judgmental. If so, the decision must be as objective as possible and backed up by supporting rational. [Ref. 4: p. 6]

Several codes are described which cross a spectrum of duties from combat positions to the traditional occupation of bandsmen and honor guards. Morthole pointed out the only specific reference to combat capability, referring back to AFR 26-1 again, those positions which "if not performed, could impair the Air Force combat capability within approximately a 36-hour period."

The Unsatisfactory Rotation Index program requires enough Continental United States (CONUS) positions to allow military personnel an assignment in the United States to reduce the amount of overseas time that can have an adverse effect on morale.

AFR 26-1 also introduces the Critical Military Skills program, which has the following objective:

> To help reduce wartime military skill shortfalls through appropriate civilian-to-military position conversions, contracting decisions, and other manpower related actions. This program promotes improved readiness by ensuring adequate military manpower by skill; and effective mix between active and reserve components; and a proper balance between combat and combat sustaining forces. [Ref. 4: p. 6]

Delaune, in his review of the early 1970s civilian substitution concepts, identified military-only positions, which included:

> Command and control positions, positions required for recruiting, positions involved in teaching military subjects, positions providing direct logistical or technical support for combat units, and positions required by law and/or treaty to be occupied by military personnel. [Ref. 3: p. 22]

For each of the functional areas such as administrative, medical, etc., a numerical rating was assigned, ranging from highly substitutable to least possible for substitution. The following types of positions were considered "non-substitutable" according to DoD policy, and were excluded from consideration:

> All strategic retaliatory forces, continental air and missile defense forces (except certain administrative, and clerical support personnel), general purpose forces (except certain types), airlift and sealift forces, reserve and guard forces, research and development, general support (with some exceptions), all military assistance overseas. [Ref. 3: p. 23]

Delaune noted that by establishing such criteria, "functions related to combat and direct combat support were considered exclusive military functions which could be performed by military personnel only."

2. **Findings**

For many reasons having to do with modern changes in war, organizational dynamics, and personnel administration, the proportion of uniformed persons who do the actual war-fighting is declining within military establishments. At the same time, the proportion of uniformed persons who perform supporting activities is rising, allowing more civilians to also become engaged in military support. [Ref. 5: p. 2] Wermuth cites Defense Manpower Commission calculations, showing that as many as 65 percent of all active-duty military personnel are primarily involved in support activities.

Policy changes are required if one wants to go beyond the position conversions having been done so far. It would dictate using civilians in units and under conditions that have traditionally been considered the military's domain. In today's changing military environment, further substitutions may be required to reduce the defense budget and allocate limited resources more effectively.

Binkin gives specific examples to show the possibility of further conversions. One of them is in Navy fleet support. Manning support vessels with civilians is not a new concept. The British Royal Fleet Auxiliary has been manned by civilians for many years. The problem, as Binkin points out, is the risk of relying on federal civilian employees for essential fleet support in the event of a war or other military contingencies. [Ref. 9: pp. 57-58] On the other hand, Binkin adds that such concern does not appear to be well-founded, and quotes Emery's observation on civilian-manned ships that:

> in Military Sealift Command's 27-year existence, including the six years of Navy fleet support activity, command operations have never been hampered by strikes or work slowdowns. [Ref. 9: p. 58]

The General Accounting Office (GAO) similarly cites the Navy's controversy that combat readiness is adversely affected by shortages of trained and experienced sailors at sea, and recommends that the Navy use civilians in shipyards to accomplish work that is normally done by ships' crew during overhaul. The crew released from overhaul work could be

reassigned to ships at sea, according to GAO, by alleviating some of the critical shortages on these ships, or skilled technicians could be transferred to critical shore activities such as the Shore Intermediate Maintenance Activities (SIMAs). In response to the GAO's recommendations, the Navy has set up a pilot ship decrewing program. One approach is to increase the utilization of available skills through reassignments of the kind suggested in this GAO report; another is to increase the skill levels through training during overhaul. In both cases, it would be necessary to free the ship's crew from all or part of the work they would normally do during overhaul, and assign this workload to civilians at the shipyard. [Ref. 14: p. 1]

Another specific example given by Binkin is the possibility of transferring the part of airlift and air refueling missions now carried out by the U.S Air Force to civilians. Again, the dangers of relying on civilian personnel have to be considered; but, as Binkin points out, the existing national policy leans on the use of the Civil Reserve Air Fleet (CRAF) in mobilization planning. CRAF policy gives authority to the President to mobilize elements of U.S. commercial airlines during emergencies, which also covers the airlift personnel and equipment. [Ref. 9: pp. 58-59]

Because of the nature of its operations, the Army appears to have fewer opportunities than the other Services to employ civilians in units traditionally manned by soldiers.

However, support units operating exclusively in rear areas could be considered for civilian substitution [Ref. 9: p. 59].

GAO, in its study of military personnel in industrial facilities, observes that the majority of military personnel are performing supervisory, administrative, and other technical functions. GAO believes that civilians could do these functions; in fact, civilians were occupying either first-or second-level supervisory positions in the operating departments at the activities mentioned. Therefore, GAO recommends that the Secretary of Defense direct each military department headquarters in industrial facilities to review all types of personnel positions, except those designated as being deployable, or as having a combat or combat-support mission; and, for each type, to determine whether:

- The position must be filled by military personnel.
- The position could be filled by either military personnel or civilians and the circumstances in which the position would be used for military personnel, such as for rotation or for career development.
- The position need not be filled by a military incumbent and should be filled by a civilian. [Ref. 7: pp. 18-19, 26, 29-30]

On the other hand, efforts to allocate resources effectively may hamper wartime readiness, which should be considered in all conversion decisions. For example, attempts to balance medical manpower requirements with budgetary constraints has led to staff reorganization within the Medical

Service. In 1985, a budget initiative resulted, whereby the Assistant Secretary of Defense for Health Affairs was charged by Secretary Weinberger to "redirect resources and change the composition of the medical force to ensure medical readiness as the top priority." As a result, beginning on October 1, 1987, the Dental Corps relinquished 98 active duty dental officer authorizations to favor the Nurse Corps. To compensate for the lost active duty dental slots, 98 civilian contract dental slots were made available and located at Air Force bases throughout CONUS. Civilianization of the Dental Corps may not reduce the Corps' clinical capability to produce adequate dental services to maintain a peacetime military. But, since civilian contract dentists lack the readiness education and training, the absence of 98 dental officers schooled, practiced, and dedicated to the military readiness mission may be realized in peacetime today as well as in a possible wartime scenario. Dental officers may be called upon to rely on readiness skills in peacetime, assisting in medical mass casualty management in response to such conditions as natural disasters (flood, tornadoes, earthquakes, etc) and military/nonmilitary accidents involving multiple victims. Acts of terrorism also present a threat, especially in the military environment, to which dental officers (as part of a base disaster team) might be expected to respond. Civilianization also poses a long-term threat to medical readiness as it represents a possible source of instability

in CONUS dental manpower. In the short term, civilianization may not change the net Air Force peacetime clinical capability. It does, however, represent a portion of the total CONUS manpower which can change annually through contract renewal or disapproval. [Ref. 15: pp. 2, 3, 9-12]

For the reasons mentioned above and the possible effects of civilianization on wartime readiness, additional proposals to replace military personnel with civilians should be carefully examined before any attempt is made to further change the structure of the force.

B. THE APPROPRIATE MILITARY AND CIVILIAN COST FACTORS FOR COMPARISON

There is a large and growing concern regarding the cost of national defense. Public opinion is that the economic and social ills of the country are largely the fault of increased defense spending. [Ref. 16: p. 1] Much of the interest in defense spending has focused on personnel-related items. In fact, more than two million men and women serve today in the active military forces, and roughly one-third of the Department of Defense budget is spent directly on these personnel: on recruiting, training, and transporting them; on providing for their housing, food, and medical care; and so on. Personnel costs in the past two decades have been influenced by the end of military conscription in 1973. Introduction of the All-Volunteer Force increased personnel

costs in two ways: the need to induce sufficient numbers of young men and women to volunteer for military service led to a substantial increase in basic pay and related expenditures; and there was a gradual increase in various cost elements, as first-term personnel were replaced by more senior members. Because military careers span 20 or more years, the transition to a mature All-Volunteer Force is still under way, and future changes in the experience structures of the enlisted forces may continue to increase the cost in coming years. [Ref. 17: pp. 1-2]

These concerns indicate the urgency of searching for a means of reducing personnel cost increases without causing an unacceptable reduction in wartime readiness. One possible answer is to substitute capital for labor wherever economically feasible. [Ref. 2: p. 277] In addition to broad allocation decisions dealing with capital and labor, there are equally important questions in the allocation of resources within these broad categories. In searching for a solution to this problem, the military/civilian mix of the force has been discussed and the argument has been made by many in Congress and DoD that civilians should be substituted for military personnel wherever possible because this is seen as a means of maintaining military force levels in a zero- draft environment and because they are said to be less costly. This argument, of course, recognizes that certain billets must be filled by a member of the military because of the reasons

mentioned in the previous section, such as law, training, security, discipline, rotation, combat readiness or the need for a military background to successfully perform assigned duties that are not subject to civilian substitution. [Ref. 16: p. 1] There are also cases where a job is filled by a military incumbent even though a civilian could do that job at least cost without violating the requirements mentioned above. This is necessary to meet the military mission of DoD. For example, some maintenance jobs in the Navy could be done less expensively in peacetime by civilians. However, there is a wartime requirement to deploy the entire maintenance activity to a combat zone. [Ref. 8: p. 12] Thus, the jobs must be filled by military personnel.

Although "least cost" is an implied criterion in the guidance concerning military-civilian determinations, cost probably was not a primary consideration when the military-civilian determination policy was first developed. Civilians were placed in all positions not requiring military incumbency because of the DoD policy that "civilians shall be used in all positions which do not require military incumbents" for reasons mentioned above [Ref. 11: p. 27][4]. Planners simply assumed that civilians were less expensive, referring to

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[4]Relative cost was not a criterion for determining which positions to civilianize. As a result, no consistent method was applied to compare the cost of military and civilian manpower resources capable of performing equivalent missions during the period of civilian substitution programs.

factors, such as the lower turnover rates of civilians [Ref. 2: p. 291], mentioned in the previous section. Another reason, leaded planners to the assumption that civilians were less expensive, was the misperception that the training and retirement costs associated with military personnel are generally well recognized, and the unfunded retirement liability and training costs associated with direct hires are less recognized [Ref. 2: p. 300]. Defense manpower planners were also affected on conversion decisions by the fact that military personnel generate more secondary support requirements than do civilians; for example most military individuals are clothed, housed, fed, trained, and provided medical treatment by DoD while this is generally not the case with civilians [Ref. 8: p. 6]. Thus, a military person generates a requirement for some fractional part of another person to maintain base housing, operate hospitals and schools, and perform other necessary support functions [Ref. 6: p. 75]. The support "tail" describes the number of these types of positions required to provide support for military personnel. GAO conducted a case study at the Naval Weapons Support Center, Crane, Indiana. Only 23 of the 68 military personnel at the site were doing center-related work or were working for other military activities. The remaining 45, plus 10 civilians, were providing support services for the military complement, such as food and housekeeping, recreation, commissary and exchange stores, and health care. [Ref. 7: p.

21] Delaune says the analyses revealed that the support "tail" ran as high as 36-40 percent of the total force [Ref. 3: p. 26]. Because of this support "tail" associated with military labor, the substitution of one civilian position for one military position would allow for the elimination of a small portion of another military position, thereby creating a net manpower and financial saving [Ref. 11: pp. 26-27]. While the figures will vary among the Services, a study by the Central All-Volunteer Force Task Force, known as the Moot Report, indicates that the net manpower saving will be over 15 percent, if civilians are substituted for military personnel [Ref. 13: p. 7]. On the other hand, there would be some offset to this saving to provide administrative support to newly employed civilians.

Another factor examined in the early studies was the ratio of substitution. Morthole, in his study for the Air Force, emphasized that the Air Force relies on a very high specialization of tasks, while the use of civilians permits an increased combination of tasks. Therefore, fewer civilians can be used to accomplish a particular task. [Ref. 4: p. 8] A draft study by the Office of The Secretary of Defense in 1964-65 proposed that the appropriate ratio of positions was about 0.85 civilian to 1.0 military. Delaune, citing the Army's civilianization program, gives the replacement ratio of nine civilians to every ten military replaced [Ref. 3: p. 24] A discussion of the civilian/military substitution ratio

in a Bureau of Naval Personnel study of the Training Deviceman (TD) rating shows substitution ratios ashore ranging from 0.6 to .82 (that is, 6 to 8.2 civilians would replace 10 military) [Ref. 6: p. 77]. The estimates derived in Albro's analysis were based on a 1.0 civilian to 1.1 military overall ratio. All these assumptions were based on the belief that military incumbents spend a significant proportion of the normal workweek on military-related duties not directly associated with their immediate position assignments (for example, drill, ceremonies, range-firing, police of barracks, police of the base, guard duty, and similar chores). Thus, man-hour availability is greater for the civilian employee in comparable positions, and civilian incumbents would, presumably, be more productive in the position, therefore justifying something less than a one-to-one ratio of substitution. [Ref. 5: p. 24] On the other hand, Albro made a counterargument to this assumption that military incumbents do normally spend a full workweek at their primary position with military-related duties being accomplished by extending the workweek beyond 40 hours [Ref. 1: p. I-5-8].

Thus, a logical starting point is to determine the costs associated with the two classes of personnel, specifically their magnitude and how they are broken down by expenditure category, government funding agency, and the time phasing of their incurrence. While costs such as direct pay, allowances, and fringe benefits are easily calculated, other components

of the total cost of personnel--such as the training required to fill a billet, the cost of support, and the appropriate attribution of military retirement costs--are not [Ref. 12: p. 21]. After estimating current costs, we should determine how they are likely to change in the future; while one class of personnel may at present appear to be less costly for filling a particular billet, a policy action that would attempt to take advantage of this situation could have effects that would significantly reduce or eliminate the intended saving [Ref. 4: pp. 29-30]. Planners should also consider the wartime conditions. Civilians were able to engage in some forms of combat in Vietnam; and in comparison to military personnel who were doing the same things, they were paid more. For example, U.S. civilians piloting helicopters on resupply and leaflet dropping missions in a combat environment were paid a base salary three or four times the pay of warrant officers performing exactly the same jobs at the same time and in the same place. U.S. civilian employees working in Vietnam--naturally, in circumstances remote from all but the most exceptional war danger--received a 25 percent salary differential for service in a combat zone, although they had, of course, no combat role. [Ref. 5: pp. 26-27] Until these questions are answered, we cannot be sure whether a civilianization policy would result in a net cost or saving.

1. Comparing the Present Cost of Military and Civilians

The total identifiable current and expected future costs to the federal government are seen as the appropriate measures for the required analysis. Budget costs are too narrow to fully capture the impact of employing one rather than the other class of personnel, because dollar costs are incurred by several recipients of federal funds over many budget years [Ref. 2: p. 296-298].[5] Therefore, Beltramo says that "costs budgeted by an agency for a particular year do not completely represent the government's liability for actions taken in that year." For example, educational benefits and dependency and indemnity compensation for military personnel are paid by the Veterans Administration, and military retirement benefits are paid by the Department of Defense. Funding for these items--educational benefits, dependency and indemnity compensation, and retirement benefits--included in the current budget is the result of past policies. The effect of current policies on these budget items will be reflected in future budgets. The government's retirement contribution for civilians is an example of misrepresentation of current costs. This retirement contribution leaves a significant unfunded liability, amounts greater than those provided in the

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[5]However, they are useful, first, for establishing a benchmark for determining the cost implications of a large-scale substitution of one type of personnel for another; and second, for comparing the trends over time in the costs of these different types of personnel [Ref. 2: p. 296].

current budget, and must be added to some future budget to cover the government's accrued liability [Ref. 2: pp. 297-298].

Although present value calculations are often used to compare the relative cost of the two classes of personnel over time, they hide many of the factors discussed above--including which agency pays how much and when. At the same time, such a comparison may be sensitive to the discount rate, which is often arbitrarily chosen. Therefore, a more detailed comparison made on a case-by-case basis provides the analyst with valuable insights. [Ref. 16: p. 3]

Table I demonstrates the cost impact over time and across the federal bureaucracy of a decision to fill a hypothetical billet with either a member of the military or a civilian. As Beltramo points out, the costs in the example are for illustrative purposes only, and there should be no inference that they include all appropriate elements or that the amounts expressed are completely accurate. The E-6/GS-7 comparison is also not necessarily a relevant one, as the proper trade-off between military rank and civil service grade must be determined on a billet-by-billet basis. It should also be noted that to gain the full understanding of this comparison, an assumption must be made regarding the number of years over which the costs will be incurred.

TABLE I

ANNUAL COST OF MILITARY/CIVILIAN PERSONNEL

Funding Agency	Annual Costs Incurred During Incumbency (in $) Air Force E-6	Civilian GS-7	Annual Costs Incurred After Termination (in $) Air Force E-6	Civilian GS-7
AIR FORCE				
Base Pay	9,450	10,53		
Overtime & Holiday	0	328		
Other Costs[1]	141	375		
Support[2]	841	203	400	
Quarters	762	0		
Training	500[3]	0[4]		
Retirement	0	737		
TOTAL	11,694	12,175	400	
DoD				
Retirement			4,000[5]	
Veterans Administration				
Educational Benefits			2,165	
Dependency & Indemnity Comp.			100	
SPECIAL CONGRESSIONAL FUNDING				
Unfunded Retirement Liability[5]				750
TOTAL			6,265	750

SOURCE: M. N. Beltramo, Considering the Cost of DoD Personnel, Rand Corporation, p. 4.

[1]PCS, life and health insurance, terminal leave, etc.

[2]Medical O&M, recruiting, fringe benefits for civilians.

[3]Cost of technical training amortized over the years.

[4]Assumes that civilians receive no job training and does not amortize specialty training received over later career.

[5]50 percent of base pay X 88 percent probability person will reach retirement.

A significant point that is indicated by Beltramo in this comparison is that the Air Force is required to pay from its current budget the entire present and future cost, except the unfunded liability portion of retirement, associated with employing a civilian, but pays only the current costs incurred by employing a uniformed personnel. Costs that will be incurred by a military person after he/she leaves the service are borne almost entirely by other agencies.

Given this perspective, it is reasonable to anticipate institutional conflict between Congress, DoD, and the Services, since acting in a manner that is less expensive (in terms of the total picture) may prove to be more costly to the Services. Thus, the provision of incentives to stimulate cooperation on the part of the Services should be considered. [Ref. 16: p. 5]

The components of personnel costs have to be examined to determine how they should be treated, so that comparisons of military and civilian personnel (such as the one in Table I) can be meaningful. The following subsection examines the former studies in terms of the elements of personnel costs in an attempt to provide a methodology for comparing the cost of personnel for various decision-related purposes.

2. Cost Measures

Cost measures are designed for policy analyses that detail how a particular DoD policy would affect the desired size and structure of active and civilian personnel inventories. The policy action might be a weapons system deployment or a plan to replace a work center's active duty personnel with civilians. The analysis would project how such an action would alter various resource needs, including changes in personnel inventory size and structure. Then the cost measures could be used to translate those manpower changes into their cost implications. [Ref. 18: p. 5]

In the Department of Defense, skilled manpower is both an input to and an output of defense operations. Thus, we will examine cost factors in the separate categories of direct and indirect labor costs.

a. Direct Labor Costs

Direct costs are payments triggered by using personnel in a productive activity. [Ref. 18: p. 6] There is disagreement about what constitutes it. Part of the difficulty arises from the complexities of the military pay system, which--in addition to cash payments--includes an array of benefits, some of which are in-kind, some deferred, and others conditional. And the civilian compensation system, while more straightforward, has its own argumentative properties. [Ref. 9: pp. 43-44] Because of sharp differences in the

categorization of costs of these two types of labor, we will cover the direct cost elements in two different subsections.

(1) Direct Cost of Military Personnel. Palmer, in his Rand study of the "Incremental Costs of Military and Civilian Manpower in the Military Services," defines direct costs as "entitlements which are paid to military personnel based on their continuing service." He includes the following items:

- Basic pay, which all members receive at rates that vary by grade and length of service.
- Allowances for subsistence, which most members receive as cash at one of three daily rates but some receive subsistence in kind.
- Allowance for quarters, which nearly half the force receive as a full cash allowance based on their dependency status, and another third receives as a partial cash allowance or a cash supplement for substandard housing, remaining personnel receive quarters in kind.
- Assignment-related allowances which are paid only to selected force members depending on their assignments. This includes special and incentive pays, variable housing allowance, which active force members receive to help cover household expenses that vary by location, and station allowances/family separation allowances, which is paid to members stationed overseas.
- FICA tax on the wages paid to military personnel. However, unlike most civilian employers, DoD does not have to pay FICA tax on subsistence and quarters allowances for military personnel. [Ref. 18: pp. 15-29]

Subsistence and quarters allowances would be taxable if they were paid by a civilian employer. Therefore, adding military personnel to DoD workforce could reduce these federal tax

revenues, and such a revenue loss would be an additional federal financing cost for military personnel. Rhode recommends that to obtain the cost to the government, the foregone tax on benefits be added to the billet costs [Ref. 19: p. 12]. Adjustments for nontaxable allowances also apply to special and incentive pay when they are relevant to a policy under analysis.

(2) Direct Cost of Civilian Personnel. This subsection reviews the direct costs of filling a DoD position using a member of a civil service paygrade[6]. Palmer's direct cost elements consist of the following:

- Base pay, which is regular salaries or wages.
- Other pays, which are primarily overtime payments available to all schedules except the Senior Executive Service (SES), holiday premium, which is available to all schedules except SES, but rarely used, and duty-related pay available to all schedules, but used to different degrees by the Services.
- Benefits, which includes life insurance, health benefits, worker's compensation, employer's FICA tax, and pension benefits. [Ref. 18: pp. 30-36]

b. Indirect Labor Costs

Indirect costs arise in DoD activities that supply or support manpower used in other operations. Examples are costs for manpower recruitment, training, relocation, and

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[6]Filling a position means having someone assigned to that position, recognizing that the assigned individual will be absent from the position occasionally due to sick leave, holidays, etc.

medical care. There is little agreement on the appropriate costs for the military and civilian employees and even less on what indirect costs should be included and how they should be allocated. And, even when agreement is reached on these issues, there remains the question of how to link military and civilian grades[7]. It is important to note that, unlike direct costs, indirect support costs do not vary proportionately with changes in employment levels. In other words, the elimination of a small number of positions on a base would have little impact on the cost of providing base services. Indirect costs should therefore be included in cost comparisons only for major changes in employment. [Ref. 9: pp. 43-46]

Indirect costs may be divided into two categories, those generated per person-year and those triggered by events that occur irregularly during a career.

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[7]The effects on costs of substituting one type of labor for another depends on the grade levels of the respective employees. One of the methods for establishing equivalent military and civilian grades uses a point-count system to compare the content of both similar and dissimilar jobs. Each job is evaluated by the problem-solving skills required and by the degree of accountability. The point counts are used to identify civil service grade levels whose median job content is above and below the median job content of the military grade being evaluated, thus locating the military grade in relation to two civilian grades. The job content of a military grade is then assigned to a point on a percentage scale between the two civil service grades with the next lower and next higher median job content. [Ref. 9: pp. 46-47]

(1) Indirect Costs Incurred Per Person-Year Basis.

Palmer uses four types of indirect costs in his study:

- Morale, welfare, and recreation (MWR); including base exchanges, other resale operations, open mess operations, and clubs and facilities for military and civilian personnel.
- Commissary benefits, available to reservists and military retirees as well as active duty personnel.
- Medical and dental care, supports military personnel and their families in two different programs. CHAMPUS reimburses most costs of care for treatment obtained from civilian providers by military dependents, military retirees and their dependents, and military survivor families; the Military Treatment Facility (MTF) system supplies care directly to active duty members, and is available to CHAMPUS eligibles on a space-available basis.
- Base operating support (BOS) other than MWR and housing, generally covers base administration, utilities, other base services (e.g., fire protection and physical security), and other engineering (e.g., waste disposal) activities that might vary with the number of personnel assigned to a location, BOS also includes some items that appear more programmatic in nature (such as equipment and real property maintenance. [Ref. 18: pp. 40-50]

Since civilian personnel are not entitled to use commissaries, and DoD costs for civilian health care were included in the direct cost category, commissary usage and medical and dental care categories pertain only to military personnel.

(2) Indirect Costs Triggered by Events. These costs are triggered by changes in personnel flows through the military manpower inventory or the civil service workforce. Palmer associates these costs with entry, midcareer, and exit events.

Costs associated with entry to the DoD workforce are generally confined to military personnel only. These costs include the following:

- Initial uniform and clothing allowances.
- Permanent change of station moves.
- Recruitment and examining costs.
- Educational assistance includes support for four types of educational benefits for military personnel in addition to regular military training. Educational assistance consists of the Veterans Education Assistance Program, the new GI Bill, the kicker benefits[8], and off-duty and voluntary education.
- Basic and initial skill training.
- Enlistment bonuses which are available only to enlisted accessions who enter selected occupations. [Ref. 18: pp. 55-65]

Cost-incurring midcareer events consist of professional development education and skill progression training[9], permanent change of station (PCS) costs for

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[8]The kicker benefit is an additional educational benefit for nonprior service enlistees with high school diplomas who obligate for specified lengths of service and enlist in designated military specialties.

[9]All officers in grades O-3 through O-6 are eligible for professional development education and skill progression training. All enlistees in grades E-4 through E-7 are eligible for skill progression training. Civilian personnel also receive DoD-supported training and education. Some civilians attend the same training courses (most commonly skill courses) as military personnel. In addition, some others receive training and education in DoD-related job skills (such as computer operations) at DoD expense.

rotational and operational moves, and continuation and reenlistment bonuses[10] [Ref. 18: pp. 65-69].

Exit-related costs fall into the following categories:

- Compensation paid in the year of separation, such as death gratuities, lump-sum terminal leave pay, severance pay, and permanent change of station separation costs.
- Payments to the Department of Labor to cover unemployment compensation for current separations.[11]
- Obligations for retirement program benefits. [Ref. 18: pp. 70-75]

3. Findings

Although they were not developed for the same purpose, one would expect a fair amount of consistency regarding the treatment of costs by different studies. However, this is not the case. A review of the cost elements treated in various studies reveals inconsistencies: The same costs are sometimes treated differently and one study may exclude a cost that another attempts to include. For example, as Beltramo points out, one report uses DoD standard basic rates for pay and

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[10]Bonuses at retention are available only to military personnel in selected occupations.

[11]The Office of the Secretary of Defense Comptroller's Office presumes that unemployment compensation would be triggered only by separations of civilians and enlisted personnel in grades E-1 through E-5. No cost is attributed to officer losses or to enlisted transfers to officer status, losses to death or disability, reenlistment, retirement, or desertions.

allowance (for military personnel) while another recreates a similar rate from its component elements; or one study does not treat retirement probability as a function of each rank while another does; or a particular study does not include the cost of specialty training while others do; or some studies do not include dependency and indemnity compensation, unemployment compensation, educational benefits, and income tax adjustments while still others do.

Further research is required before an acceptable determination can be made as to which elements should be included in a correct cost model. However, the previous subsection, explaining appropriate cost measures, which is based on a recent Rand study, may be a good example; and a few tentative comments regarding the existing models will be made to provide a perspective as to what may be an appropriate approach.

If we are to seek to minimize the cost, we must know what the cost of the possible alternatives are. That is, for an employee to reach the appropriate level he or she must first be recruited, trained (formal and/or on-the-job training), paid, and given administrative and logistical support. Each of these implies a cost to the government, and it is the analyst's task to determine how they should be treated, since the appropriate amounts are often not obvious. [Ref. 16: p. 7]

Although it has not been explicitly stated, the cost of each type of personnel is driven by the policies that are implemented for it. Regardless of the current status of costs for military and civilian personnel, the decisionmaking authorities have some latitude for significantly altering these expenditures. Previous studies have looked at the state of personnel cost without giving enough consideration to how it was reached and why. As Beltramo indicated, such an analysis might provide an understanding of how costs might be effectively reduced even without resorting to civilianization. [Ref. 16: p. 8]

In short, the issue of minimizing the cost for required personnel services is a complex one. a sound analytical foundation should be provided before any policy action is taken so that the probability of counterproductive results is minimized. In this effort, a first step might be to determine the incremental cost of each class of employee for the specialty being considered for civilianization [Ref. 10: p. 10]. The next step might be to determine what future trends are likely that should affect the decision and what impacts a civilianization decision would have on costs [Ref. 4: pp. 29-30]. Reliable policy recommendations may be made only after this has been done.

C. OTHER FACTORS BEING CONSIDERED IN CIVILIANIZATION

The previous sections reviewed the concept of conversions, conversion actions and reports. The sections served to provide a background to conversion actions overall and to introduce military essentiality for some positions and cost that must be considered when conversion actions are being studied. The conversion of military positions to civilian positions tends to develop only one view of the entire effort that may be involved, in particular the factor of cost. However, even cost factors were not considered in early conversions, as mentioned in the previous section; and civilians were generally substituted for military personnel when the position was not required to be filled by uniformed personnel. Certain factors are difficult to evaluate and can support having either a military or civilian occupant in a job, while others may more clearly differentiate the advantage of having one over another. Consequently, some factors affecting military to civilian conversions are discussed in this section.

1. Heritage

The heritage of this country has always stood for civilian control of the military forces, so that the military should never be in control of the nation. Therefore, converting a military position to a civilian position is in that view the proper goal to achieve. The military is now dependent upon scientific and technological progress in the

research and development community outside the military, and, in fact, outside the government. One recalls the powerful conflict within the government after World War II concerning whether the military or civilian institution should exercise principal control over nuclear activities in the United States. The final outcome was the creation of a civilian agency, the Atomic Energy Commission. The same outcome resulted several years later when a similar contest erupted over who was going to run U.S. activities in space. Again, it was decided that a civilian activity, the National Aeronautics and Space Agency, would conduct the program, and military elements, particularly the Air Force, were linked in subordinate roles. Another central government contest resulted over the potential control of the new national intelligence activity; and again, a civilian organization, the Central Intelligence Agency was established. The military won only one of these conflicts, and it was a relatively minor one. During World War II and immediately after the war, there was considerable debate about the idea that one or more scientists should sit as members of the Joint Chiefs of Staff (JCS). Eventually, the military won. No provision for a civilian of any kind on JCS was made. After the war, a new superstructure, intended to increase civilian control, was placed inside the Department of Defense. The military departments lost status to DoD. Over the years, that trend has been confirmed and sustained, as the authority and status of the top layers of

the military departments have been eroded by the largely civilian layer of the Office of the Secretary of Defense. [Ref. 5: pp. 58-59] It goes even further: now people are asking whether the military needs uniformed strategists, at all. The data on the decline in status of the Naval War College, for example, and on the seeming irrelevance of that institution's curriculum to the promotion of the Navy's flag officers indicates that, either by conscious design or by default, the naval high command has answered this question in the negative. These strategists obtain their own qualifying education at the nation's top universities and colleges and then work as consultants to certain of the various private firms more popularly known as "think tanks". This "corps of strategists" are essentially hired help. [Ref. 20: p. 55]

This idea pervades the thoughts of the common citizen so strongly that it is often difficult to convince the American people that the freedom they have can only be exercised because the military protects that way of life. [Ref. 4: pp. 28-29] Maintaining civilian control of the military is a principle which should not be violated; but, on the other hand, this perception should not affect objectivity in conversion decisions. There is also the unfortunate belief among some that civilians should run national programs in place of their military counterparts because civilians possess superior abilities.

This understanding raises the question whether military society is converging with civilian society or becoming more unlike American society in general. Wermuth, for example, citing the work of Moskos, concludes that;

> the eventual result will not be pervasive homogeneity one way or the other, but a pluralistic military in which divergence would be most marked in combat units, selected other units, and higher operational command headquarters, where the traditional military ethos would be cultivated. On the other hand, convergence would be characteristic of military units and enterprises concerned with administrative, educational, medical, logistical, technical, and other areas not uniquely military--areas which would be allowed to become, and which are becoming more civilianized. [Ref. 5: p. 23]

2. Availability of Qualified Personnel

It may be difficult to hire civilians for many of the military positions identified for substitution. Civilian labor market problems may very well limit the hiring of civilians in certain skills and at some geographic locations. The magnitude of this problem can only be determined by bringing field activities into the planning of real-life civilian substitution programs [Ref. 13: p. 56], and by surveying the civilian labor market situation to determine whether it is "tight" or not for the particular fields and geographic areas concerned [Ref. 3: p. 30].

On the other hand, as the supply of high school graduates decreases, the level of competition among industry, academic institutions, and the uniformed services will most likely increase. Industry will probably achieve its hiring

goals, because they can pay higher wage rate to attract qualified labor, whereas military pay is tightly controlled by the Congress. Inter-and intra-service competition will also increase as a result of such changes as advancing technology in Army ground and tank units (moving from field guns to multiple launcher rocket systems), the transition from guns to missiles in the surface Navy, as well as the introduction of high-speed hovercraft and gas turbine-driven ships. These new systems will all compete with the Air Force strategic missile programs for trainable recruits. The recruiting environment, therefore, does not look promising for any employer, especially the military, in the years ahead. [Ref. 6: pp. 7-8]

Several new initiatives could help achieve recruiting objectives, such as, DoD-sponsored legislation to lift statutory restrictions on women serving in combat and changes in enlistment standards that will increase the pool of eligible young people.

3. Environment

The environment may present an advantage to either military or civilian personnel. For example, civilian maintenance personnel at the depot level receive items for repair for many reasons, aside from routine maintenance action, which, in turn, provides exposure to a multitude of field problems. They have more time available to complete

their work, but they do not necessarily see the results of their work in the field. At the depot level, civilian maintenance personnel may also fail to see the vital importance of their actions which may also yield lower quality products.

On the other hand, the military maintenance person who has seen the results of his or her work under simulated or real combat conditions knows the importance of this work and observes the end results every time an aircraft returns. Military personnel receive combat-oriented training and experience under simulated and real combat pressures that the civilian does not normally receive. The military person spends more time at the squadron level and does not have the same amount of time a civilian will at the depot level, but he or she has the experience of the on-site operational pressure. Thus, environment is an important factor to consider in conversion actions, not only because of the job conditions where the person works, but also because each person has a different environmental/operational background, and may be in favor of either civilian or military personnel. [Ref. 4: p. 30]

4. Skill Variety

Clearly, there has been no <u>one</u> theoretical explanation of why and how task attributes affect workers. The way jobs influence motivation could be partially explained by several

existing theories, including Maslow's need hierarchy, Herzberg's two-factor theory, and expectancy theory. To integrate and synthesize much of the literature on this topic, a model was proposed by Hackman and Oldham that explains how jobs influence attitudes and behavior. It is called the "job characteristics model" and is probably the most researched explanation of job enrichment. According to Hackman and Oldham, skill variety[12] is part of the core job dimension leading to meaningful work and, therefore, work motivation. In turn, this becomes job enrichment, as described by them. [Ref. 21: p. 589]

When we consider the types of labor employed by DoD, military personnel appear to have a disadvantage with specialized training that leads to positions without the skill variety that the civilian field appears to have. Morthole indicates two additional consequences of specialized training as a result of technological advances. First, civilians may not be allowed to perform the maintenance functions because of its specialized nature; second, military personnel may not be able to perform the maintenance at the higher levels of maintenance due to their lack of training across the spectrum of requirements that civilians may have received. The military, however, offers a broad experience background through job changes due to rotation requirements. [Ref. 4: pp.

[12]The number of different activities, skills, and talents the job requires.

30-31] Therefore, this factor is considered neither an advantage nor a disadvantage to civilian conversions, but it should definitely be considered before any policy decision is made.

5. Equity

Equity theory is based on the thesis that a major factor in job motivation, performance, and satisfaction is the individual's evaluation of the equity or fairness of the reward received. Equity can be defined as a ratio between the individual's job inputs (such as effort or skill) and the job rewards (such as pay or promotion) compared with the rewards others are receiving for similar job inputs. Equity theory holds that an individual's motivation, performance, and satisfaction depend on his or her subjective evaluation of the relationships between his or her effort/reward ratio and effort/reward ratio of others in similar situations. Most discussion and research on equity theory center on money as the reward considered most significant in the workplace. People compare what they are being paid for their efforts with what others in similar situations are receiving. [Ref. 22: pp. 448-449] In the Armed Forces, the civilian workforce is typically considered a support function and the military is considered to be in the combat arena and available for national defense.

The total of repeated combat exposures over a typical career for a military member would tend, on the average, to fall into the proportions shown in Table II.

TABLE II

TYPICAL MILITARY CAREER
(EXTENDS OVER 22 YEARS AND EXPERIENCES 9 RELOCATIONS)

Military Situation	Percent of Career Military Experience
Combat Zone	9.0
Family Separation, Unaccompanied Tours (Excludes combat, sea duty, and field duty)	2.8
Overseas (With family, excluding field duty)	14.0
Field (or sea) Duty	10.4
Other, Overwhelmingly in CONUS	63.8
TOTAL	100.0

SOURCE: A. L. Wermuth, An Armored Convertible: Shuffling Soldiers and Civilians in the Military Establishment, Strategic Studies Institute U.S. Army War College, Carlisle Barracks, Pennsylvania, October 1979, p. 20.

The model establishes the allocation of various principal conditions that occur in the average of all current military careers, and shows that there is some increment of disadvantage suffered by the average soldier (and sailor or airman) in comparison with the average citizen in civilian life, including civilians who work in the military establishment.

A number of positive conditions equal and balance out certain negative conditions, but negative conditions are not balanced out completely. For example, as Wermuth observes, the following liabilities in military service cannot be adequately balanced out by citing positive benefits: combat exposure, frequently directed moves, directed family separations, sea duty, field duty, unlimited and irregular workweek, exposure to disease and poor sanitary conditions, isolated posts, loss of earned leave (for officer only), no right to quit, and liability to command at sea and in field equivalents. One or two of these factors seem possibly contradictory. For example, the last item (command) is considered in some contexts to be a positive opportunity, rather than a negative condition. However, it is apparent that the great responsibility of a commander at sea or in the field, such as command of a nuclear aircraft carrier, involves billions of dollars and hundreds of men, but no additional compensation is provided to the incumbent of the top job. Only the five factors listed below are subject to some kind of quantification, however partial:

combat exposure (number of days)[13]; frequently directed moves, including overseas; directed family separation; unlimited and irregular overtime without pay. [Ref. 5: pp. 20-21] In terms of duty time and pay, military personnel are on call for 24 hours a day for the same pay, although they are not called upon to work very often, while civilian personnel will receive overtime pay for work performed outside the normal duty hours. [Ref. 4: p. 31] Also, adding a larger number of civilians at the journeyman, technician, or laborer level changes the focus of this problem to another issue, such as civilian grooming, pay differential, union activism, civilian attire, illegal alcohol usage, and relaxed work habits [Ref. 6: p. 81]. In this case, when a military individual feels that inequity exists, a state of tension develops. People try to resolve this tension by appropriately adjusting their behavior. A worker who perceives that he or she is being underpaid, for example, may try to reduce the inequity by exerting less effort.

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[13]The United States has never paid compensation to its military members for participation in combat, but has provided amounts for being liable to exposure to combat. Thus, every soldier in the U.S. forces in Vietnam, regardless of rank or assignment, from E-1 to O-10, whether in a combat unit or an administrative unit, received "hostile fire pay" of $65 a month--a token amount that perhaps overcompensated those serving at negligible risk and undercompensated those serving in front-line combat units. All U.S. military persons in Vietnam with dependents left at home also received a separation allowance of $30 per month, and exemption of $500 of income from federal income tax, for each month served in Vietnam. [Ref. 5: p. 22]

The tension, if it exists, is one factor that the unit manager must accept and try to resolve. Perceived inequities between personnel become dissatisfiers on Herzberg's motivation scale. Thus, inequities perceived by unit personnel become disadvantages which must be resolved by the unit commander; but, when equity is achieved, it is not an advantage that can be utilized by the unit. Although there is no direct advantage or disadvantage to either civilian or military personnel, the lack of equity does affect the unit; therefore, it may become a disadvantage for military to civilian conversions. [Ref. 4: p. 32]

6. Performance Appraisals

Such appraisals can be defined as "a systematic review of an individual employee's performance on the job which is used to evaluate the effectiveness of his or her work." [Ref. 21: p. 298] Vroom's expectancy theory of work motivation says that individuals will perform at a certain performance level if the positive outcomes associated with that performance level outweigh the negative outcomes. [Ref. 22: p. 446] Intense dissatisfaction and feelings of unfair treatment can develop from differing sets of comparisons. As a result, personnel working in the same office or at essentially the same job will desire to have a performance appraisal system consistent with their workmates. But, this is not the case in work areas employing both civilian and military personnel,

because performance appraisals in the military tend to be inflated and, at any rate, it is different than the civilian appraisal system[14]. Consequently, differences can result which may ultimately lead to anxiety and resistance by one or the other with regard to the performance appraisal. Performance appraisals can affect the worker at any time, but the impact may have a greater effect on the unit when military and civilian personnel are working side by side and receiving appraisals which are different or are perceived to be different for essentially the same job performance. [Ref. 4: pp. 32-33] It is hard to predict whether it is an advantage or disadvantage to a particular conversion action, but it probably has a negative effect on morale of the unit.

7. Morale

Blum and Naylor define morale as follows:

> The possession of a feeling, on the part of the employee, of being accepted and belonging to a group of employees through adherence to common goals and confidence in the desirability of these goals" [Ref. 21: p. 379].

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[14]Officers and enlisted men are carefully rated at least once each year on extensive forms and in elaborate systems of evaluation of performance, personality, traits, and other factors. On the rating form for the civilian employee, however, there are three words: outstanding, satisfactory, and unsatisfactory. If the rater checks either outstanding or unsatisfactory, the rater must write out an additional explanation to justify the rating. If he checks satisfactory, however, he does not have to add or explain anything. Thus, an entire year's performance by a civilian employee can be totally evaluated by a mere check mark on a single sheet of paper. [Ref. 5: pp. 98-99]

This definition emphasizes feeling accepted by the work group; sharing common goals; and believing that these goals are desirable. Personnel attitudes, turnover, absenteeism, tardiness, and grievances are all measures of job satisfaction that refer to the extent to which the organization satisfies the need of the employees. A downturn in attitude, as a result of inequities perceived by either civilian or military personnel, will result in reduced morale and a corresponding reduced level of performance and readiness by the unit. Intermingling of military and civilian personnel creates the conditions for personnel of two very different groups to compare their backgrounds and current positions. The resulting comparisons of job terms (such as those in job descriptions, working conditions, or the inequality in pay for similar jobs) causes the difficulties that need to be considered with conversion projects. A perceived lack of equity between two groups of personnel is a cause of reduced morale, which results in individual decisions to eliminate the inequity. The easiest way for a young soldier to eliminate the problem is by leaving. Thus, the retention rate may go down. This assumption is supported by the observation made by Morthole. During the first phase of Mix Fix, an early conversion action taken by the Air Force, there was a noticeably adverse impact on airman morale and first-term airman retention. [Ref. 4: p. 34] Therefore, reduced morale may be a disadvantage in the military to civilian conversion.

On the other hand, conversion of some positions, such as the food service attendant functions, berthing compartment duty, or passageway cleaning on ships, which require relatively unskilled labor (and since many of the personnel are assigned to these undesired jobs temporarily) may have a positive effect on morale [Ref. 6: pp. 13-14].

8. Civilian Personnel Management

Wermuth (citing the Defense Manpower Commission) notes that several critical differences exist between the personnel systems for soldiers and civilians, resulting from differences in organic law, customs, traditions, roles, and underlying concepts. The Defense Manpower Commission lists six principal differences as follows:

Army Civilian Personnel System	Army Military Personnel System
. Open career system with entry possible at any level.	. Closed career system with entry possible only at bottom levels.
. Rank vested in the job.	. Rank vested in the person.
. Promotion competition from within or outside the Service.	. Promotion competition exclusively from within.
. Contractual relationship between worker and employer.	. Command relationship between worker and employer.
. Pay package similar to private sector, generally limited to base pay and occasional over-time.	. Pay package more comprehensive, including housing, subsistence, medical care, commissary and exchange privileges.
. Force heavily unionized.	. Minimum union impact.

The military system can be characterized as closed, person-oriented, and centralized, while the system governing the management of civilians is open, job-oriented, and decentralized. Military people usually enter at the bottom of the grade structure; they are trained and then, as they progress through the system in a sequence of career-broadening assignments, achieve appropriate rank and pay raises. Civilians, on the other hand, move in and out of the civil service, with grade and pay granted in the job rather than the individual. Partly because of these features, the military personnel system receives more attention; long-range centralized planning is necessary to ensure that people with the right skills and experience are available when they are needed. Since civilians can be hired and enter the system in any job at any level, long-term planning that includes training programs and career-broadening assignments are not considered as important. [Ref. 9: pp. 15-17]

In listing, above, the relationship between worker and employer, different contexts may cause difficulty with the term "employer." Who is the civilian's employer--the federal civil service? And who is the soldier's employer--his unit commander? There is a large sense in which the relationship evolving between both military and civilian employees and their employers is closer to a contractual nature than to command dynamics

Pay package is also undergoing evolution, expanding its coverage in portions of the private sector to include medical and dental coverage, support for dependents, pension contributions, holiday and annual leave, working conditions, cost of living supplements, access to company stores, and other benefits. [Ref. 5: pp. 76-77]

The last item, above, on unions also needs amplification. Title VII of the Civil Service Reform Act permits the organization and representation of federal employees by a union, as well as their right to arbitrate grievances. The employees have the right to form, join, or assist a union, and they can bargain collectively or be represented by a union. Failure to bargain by either military management or the union is an unfair labor practice according to the law. However, negotiations are prohibited if the negotiations adversely affect the budget or degrade the mission, organization, security, discipline, or other significant areas. Strikes may be prohibited based on the premise that government employees provide essential services in the public interest. [Ref. 4: p. 35]

In any event, the six contrasts listed above certainly distinguish the two forms of federal employment from each other. Supervisors are required to follow sound management principles in their daily conduct and operations with civilian personnel. One of the specific limitations requires a supervisor to coordinate proposed decisions which affect the

civilian personnel with higher level supervisors and with the central civilian personnel office when required. This means increased coordination for military supervisors, which, in turn, creates an increased workload for them, and still may not be as effective as expected[15]. Without sound management, unions have the potential to create difficulties, and a strike could be damaging to the readiness of the Services. Especially, strikes by employees in smaller units in the field would have a more immediate effect on the unit's own mission, and would probably be covered by military personnel. While civilians can bargain for better terms and working conditions, the military member is bound by his oath and his service contract to follow official orders, and this would undoubtedly affect the attitude of military personnel who are prohibited by law from unionizing [Ref. 6: pp. 51-52]. Unions, through the possibility of strikes and the increased participation to negotiate terms, may be considered a disadvantage to conversion actions. [Ref. 4: p. 36]

Flexibility in assigning civilians may also be a problem to consider, although the civil service rules on the management of civilians do not constitute a significant obstacle. Furthermore, since the civilians under discussion are to be used in positions not affected by the military

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[15]1964-1968 Civilianization Program did not achieve its full potential because of inadequate guidance and weaknesses in internal management controls [Ref. 7: p. 28].

rotation requirements, the need for their reassignment should be minimal [Ref. 13: p. 55].

9. Discipline

Disciplinary actions are handled in a different manner by the military and by civilians. The intent of civilian discipline is to attain and maintain a constructive working environment. In fact, this is also true for military personnel, but it is oriented towards the combat environment in order to prevent a breakdown of discipline that could have tragic results. With the civilian workforce, progressive discipline typically follows the steps of an oral warning, written warning, disciplinary layoff or demotion, or discharge. These steps are part of the grievance process in most collective bargaining agreements with civilians, but with the military, there is no union to assist the worker. In the military, violations of discipline are punishable by the Uniform Code of Military Justice (UCMJ). While the two systems basically have the same goal, the methods of punishment are not the same. As a result, discipline may not be equitable in the view of the civilian or the military person. [Ref. 4: p. 37] Thus, it needs to be considered before any effort at civilianization is made.

"In time of war", the UCMJ states, "persons serving with or accompanying an armed force in the field are subject to the Uniform Code of Military Justice." Subsequently, the

U.S. Supreme Court held unconstitutional the exercise of court-martial jurisdiction over civilians in time of peace or undeclared war and thus limited military jurisdiction over civilians in a subsequent UMCJ article, which states that "persons serving with, employed by, or accompanying the armed forces outside the United States or territories are subject to the code." [Ref. 6: pp. 29-30] Therefore, peacetime application of discipline for civilians must follow the procedures summarized above.

10. Legal Concerns

If injured while working aboard a ship, a civil service employee may file a claim against the government under the Federal Employees Compensation Act. This act defines and limits the recovery payment. An injured merchant seaman, on the other hand, can file suit directly against his employer, claiming that the ship was unseaworthy. There are no statutory limits to the amount of recovery in this instance. Legal defense against the charge of "failing to provide a seaworthy ship" would be difficult for the Navy because its ships do not, in most cases, meet the rules and requirements for ship construction as described by the American Bureau of Shipping and the U.S. Coast Guard. "Unseaworthiness" could be charged for such deficiencies as inadequate safety lighting, a missing guard rail, faulty machinery, or a fire hazard if contract mariners were injured.

Also, warships are granted certain sovereign immunity[16] from the jurisdiction of other states by the Geneva Convention of 1958 because warships are owned and operated by a state and used on government non-commercial service. A warship, in addition to belonging to the naval forces of a state, bearing external markings, being under the command of a commissioned officer must also be manned by a crew that is under regular naval discipline. A vessel's status as a warship might be questionable if manned by a large enough number of contractor employees to be considered as not under military discipline.

Currently, the U.S. Government is not considered an employer, so military and civil service work spaces are exempt from the Occupational Safety and Health Act (OSHA) regulations and inspections. If, however, contractor employees were aboard Navy vessels or aircraft, the civilian contractor would be the actual employer and spaces could be inspected at a reasonable time. The primary concern with OSHA regulations is that any contract employee could complain about ventilation, heat, lighting, or safety violations, for example, and the Navy or the contractor would be subject to a violation or potential work stoppage. Habitability standards for merchant seamen and civil service mariners are governed by U.S. Maritime Administration Standard Specifications, U.S. Code Title 46,

[16]This immunity would include such things as U.S. control over persons on board, freedom from search and arrest, and exemption from foreign taxation.

and Military Sealift Command Instructions. Even the compromised habitability standards for old-type ships would be beyond active Navy fleet capability if large numbers of civilians were placed on board. Maritime standards are clearly too liberal and could not be implemented on warships. Negotiations with employees or contractors certainly would be required. [Ref. 6: pp. 35-38, 43-45]

11. Promotion Possibilities

The work situation, which can affect job motivation, consists of two categories: (1)the actions, policies, and culture of the organization as a whole; and (2)the immediate work environment. Personnel policies, such as wage scales and employee benefits (vacations, pensions, and the like), generally have little impact on individual performance. But these policies do affect the desire of employees to remain with or leave the organization and its ability to attract new employees. The reward system of the organization, on the other hand, guides the actions that generally have the greatest impact on the motivation and performance of individual employees. Salary increases, bonuses, and promotions can be strong motivators of individual performance. [Ref. 22: p.439] It is vitally important that personnel have the chance to progress through the expected means of advancement, otherwise the individuals will leave when they have their most productive years ahead of them [Ref. 4: p. 38]. The conversion

of spaces from military to civilian in the senior pay grades of a career field may reduce the promotion possibilities of military personnel in the lower grades and increase personnel turbulence. Another example, is the Navy's civilianization policy. The Navy devised a method to reflect the ratings (or occupations) of mission criticality, replacement costs, sea-tour leng . and reenlistment bonus levels. The result was a standardized ranking of ratings from low to high. Lower-ranked ratings were examined for possible civilianization, and most of them were in shore billets. Since most of the women in the Navy are assigned to these shore billets, civilian substitution could adversely affect their opportunities for promotion. [Ref. 23: pp. 48, 87] This is a key problem which has to be handled by properly designing any civilianization program. A solution would be making proportionate conversions in all pay grades or starting conversions with the lower grades [Ref. 13: pp. 16-17].

On the other hand, the constraints on the substitution of enlisted positions will place some limits on the number of officer positions that can be substituted, since an adequate military chain of command should be maintained to ensure that enlisted personnel are utilized most effectively. [Ref. 1: p. I-5-18]

12. Continuity of Operations

A difference in philosophy exists between the military and the civilian way of life with regard to moving personnel. The military continues to move personnel once every four to five years on the average. One of the primary reasons for moving is to provide a broad level of experience and a common knowledge base for military personnel to use which has the advantage of keeping the individuals exposed to new ideas and procedures that develop throughout DoD [Ref. 5: p. 80]. Exposure to new ideas or even long forgotten ones is a means of studying history to prevent mistakes from being repeated. However, civilians tend to prefer stability and move less than military personnel. They are more stable, tending to [illegible] one job for longer periods of time. As a result, they not only see what happened within their own jobs across several years, but they also remember past procedures that did not work, which a military person may try to reintroduce. This stability of the civilians provides a continuity of operations[17]; therefore, in this context, civilians offer an advantage in the military to civilian conversion. [Ref. 4: pp. 38-39]

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[17]For example, the primary advantage of using civilians as DoD program managers would be program continuity, transfer of lessons learned, and better working relationships with the functional directorates and laboratories because of the reduced changing of the program managers. [Ref. 10: pp. 34-35]

13. Readiness

Military personnel comprise the force that is trained and ready for immediate deployment anywhere needed to support national interests. It is also possible to deploy some support units with the combat units during a wartime situation. If civilian personnel were assigned to these units, they could not deploy with their units to a combat zone. Consequently, replacements from other military sources would have to be found to replace them or the additional workload must be absorbed by the military personnel.

Mobility requirements and the absorption of duties creates a condition related to Herzberg's Two-Factor Theory. Herzberg proposed two general classes of work variables: satisfiers--content factors that result in satisfaction--and dissatisfiers--context factors producing dissatisfaction. Because of this organization, the theory is known as the Two-Factor Theory. [Ref. 21: p. 403] In this context, good working conditions do not necessarily lead to satisfaction; however, the absence of good working conditions does lead to employee dissatisfaction. For the military individual, mobility and the absorption of work due to the loss of a workmate is generally accepted as a condition of military life. Borrowing personnel to fill a vacant position requires the person to do a job that he or she was not originally designated to accomplish. Depending on the individual, this may affect his or her personal attitude and morale. If the unit commander decides

not to fill the old position at all, the unit operates in a degraded manner with production and quality falling and lower overall unit morale. Therefore, mobility and the possibility of work absorption are elements that must be considered during any conversion project, especially those that require mobility. [Ref. 4: pp. 39-40]

On the other hand, different manning philosophies between the military and the civilian may also deteriorate readiness. For example, the Navy provides a considerable number of personnel for range and depth in watch standers at ship operating and control stations, for maintenance, and for damage control. And, most technical-rated petty officers have watch, quarter, and station bill battle condition assignments which relate to their specialty. Many of these positions are critical to the fighting capability of the ship or aircraft. While there is some redundancy in combat assignments, large-scale deletion of military billets must be limited by combat watch assignments and their requirements for military duty sections in port. [Ref. 6: p. 85] Although there is a certain need, the Navy Civil Service and the commercial contract managers place reliance upon unattended equipment and the employment of off-watch personnel during underway replenishment operations. Consequently, the two civilianized options have limited capability to repair combat damage, fight fires, or sustain casualties. [Ref. 19: pp. 4-5]

In contrast to this lack of mobility of civilians which may deteriorate overall readiness, in another example, Blanco claims that using civilians in shipyards to accomplish work that is normally done by ship's crew during overhaul, releases the crewmen of these ships from overhaul work. They may be reassigned to ships at sea, or to the Navy Shore Intermediate Maintenance Activities (SIMA), thereby alleviating critical shortages and improving overall readiness, or they may be trained during overhaul to increase the crew's skill levels. [Ref. 14: pp. 10-12] Because of these both positive and negative implications foreseen, in each conversion decision, the unique properties and possible outcomes of each action should be considered before taking any action.

14. Training

Training is a factor that may be an advantage for the civilian worker occupying a military position. Military personnel receive a specialized training for their particular field and receive a specialty code to indicate their specialized training on their records. Military personnel having the same codes can perform their work anywhere in the world in that field and normally do not perform in another field unless they have cross-training. Civilian personnel typically have broader levels of training and experience;

thus, they are more capable of performing an increased number of tasks in a more efficient manner.

In contrast to this applicability of experience to their respective fields, training requirements for the military are much higher than those for civilian counterparts since they receive associated military training not necessarily related to their specialty. On the other hand, civilians only needed familiarization training for their positions since they already had the required background that the job description required; therefore, civilianization was expected to reduce the costs and time lost for training [Ref. 4: pp. 41-42]. Moreover, the use of military personnel in nonmilitary tasks could be an ineffective and inefficient use of personnel, due to these training costs of military personnel [Ref. 3: pp. 59-60]. However, the federal government has been accused of being dominated by technical professionals who do not respond clearly enough to the need for learning more about management. It is said that large private companies invest 6 to 8 times as much as the average federal agency does in the development of their executives, and the military services spend about 8 times the amount in improving the managerial effectiveness of the officer corps as is spent on civilian managers. [Ref. 5: p. 85] In fact, the in-service training costs of civilian manpower are far from negligible, especially in the more sophisticated technical skills and at the managerial level [Ref. 1: p. I-5-9], and it is expected

to increase in the future when we consider the increasing complexity of systems being used and managerial concerns.

Another issue is the social cost of training. The cost estimates used make no provision for the possible social costs involved in competing with the civilian economy for specific skills. Medical technicians are a good example. These skills are critically short in the civilian sector. Although the Services may be able to hire these skills away from the civilian sector at budget costs lower than those required for service recruitment and training of military personnel, the overall social costs of reducing the civilian labor supply of these skills may be significant. Therefore, the social benefits of training medical technicians in the military may justify any additional budget costs. [Ref. 1: p. I-5-11]

15. Findings

Conversions are very complex actions which require an in-depth analysis of all the consequences involved from cost to the morale implications and other human resource factors that may affect the unit. To rely on cost alone or the release of military personnel for other combat related duties, without analyzing the situation, may result in decreased unit cohesion and readiness. Some of the factors discussed in this section are neither advantage or disadvantage to a conversion action, while very few of them are considered to be advantages. On the other hand, most of them are disadvantages which affect unit

readiness. It is highly recommended that cost and the intended release of military personnel for combat duties should not be the only factors used to determine conversion actions. Rather, an investigation including the human resource aspects must also be accomplished to determine the true picture in each conversion regarding the advantages and disadvantages of any future position conversions.

III. STATISTICAL ANALYSIS OF MILITARY-CIVILIAN TRADE-OFFS

The endless supply of inexpensive labor provided by the draft fostered an environment in which efficient manpower management was less important than simply meeting requirements. Resource allocation frequently was driven more by history and tradition than by resource costs, and this caused substantial inefficiencies. Introduction of the All-Volunteer Force, coupled with increased public awareness of expanding manpower costs, changed this situation. More visible and tighter defense budgets mean that defense capability will be severely eroded unless alternative combinations of inputs are found. The military must find ways to control cost growth in the future and to compete effectively for qualified personnel in the civilian market. Effective resource allocation and manpower management are key parameters in finding cost-effective alternatives. [Ref. 2: p. 269]

A. RESOURCE ALLOCATION

Resource allocation refers to the distribution of defense resources among various missions. Inputs include equipment (military hardware, such as ships, planes, and artillery), supplies, and manpower, among others. The point Cooper makes is that there are lots of ways of achieving a given mission, each using a different combination of the basic resources.

Resource allocation refers to how the military chooses different combinations of inputs and different missions. Resource allocation is very important since each resource has costs associated with it.

There are many different technologically efficient alternatives for achieving a given mission but, given the prices of the inputs, there is only one combination that is economically efficient. Thus, the amount of defense that can be obtained from a given amount of defense spending is dependent upon how resources are allocated among missions, and how inputs are combined. To determine the appropriate mix of inputs, attention should be focused on changes in the relative prices of these inputs and on the opportunities for substitution. [Ref. 2: pp. 269-277] To form a background for our analysis, in the following sections we will briefly examine the issue of capital-labor resource allocation, the choice of military and civilian personnel, and the distribution of military personnel between first-termers and careerists.

1. Capital-Labor Substitution

At the most aggregate level of decisionmaking, one important decision in the question of resource allocation is the mix of capital and labor. For example, North Atlantic Treaty Organization (NATO) and Warsaw Pact are compared with each other not only in terms of manpower strengths, but also

in terms of capital equipment, such as the number of aircraft, ships, and tanks held by both sides. The cost of maintaining the defense establishment is dependent on the mix of capital and labor inputs.

Capital-labor decisions are motivated by several factors. The most obvious factor is that the draft artificially depressed the budget costs of military personnel and encouraged an overemployment of labor resources relative to the optimum. The removal of the draft, with concurrent pay increase, altered the cost of manpower relative to the cost of other resources. [Ref. 2: p. 278] Given the historical patterns of capital and labor usage and their relative costs, we can assess the efficiency of defense resource allocation. This assessment allows us to determine the effects that the removal of the draft had for allocative efficiency, and whether there are opportunities for efficiency gains in the future, in the form of reduced defense budgets for a given level of capability or increased defense capability for a given budget level. Economic theory tells us that as the wage-rental ratio increases, the military has an incentive to substitute capital inputs for labor. [Ref. 2: pp. 284-285] For example, analysis of the Navy's Perry class (FFG-7) frigate program suggests that the implementation of a gas turbine power plant, and the newer weapon system resulted in a reduction of approximately 100 men compared with the old Knox class (FF-1052) frigate. That is, if a steam power plant had

been chosen for the FFG-7, and old weapon systems had been continued, each ship would have required about 100 additional personnel to man the ship. [Ref. 24: pp. 14-15]

Further capital-labor substitution is possible by the types of labor-saving technological change produced by the economy. The continued rise in the cost of labor relative to the cost of capital, together with labor-saving technological changes, makes even greater capital-labor substitution likely in the future. [Ref. 2: p. 290]

2. Military-Civilian Substitution

In addition to capital-labor substitution, there are equally important choices within each of these broad categories. This section deals with labor-labor substitution possibilities, in particular military versus civilian substitution.

As discussed in the previous chapter, manning decisions have been the result of numerous factors, including military requirements, personnel management constraints, cost-effectiveness, and tradition. Military requirements means that there are some job assignments such as the infantry that are exclusively military in nature. For these types of assignments, the basic nature of the job dictates whether it must be manned by someone in uniform. Cooper estimates the number of such jobs to be relatively small, no more than 25 percent of the combined military and civilian personnel

strength. In addition to those jobs, there are a number of others that must be manned by uniformed personnel for mobilization purposes. Cooper, in his study of Military Manpower and All-Volunteer Force, assumed the magnitude of this mobilization requirement to account for another 25 percent of the uniformed force.

The remainder of the jobs could theoretically be manned by either military or civilian personnel on the basis of the job tasks. But many of these are in fact best manned by uniformed personnel in order to satisfy personnel management constraints, such as the maintenance of an adequate rotation base or the provision of sufficient career opportunities. A simple man-for-man comparison might appear to be cost-effective, but the end result may not be when these broader considerations are taken into account. On the other hand, those military requirements and personnel management constraints that limit substitution must be separated from those that are part of tradition. For example, it has been argued that activities near combat zones must be manned by uniformed personnel. In fact, the Vietnam experience showed that civilian contractors can perform satisfactorily in some support activities.[18] [Ref. 2: p. 292]

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[18]Civilian contractors provided key logistical support in Vietnam, including the operation of supply depots and the flying of cargo missions, often very close to actual combat.

The civilian effort consists of several different elements, including direct-hire civilian employees of the DoD, indirect hires, nonappropriated fund employees, and contract hires. This study focuses on the direct-hire civilian employees, which constitute two thirds of the total DoD civilian workforce.

One of the problems in evaluating the desirability of military-civilian substitution is the lack of good measures for making cost comparisons. Ideally, wage rates of civilian and military personnel could be used to evaluate possible substitution policies. However, the presence of large nonwage costs, such as training costs and deferred retirement annuities, makes it impossible to fully capture the cost implications by the use of simple wage comparisons. The policy question concerns how the DoD and Congress have historically responded in terms of the allocation of manpower resources between military and civilian personnel. If the DoD operates as a cost-minimizing agency, it should respond to changes in the relative prices of the two options. As the cost of military personnel falls relative to the cost of direct hires, DoD should respond by decreasing the use of direct hires relative to uniformed personnel. Conversely, as the cost of military personnel begins to rise relative to the cost of direct hires, the Services again should respond by increasing the use of direct hires relative to military personnel. In the following section, we evaluate the past military-civilian

resource allocation in DoD by analyzing the substitution policy in the 1974-1989 time period. But, before starting that section, the remainder of this section briefly examines the mix of military personnel between first-termers and careerists.

3. The First-Term/Career Mix

The distribution of military personnel by length of service has been recognized as one of the major manpower planning issues confronting the DoD. The concern for the years-of-service distribution of the force derives from two particular aspects of the military personnel system: its closed nature, and the strong link between promotion and length of service. The closed nature of the military personnel system means that the military draws its experienced personnel within the system. Thus, the Services must maintain an adequate number of junior personnel to maintain an adequate number of experienced employees. [Ref. 2: p. 303]

From a resource allocation perspective, the problem of choosing the experience mix can be simplified by viewing it in terms of first-term and career mix.[19] This enlisted experience mix is a significant factor in cost and capability, and in the personnel issues of grade structure and promotion

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[19]Although the Services differ in length of their enlistment obligations, it is convenient to view those with less than four years of years as first-termers and those with four or more years of service as careerists.

opportunity given the closed nature of the military as mentioned above. However, with the tremendous increase in military manpower and personnel costs, as Albrecht pointed out in his study of "Labor Substitution in the Military Environment", attention has shifted to considerations of economic efficiency in the allocation of these resources.

An efficient mix of first-termers and careerists should either minimize total costs at a specified level of effectiveness or maximize effectiveness for a given total cost. In theory, these mixes are achieved when the marginal costs of first-term and career personnel just offset their marginal contribution to military effectiveness. The difficulty is derived from the inability to accurately assess the relative productivity and substitutability of various categories of military labor. [Ref. 25: pp. 5-13]

From a policy perspective, the findings of Albrecht's optimization analysis indicate that a redistribution of manpower resources toward a more senior force in high skill occupations and toward a more junior force in lower skill occupations would be cost effective, despite the fact that reenlistment bonuses may be required to retain additional careerists in high skill occupations.

B. EMPIRICAL ANALYSIS

The preceding discussions provide the basis for evaluating past military-civilian manpower resource allocation in the

DoD. As indicated previously, if the cost of military personnel falls relative to the cost of direct hires, efficiency considerations would dictate that DoD respond by decreasing the use of direct hires. To test whether DoD has, in fact, responded in the directions dictated by efficiency is the objective of the next section.

1. **Variable Selection and Model Specification**

The demand for labor may be derived from the demand by a nation, its citizens or their representatives, for national security or defense expenditures. DeBoer and Brorsen assume the existence of a social welfare function

$$W = W(M, C) \tag{1}$$

where

W = social welfare;

M = national security; and

C = aggregate civilian purchases.

The defense department combines military inputs to produce national security. The security production function is

$$M = M(L, K, I) \tag{2}$$

where

L = military labor;

K = military capital; and

I = a measure of international security conditions.

The nation's legislature is assumed to maximize social welfare through its budget and tax decisions, and to purchase the security maximizing combinations of inputs, subject to the budget constraint

$$Y = C + wL + rK \tag{3}$$

where

Y = national income;

w = the military wage; and

r = the rental cost of military capital.

The constrained maximization of equation 1 subject to equation 3 yields a demand for military labor function in national income, relative military input prices, and international security conditions,

$$L = L(Y, w, r, I) \tag{4}$$

[Ref. 26: p. 857]

To apply the demand model to defense civilian labor, we use the number of full-time, permanent civilian personnel in DoD at the end of each fiscal year as the dependent variable. Because of differences in calculating their respective wages and differences in substitution

possibilities, wage-rate and nonwage-rate jobs are treated in two different demand functions.

The price of military labor in this study is calculated as active duty regular military compensation. For defense manpower requirements, full-time, permanent civilians and active duty military personnel are assumed to be substitutable for each other; wage-rate workers are assumed to be substitutes for enlistees and nonwage-rate civilian employees are assumed to be substitutes for officers.

All personnel entitled to active duty compensation receive the following elements:

- Basic Pay;
- Basic Allowance for Quarters, Variable Housing Allowance, and Overseas Station Housing Allowance;
- Basic Allowance for Subsistence;
- Federal Income Tax Advantage. [Ref. 27: p. 20]

Such personnel may also receive other elements of military compensation depending on the nature of their duty assignment, their military specialty, where they are stationed, their conditions of service, and so forth. But, for our simple historical comparison, we did not attempt to calculate cost savings by substituting one for the other; regular military compensation will meet our expectations.

The prices of civilian labor employed in defense are measured as the compensation for full-time, permanent

employees. Wage-rate and nonwage-rate employees are placed in two separate categories. The compensation numbers are derived by assuming that full-time employees work 40 hours a week, and do not include the other pays--primarily overtime and holiday pay--and benefits--life insurance, health benefits, worker's compensation, and pension and retirement benefits. Since benefits are not included in military compensation numbers, these basic compensation numbers for civilian employees are compatible with active duty regular military compensation.

If DoD responds as the efficiency hypothesis suggests, and if civilian and uniformed personnel are substitutable, the coefficient on the civilian defense labor price should be negative, while the coefficient on military pay should be positive.

Gross national product is used as the income measure, and is expected to affect labor demand positively, assuming that national security is a normal good and civilian labor contributes positively to it. DeBoer and Brorsen point out that several studies have found a positive relationship between national income and military purchases, though none have looked at labor specifically [Ref. 26: p. 858].

Increases in international tensions require more inputs to produce a given level of security, though the rise in the implicit price of security could cause the legislature to shift toward civilian purchases. We include a dummy variable for the Reagan administration, to test for

significant variations in security during his administration, which was a military build up period. President Reagan took office in fiscal year 1981, so that the Reagan administration dummy equals one beginning in fiscal year 1982. The dummy measures deviations from the Ford-Carter administration (fiscal years 1974-1981).

With these four explanatory variables the end strength demand model for wage-rate workers is:

$$ESTRENGTH_w = f(ENLRMC, COMP_w, GNP, REAGAN)$$

where

$ESTRENGTH_w$	=	end strength, the annual end-of-year level of wage-rate workers in the armed forces;
ENLRMC	=	enlisted regular military compensation;
$COMP_w$	=	wage-rate worker's compensation;
GNP	=	gross national product;
REAGAN	=	a dummy variable for the Reagan administration, fiscal 1982-1989.

The end strength demand model for nonwage-rate employees is:

$$ESTRENGTH_n = f(OFFRMC, COMP_n, GNP, REAGAN)$$

where

$ESTRENGTH_n$	=	end strength, the annual end-of-year level of nonwage-rate workers in the armed forces;
OFFRMC	=	officer regular military compensation;

$COMP_n$	= nonwage-rate worker's compensation;
GNP	= gross national product;
REAGAN	= a dummy variable for the Reagan administration, fiscal 1982-1989.

2. Data and Estimation

Data were taken from different sources and compiled together for the 1974-1989 time period, all on a fiscal year basis. Average salary and numbers of people in each category for all permanent, full-time, wage board and non-wage board civilian employees by grade were derived from March 1990 Defense Manpower Data Center's Civilian Master File,[20] and are displayed in Appendix A. Detailed regular military compensation tables for officers and enlistees by grade are obtained from the Office of the Assistant Secretary of Defense Force Management and Policy Compensation Directorate, and are presented in Appendix B. National defense spending and Gross National Product, in current and constant Fiscal Year 1982 dollars, for the same 1974-1989 period were derived from the Fiscal Year 1991 Historical Tables of the Office of the Management and Budget, and are presented in Appendix C.

Descriptive statistics were calculated to present the data in such a way that the meaningful essentials of the data can be extracted and grasped easily. Arithmetic mean, which

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[20]Data were supplied by the Defense Manpower Data Center, Monterey, California.

is the most popular and useful measure of central location, and standard deviation, which is the positive square root of the variance of the measurements, are presented in Table III.

TABLE III

DESCRIPTIVE STATISTICS

Variables	Mean	Std. Deviation
$ESTRENGTH_w$	282487.00	24063.23
$ESTRENGTH_n$	593246.00	38331.46
OFFRMC	$31625.55	8222.00
ENLRMC	$14788.30	4069.62
$COMP_w$	$20081.04	4878.02
$COMP_n$	$21408.87	5082.60
DEFSPEND (in billions)	$180.42	79.78
GNP (in billions)	$3163.47	1195.32

Mean endstrengths of wage and nonwage-rate positions are 282,487 and 593,246, respectively during 1974-1989 time period. Average compensations of officers and nonwage-rate civilians are $31,626 and $21,409, respectively during the same time frame. Officers and nonwage-rate civilians are accepted to be substitutable for each other. Average payments for enlistees and wage-rate civilians are $14,788 and $20,081, respectively during the same time period. Like officer-nonwage-rate civilians trade-off, enlistees and wage-rate civilians are substitutable for each other. Average gross national product and defense spending for 1974-1989 time period are $3,163 and $180 billion respectively.

The models for wage-rate and nonwage-rate demand are first estimated using ordinary least squares (OLS) regression model by using current year values, plus with real values adjusted to 1982 price level, and finally using two stage least squares (2SLS) technique.

3. Estimation Results

Estimation results for ordinary least squares technique using current year values are reported in Tables IV and V.

In the end-strength demand equation for the wage-rate workers, in Table IV, wage-rate compensation has the expected negative coefficient, and is statistically significant. The other factor price coefficient, enlisted regular military

compensation, also has the expected positive sign. Though the coefficient is not significant, it demonstrates that DoD responded to factor price changes by substituting one for the other. The insignificance of enlisted regular military compensation may be due to its collinearity with wage-rate worker's compensation (correlation coefficient = .74).

TABLE IV

ESTIMATION RESULTS FOR THE WAGE-RATE LABOR DEMAND

(OLS ESTIMATION USING CURRENT NUMBERS)

Independent Variables	Coefficients	t-statistics
ENLRMC	3.780	1.734
$COMP_w$	-6.570	-4.230***
GNP	-9.723	-2.099**
REAGAN	10555.430	2.349**
INTERCEPT	384002.920	38.726***
F-VALUE		117.993***
R-SQUARE		0.977

* Significant at 10 percent level.

** Significant at 5 percent level.

*** Significant at 1 percent level.

Gross national product has an unexpected negative coefficient, which is statistically significant. We had expected that the economic growth would increase the demand for labor overall. But, probably because of the shift in defense civilian workforce toward non-wage jobs during this time period, we observed this negative effect on the end strength of wage-rate positions. The same gradual shift was indicated by Cooper [Ref. 2: p. 295]. The dummy variable coefficient for Reagan administration indicates positive difference in the taste for civilian labor comparing to the previous Ford-Carter period, perhaps associated with the military build up.

In the end-strength demand equation for the nonwage-rate workers, in Table V, average salary for nonwage-rate employees has negative coefficient, as expected, and is significant. The other factor price coefficient, officer regular military compensation, also has the expected positive sign, and is significant at the 10 percent level of significance. These results suggest that DoD responded to factor price changes by substituting one input for the other in the direction suggested by efficiency. Gross national product has a positive, significant coefficient. Economic growth increased the demand for nonwage-rate labor.

The dummy variable coefficient for Reagan administration indicates the same significant and positive difference in the taste for civilian labor as for wage-rate jobs in Table IV.

TABLE V

ESTIMATION RESULTS FOR THE NONWAGE-RATE LABOR DEMAND

(OLS ESTIMATION USING CURRENT NUMBERS)

Independent Variables	Coefficients	t-statistics
OFFRMC	5.312	1.826*
$COMP_n$	-38.314	-3.568***
GNP	132.828	4.950***
REAGAN	61813.327	5.267***
INTERCEPT	794403.660	11.964***
F-VALUE		62.634***
R-SQUARE		0.958

* Significant at 10 percent level.

** Significant at 5 percent level.

*** Significant at 1 percent level.

As a second step to catch the real effect, each factor price is divided by the composite deflator which adjusts the numbers to 1982 prices. In addition, we used gross national product in 1982 figures to insure homogeneity. These estimation results are presented in Tables VI and VII.

TABLE VI

ESTIMATION RESULTS FOR THE WAGE-RATE LABOR DEMAND

(OLS ESTIMATION USING CONSTANT 1982 NUMBERS)

Independent Variables	Coefficients	t-statistics
ENLRMC	12.447	2.335**
$COMP_w$	9.973	1.581
GNP	-37.835	-4.803***
REAGAN	3120.835	0.371
INTERCEPT	-16167.907	-0.071
F-VALUE		39.369***
R-SQUARE		0.935

* Significant at 10 percent level.

** Significant at 5 percent level.

*** Significant at 1 percent level.

In the demand equations, we observed the same positive coefficients for enlisted and officer regular military compensation, which means that as the price of military personnel increased, DoD responded by substituting civilians for military.

TABLE VII

ESTIMATION RESULTS FOR THE NONWAGE-RATE LABOR DEMAND

(OLS ESTIMATION USING CONSTANT 1982 NUMBERS)

Independent Variables	Coefficients	t-statistics
OFFRMC	4.877	1.753*
$COMP_n$	9.579	3.157***
GNP	62.302	6.272***
REAGAN	45879.012	5.478***
INTERCEPT	-34123.121	-0.265
F-VALUE		56.305***
R-SQUARE		0.953

* Significant at 10 percent level.

** Significant at 5 percent level.

*** Significant at 1 percent level.

However, in contrast to estimation results in current numbers, civilian compensation coefficients have an unexpected positive sign in both estimations, though it is not significant for wage-rate workers. It means that DoD did not respond to price changes of civilian employees in real terms, although it did respond to changes in current values. It should have substituted military personnel for civilian as the real price of civilians had gone up. Gross national product and dummy variable have the same signs as in the first estimations.

As a third step, we suspected that a simultaneity bias may affect the demand models. Compensation figures, explanatory variables of our civilian labor demand model, may be a function of the level of employment in a truly simultaneous model. To address this question, we specified two supply equations for each civilian group:

$$COMP_w = f(ESTRENGTH_w, DEFSPEND, REAGAN)$$

$$COMP_n = f(ESTRENGTH_n, DEFSPEND, REAGAN)$$

where

$COMP_w$ = wage-rate worker's compensation;

$COMP_n$ = nonwage-rate employee's compensation;

$ESTRENGTH_w$ = end strength, the annual end-of-year level of wage-rate workers in the armed forces;

$ESTRENGTH_n$ = end strength, the annual end-of-year level of nonwage-rate employees in the armed forces;

DEFSPEND = defense spending; and

REAGAN = dummy variable for the Reagan administration, fiscal (1982-1989).

The end strength of wage-rate and nonwage-rate workers and their respective compensation were assumed to be endogenous variables in the simultaneous system. All the other variables are treated as exogenous and used as instruments to explain the endogenous variables. The models are estimated using two stage least squares, and estimation results are reported in Table VIII and Table X for the demand functions, and in Table IX and Table XI for the supply functions.

In the two stage least squares estimation for the wage-rate workers demand equation in Table VIII we observed the same effects as in the ordinary least squares estimation: own-price has a negative coefficient and the price of enlisted military personnel has a positive coefficient. That means DoD responded correctly to factor price changes, even when the simultaneity was captured. DoD employed less civilian as the price of wage-rate workers increased. DoD also responded to changes in price level of military personnel by substituting more civilians.

The only difference in two stage least squares estimation from the ordinary least squares estimation is that the negative effect of gross national product, and the

TABLE VIII

ESTIMATION RESULTS FOR THE WAGE-RATE LABOR DEMAND

(TWO STAGE LEAST SQUARES ESTIMATION)

Independent Variables	Coefficients	t-statistics
ENLRMC	11.179	1.739*
$COMP_w$	-13.725	-2.400**
GNP	-6.224	-0.749
REAGAN	11573.093	1.498
INTERCEPT	406679.020	17.413***
F-VALUE		40.191***
R-SQUARE		0.936

* Significant at 10 percent level.

** Significant at 5 percent level.

*** Significant at 1 percent level.

positive effect of the Reagan administration on the end strength of wage-rate worker are not significant anymore for wage-rate workers in Table VIII.

TABLE IX

ESTIMATION RESULTS FOR THE WAGE-RATE COMPENSATION

(TWO STAGE LEAST SQUARES ESTIMATION FOR THE SUPPLY EQUATION)

Independent Variables	Coefficients	t-statistics
$ESTRENGTH_w$	-0.129	-5.517***
DEFSPEND	13.459	1.367
REAGAN	1546.431	1.656
INTERCEPT	53366.439	6.710***
F-VALUE		220.651***
R-SQUARE		0.982

* Significant at 10 percent level.

** Significant at 5 percent level.

*** Significant at 1 percent level.

In the nonwage-rate workers' demand estimation using two stage least squares technique in Table X, the effects are exactly in the same direction as they were in ordinary least squares estimation.

TABLE X

ESTIMATION RESULTS FOR THE NONWAGE-RATE LABOR DEMAND

(TWO STAGE LEAST SQUARES ESTIMATION)

Independent Variables	Coefficients	t-statistics
OFFRMC	10.844	2.420**
$COMP_n$	-61.205	-3.521***
GNP	187.194	4.409***
REAGAN	76208.515	4.823***
INTERCEPT	930320.030	8.816***
F-VALUE		45.172***
R-SQUARE		0.943

* Significant at 10 percent level.

** Significant at 5 percent level.

*** Significant at 1 percent level.

The only difference is that the coefficient of the other factor price (officer regular military compensation) is significant in the new estimation, while it was not significant in ordinary least squares estimation.

TABLE XI

ESTIMATION RESULTS FOR THE NONWAGE-RATE COMPENSATION

(TWO STAGE LEAST SQUARES ESTIMATION FOR THE SUPPLY EQUATION)

Independent Variables	Coefficients	t-statistics
$ESTRENGTH_n$	-0.087	-5.426***
DEFSPEND	101.316	12.489***
REAGAN	-299.905	-0.413
INTERCEPT	54773.514	6.630***
F-VALUE		362.510***
R-SQUARE		0.989

* Significant at 10 percent level.

** Significant at 5 percent level.

*** Significant at 1 percent level.

C. FINDINGS

As discussed previously, if the cost of uniformed military personnel falls relative to the cost of direct hires, efficiency would dictate that DoD respond by decreasing the use of direct hires.

Ordinary and two stage least squares estimations for both wage-rate and nonwage-rate equations demonstrated that own-price has negative and the price of military personnel has a positive effect on the end strength of defense civilians. These results indicate that DoD responded correctly to factor price changes, even when potential simultaneity bias was accounted for. DoD employed fewer civilians as the price of wage-rate workers increased and vice versa. In another words, it responded to changes in price level of military personnel by substituting more civilians.

However, in contrast to estimation results in current numbers, in the second estimation using real figures, civilian compensation coefficients have a positive sign in both estimations, though it is not significant for wage-rate workers, in Table IV. It means that DoD did not respond to changes in the real price of civilian employees. It should have substituted military personnel for civilians as the real price of civilians had gone up. DoD responded to the price changes in real figures in only one direction: it employed more civilians as the price of military personnel increased

but it did not respond to the increasing price of civilians which might substitute military for them to allocate the resources efficiently.

Gross national product has an unexpected negative, significant coefficient for wage-rate workers' demand equation. We had expected that economic growth would increase the demand for labor overall. The reason for this negative effect, as explained earlier, may be the shift in defense civilian workforce toward non-wage jobs during the time period concerned. The dummy variable coefficient for the Reagan administration indicates a significant positive effect on the demand for civilian labor during the Reagan build-up. It may be caused by the increasing effect of cold war and some small scale conflicts on military build up during this period.

IV. SUMMARY AND CONCLUSION

There is a growing concern regarding the cost of national defense. One reason for this is that many people believe that immense defense spending is the cause of economic ills. And, in this huge, but decreasing, defense spending, personnel cost has received considerable attention. These concerns indicate the urgency of searching for a means of reducing personnel costs without causing unacceptable reductions in war-time readiness.

The military/civilian mix of the force has been discussed as one solution to this problem. The argument has been made that civilians should be substituted for military personnel wherever possible, because this has been seen as a means of maintaining military force levels in a zero-draft environment, and because they have been said to be less costly. This argument, of course, recognizes that certain billets must be filled by a member of the military because of the reasons mentioned in Chapter 2. These include law, training, security, discipline, rotation, combat readiness, or the need for military background to successfully perform assigned duties.

Although "least cost" is an implied criterion in the guidance concerning military-civilian determinations, cost probably was not a primary consideration when the military-civilian determination policy was first developed. Civilians

were placed in all positions not requiring military incumbency because of the DoD policy that "civilians shall be used in all positions which do not require military incumbents." And, it was simply assumed that civilians were less expensive.

However, as discussed previously, if the cost of uniformed person falls relative to the cost of a direct hire civilian employee, cost-minimization would dictate that DoD respond by decreasing the use of direct hires. In this thesis, estimations for both wage-rate (blue-collar) and nonwage-rate (white-collar) equations demonstrate that price of civilians has the hypothesized negative effect, and that the price of military personnel has the hypothesized positive effect on the end-strength of defense civilians. These results indicate that DoD responded correctly to factor price changes, even when simultaneity bias[21] was accounted for. DoD employed more civilians as the relative price of civilians decreased, and less as the relative price of civilians increased.

However, in contrast to estimation results using current dollar values for the variables, in the second estimation using the dollar values adjusted to 1982 price level, civilian compensation figures have a positive sign in both estimations,

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[21]As explained in Chapter 3, we suspected that a simultaneity bias may affect the demand models. Civilian compensation figures, which are explanatory variables of the civilian labor demand model, may be a function of the level of employment in a truly simultaneous model. To account for this possible simultaneity effect, same demand models were estimated using the two stage least square technique.

though it is not significant for wage-rate workers. It means that DoD did not respond to changes in the real price of civilian employees. It should have substituted military personnel for civilians as the real price of civilians increased. DoD responded to the price changes in real figures in only one direction: it employed more civilians as the price of military personnel increased; but it did not respond to the increasing price of civilians.

In present circumstances, the total cost of filling a white-collar job with a federal civilian is less on average than filling the same job with an equivalent military employee. In the case of a blue-collar job, military recruits diminish in the face of demographic and economic trends, and it is likely that military pay will increase more rapidly than federal civilian pay. If this occurs, the financial advantage of replacing military personnel with white-collar civilians would grow larger, and it may even become profitable to consider blue-collar substitution, particularly if legislation is enacted to correct the anomalies in the blue-collar wage-setting process. [Ref. 9: p. 74]

For purposes of determining the least costly resource (military or civilian), one would expect a fair amount of consistency regarding the treatment of costs by different studies, (although they may not have been developed for the same purpose). However, this is not the case. A review of the cost elements treated in various studies reveals

inconsistencies as the same costs are sometimes treated differently. Furthermore, it is found that one study often excludes a cost that another includes. Additional research is required before an acceptable determination as to which elements should be included in a correct cost model can be made. Nevertheless, the present model, which is based on a recent Rand study, may be a good example.

In short, the issue of minimizing the cost for required personnel services is a complex one. Thus, a sound analytical foundation should be provided before any policy action is taken so that the probability of counterproductive results is minimized. To this end, a first step might be to determine the incremental cost of each class of employee for the specialty being considered for civilianization [Ref. 16: p. 10]. The next step might be to project the future trends that are likely to affect the decision and what impacts a civilianization decision would have on costs [Ref. 4: pp. 29-30]. Only after this has been done, can reliable policy recommendations be made.

On the other hand, the conversion of military positions to civilian positions tends to develop only one view of the entire effort that may be involved, in particular, the factor of cost. Yet, even cost elements were not always considered in early conversions, as mentioned previously; civilians were often substituted for military personnel when the position was not required to be filled by a uniformed personnel. Certain

factors, mostly not quantifiable, are difficult to evaluate, and can support either the use of military personnel or civilians in a job, while some others may have either advantages or disadvantages, as discussed in Chapter 2. Consequently, some factors affecting military-to-civilian conversions should be discussed in detail even after determining that one type of worker may be cheaper than the other.

Policy changes are required if one wants to go beyond the position conversions, from military to civilian, having been done so far. It would dictate using civilians in units and under conditions that have traditionally been considered the military's domain. In today's changing military environment, under current threat concepts, further substitutions by civilians may be required to reduce the defense budget and allocate limited resources effectively. Specific examples were given to show the possibility of further conversions. One of them is in the Navy's fleet support. [Ref. 9: pp. 57-58] A more extreme example is the use of civilians on Navy combatants--coming as a result of attitude changes toward women at sea, the success of Military Sealift Command's civilian-manned replenishment oilers, the abundance of technical representatives on carriers and surface ships, and extensive civilianization ashore. A negative conclusion drawn from this example is that the direct wages and benefits paid to a Navy enlisted man fall short of the wage level required

to attract a civilian to work on a ship. This pay differential between seamen and civilians on the same ship will undoubtably cause further military retention problems. [Ref. 6: pp. 97-98] Also, the General Accounting Office (GAO) recommended that the Navy use civilians in shipyards to accomplish work that is normally done by ships' crew during overhaul. The crew released from overhaul work could be reassigned to ships at sea, thus alleviating some of the critical shortages on these ships; or skilled technicians could be transferred to critical shore activities such as the Shore Intermediate Maintenance Activities (SIMAs); or they could be trained to increase the skill levels during overhaul. [Ref. 14: pp. 12-13] Another specific example given by Binkin is the possibility of transferring to civilians the part of airlift and air refueling missions now carried out by U.S Air Force personnel. [Ref. 9: pp. 58-59] Because of the nature of its operations, the Army appears to have fewer opportunities than the other Services to employ civilians in units traditionally manned by soldiers. However, support units, operating exclusively in the rear areas, could be considered for civilian substitution [Ref. 9: p. 59]. One can observe that majority of the military personnel are performing supervisory, administrative, and other technical functions in industrial facilities. GAO believed civilians could do these functions; in fact, civilians were occupying either first-or second-level

supervisory positions in the operating departments at the activities mentioned. [Ref. 7: pp. 18-19, 26, 29-30]

On the other hand, efforts to allocate resources effectively may hamper wartime readiness, which should be considered in conversion decisions. For example, attempts to balance medical manpower requirements with budgetary constraints have led to staff reorganization within the Medical Service. As a result, the Dental Corps relinquished 98 active duty dental officer authorizations to favor the Nurse Corps. To compensate for the lost active duty dental slots, 98 civilian contract dental slots were made available in CONUS. Civilianization of the Dental Corps, as designed, may not reduce the Corps' clinical capability to produce adequate dental services to maintain a peacetime military. But, in fact, because of the lack of readiness education and training on the part of the civilian contract dentist, civilianization will reduce the Corps' overall readiness capability. [Ref. 15: pp. 2, 3, 9-12] For the reason mentioned above, which explains the effect of further civilianization on wartime readiness, the civilianization potentials indicated in different studies should be examined cautiously before any attempt is made.

However, Binkin found that some of the complaints commonly voiced by the military were based on incorrect perceptions. The authority to transfer or reassign civilians was found to be less restricted than military managers argued. Complaints

about the inability to deal effectively with marginal employees are also ill-founded. Current regulations appear to provide managers with adequate tools that are not being used consistently or effectively. The implications of the relative immobility of the civilian workforce have been overemphasized. On the other hand, Binkin argues that some problems cited by defense managers were found to have greater validity. Reductions-in-force of civilian employees have an unusually disruptive effect on productivity largely because of regulations that give priority to seniority, veterans' preference, and the like, rather than merit. Present legislation and regulations governing the civilian retirement system present obstacles to effective management. Defense managers are hampered in their efforts to manage the work week effectively because of the excessively restrictive legislation governing hours and days of work for civilian employees. [Ref. 9: pp. 80-81]

In short, the Services recognize that certain billets must be filled by a military person because of the military requirements.[22] Remaining billets, theoretically, can be filled either by a military person or a civilian. Thus,

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[22]A clear distinction must be drawn between jobs that, for reasons of national security, should be filled by military employees and those that can be filled by civilians. The Services review in detail the job structure of each military service and defense agency, the deployability of these billets, and the policies governing rotation, promotion, and career development of military personnel. [Ref. 9: pp. 75-76]

incremental cost of each class of employee, for the specialty being considered for civilianization, needs to be determined, and the future cost trends needs to be projected.[23] After these have been done, one can claim that one resource is cheaper than the other, and can recommend in favor of conversion. However, before making a reliable policy recommendation, one should consider the other human resource factors. This would then allow the Services to have only the most essential manpower on their payroll, to reduce the total amount spent on training and on other expenses, and to get the greatest return for their money.

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[23]Since civilians are paid out of operations and maintenance funds, over which local commanders have control, each civilian hired means less money for other use of these funds. Military personnel, on the other hand, are free since they do not affect the local commander's budget. This bias should be eliminated by a change in the method of accounting. [Ref. 9: p. 81]

APPENDIX A

TABLE 12

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1974
FOR ALL PERMANENT, FULL-TIME EMPLOYEES

	PAY PLAN									
	GS		MG		MS		ML		TOTAL	
GRADE	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG
0	3	19378	2	7873	-	-	-	-	5	14776
1	740	5184	1666	7470	335	10665	37	8578	2778	7258
2	9959	5976	11345	7777	314	11194	490	8516	22108	7033
3	46721	7045	4615	8340	514	11797	128	9227	51978	7212
4	73350	8237	8237	8779	757	12215	396	9738	82740	8334
5	78779	9358	32254	9243	1350	12818	717	10572	113096	9374
6	32762	10570	21637	9934	1927	13476	633	10996	56939	10431
7	54389	11510	18791	10377	2424	13765	564	11611	76168	11303
8	11714	12978	34474	10731	3390	14222	1165	11825	50743	11508
9	63359	13975	28564	11410	4907	14845	1595	12508	98405	13250
10	62653	15606	85270	11971	7779	15402	3425	13158	102737	12492
11	67455	16854	23613	12514	2719	16168	1012	13637	94799	15719
12	58238	20088	12008	13089	1705	16794	351	14043	72272	18818
13	35652	23766	3584	13530	1851	17688	74	14175	44161	22664
14	14975	27914	1039	13935	1061	18549	11	15341	17086	26474
15	6138	32838	61	14468	415	19624	11	15496	6585	31832
16	659	35828	-	-	191	20487	-	-	850	32381
17	116	36000	-	-	68	21900	-	-	184	30789
18	38	36000	-	-	21	23127	-	-	59	31418
19	-	-	-	-	22	24803	-	-	22	24803
99	-	-	1	7758	-	-	-	-	1	7758
TOTAL	564206	13671	287161	10979	31750	15102	10599	12210	893716	12840

TABLE 13

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1975 FOR ALL PERMANENT, FULL-TIME EMPLOYEES

GRADE	PAY PLAN								TOTAL	
	GS		WB		WS		WL			
	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG
1	1	12317	.	.	.	.	.	.	1	12317
2	[illegible]	[illegible]	[illegible]	[illegible]	295	12236	33	9364	2173	8439
3	[illegible]	6[illegible]	[illegible]	8[illegible]	291	12094	479	9778	17693	7908
4	44[illegible]	7417	43[illegible]	94151	516	13315	118	10515	49339	7661
5	74[illegible]	8639	73[illegible]	8822	737	13664	403	10968	83809	8805
6	8[illegible]	9940	69[illegible]	10449	1359	14410	814	11900	112444	10075
7	35[illegible]	11110	21434	11222	1834	15135	638	12360	57413	11298
8	5[illegible]	12105	17901	11679	2308	15454	518	12937	76678	12112
9	11[illegible]	13719	35563	12047	3499	16003	1124	13404	50185	12753
10	64157	14074	29223	12794	4875	16666	1638	14115	99903	14209
11	65[illegible]	16452	27[illegible]	13465	7094	17349	3193	14875	100117	14003
12	87[illegible]	17743	46045	14[illegible]61	9866	17975	1091	15459	96314	16785
13	6[illegible]	21143	11[illegible]	14021	1576	13711	315	15571	74014	20081
14	32[illegible]	25139	3765	15184	1797	19579	69	16163	44138	24093
15	13[illegible]	29[illegible]	1175	15556	1044	20665	19	16954	17121	28006
16	6[illegible]	34310	81	15090	442	21573	2	17909	6578	33219
17	[illegible]	[illegible]	.	.	175	22379	.	.	771	32851
18	1[illegible]	[illegible]	.	.	48	23691	.	.	206	31934
[illegible]	[illegible]	[illegible]	.	.	17	25640	.	.	60	33065
[illegible]	1	[illegible]	.	.	11	25833	.	.	22	25714
[illegible]	1	15[illegible]	.	.	.	.	.	.	1	15481
TOTAL	5[illegible]	14[illegible]	3[illegible]	12397	3[illegible]	15913	10[illegible]	13759	889790	13887

TABLE 14

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1976
FOR ALL PERMANENT, FULL-TIME EMPLOYEES

GRADE	PAY PLAN								TOTAL	
	GS		WG		WS		WL			
	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG
	[illegible]	[illegible]	13	[illegible]	.	.	.	.	43	9995
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11643	24	10727	2089	9160
[illegible]	[illegible]	6752	8732	9657	293	13966	457	10791	15584	8637
[illegible]	[illegible]	[illegible]	[illegible]	10374	505	14783	120	11574	45272	8157
4	[illegible]	[illegible]	7934	10794	812	15136	403	12329	82183	9317
5	[illegible]	10348	[illegible]	11520	1395	15899	786	13068	109862	10739
6	[illegible]	11657	21694	12331	1798	16679	651	13623	58101	12092
7	[illegible]	12764	15231	12761	2197	16962	452	14364	72279	12901
[illegible]	12459	14441	31293	13202	7501	17631	1051	14700	48304	13875
[illegible]	[illegible]	[illegible]	29770	13952	6541	18333	1597	15525	99029	15117
[illegible]	[illegible]	17324	[illegible]	14696	7723	19031	3107	16387	98302	15264
11	[illegible]	[illegible]	[illegible]	15397	[illegible]	19611	1093	16910	97628	17820
[illegible]	[illegible]	[illegible]	[illegible]	15956	[illegible]	20410	219	17334	73915	21363
[illegible]	38341	[illegible]	3507	16713	1746	21346	71	17465	63665	25560
14	[illegible]	[illegible]	1110	17267	[illegible]	22094	14	19162	17333	29676
15	[illegible]	36086	79	17358	405	23159	2	19271	6540	35054
16	[illegible]	[illegible]	.	.	157	[illegible]	.	.	761	34943
17	[illegible]	[illegible]	.	.	[illegible]	[illegible]	.	.	195	34207
[illegible]	41	[illegible]	.	.	8	[illegible]	.	.	49	36323
[illegible]	.	.	.	.	5	[illegible]	.	.	5	29142
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9957	15116	871136	14906

TABLE 15

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1977
FOR ALL PERMANENT, FULL-TIME EMPLOYEES

GRADE	PAY PLAN								TOTAL	
	GS		WG		WM		WL			
	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG
[illegible]	1	12317	.	.	.	.	.	.	1	12317
1	[illegible]	[illegible]	1075	9517	265	14524	21	11268	1761	9691
2	[illegible]	[illegible]	7390	10418	273	14982	445	11666	15370	9023
3	[illegible]	[illegible]	[illegible]	11117	495	15062	126	12290	43433	8539
4	[illegible]	9467	7674	11728	833	16551	365	13162	79654	9775
5	79760	[illegible]	27256	12413	1356	17342	785	14232	109187	11292
6	33934	12159	[illegible]	13406	1766	18200	636	14924	56892	12827
7	52743	13339	16470	13986	2262	18576	392	15645	71872	13665
8	[illegible]	15111	39036	14451	3360	19100	997	16345	46346	14975
9	[illegible]	16145	27755	15299	4347	20107	1575	16943	95988	16067
10	[illegible]	[illegible]	[illegible]	16042	7650	20655	3023	17945	97299	16603
11	[illegible]	19532	24456	16853	2675	21572	980	13469	97099	18905
12	[illegible]	[illegible]	9951	17531	1443	22167	207	18768	75540	22681
13	37675	28296	3382	18164	1768	23017	75	19164	42790	27262
14	[illegible]	[illegible]	1024	18720	959	23944	14	19830	17058	31932
15	5939	32487	71	19183	413	25019	1	20134	6474	38338
16	[illegible]	[illegible]	.	.	145	26041	.	.	744	41642
17	177	47359	.	.	54	27206	.	.	191	41661
18	45	4755[illegible]	.	.	21	27911	.	.	53	44543
19	.	.	.	.	4	31024	.	.	6	31024
TOTAL	[illegible]	[illegible]	[illegible]	14835	29397	20159	9032	15508	857756	15916

TABLE 16

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1978 FOR ALL PERMANENT, FULL-TIME EMPLOYEES

	PAY PLAN									
	GS		WG		WS		WL		TOTAL	
GRADE	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG
[illegible]	1	18611	.	.	.	.	.	.	1	18611
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15473	17	12081	1593	10320
2	[illegible]	[illegible]	[illegible]	11270	275	16115	413	12588	14943	9670
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17381	111	13218	42526	9184
4	[illegible]	[illegible]	[illegible]	12751	614	17827	335	14273	79445	10432
5	[illegible]	[illegible]	27443	[illegible]	1457	18724	756	15505	111174	12123
6	[illegible]	[illegible]	19348	[illegible]	[illegible]	19747	615	16089	56252	13791
7	57956	[illegible]	[illegible]	15131	2202	20340	378	16726	71408	14690
8	[illegible]	[illegible]	29349	15643	[illegible]	20630	935	17462	44995	16182
9	[illegible]	[illegible]	27117	16521	4247	21673	1493	19459	95147	17328
10	[illegible]	[illegible]	[illegible]	17445	[illegible]	22453	2991	19446	97337	18036
11	[illegible]	[illegible]	[illegible]	[illegible]	2577	23376	930	20110	97543	20330
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	162	[illegible]	78569	24426
13	[illegible]	[illegible]	[illegible]	[illegible]	1797	25175	74	20355	42004	29451
14	[illegible]	[illegible]	973	[illegible]	[illegible]	25981	14	21925	16996	34543
15	[illegible]	42557	73	20479	[illegible]	27143	1	20134	6496	41316
16	[illegible]	[illegible]	.	.	[illegible]	[illegible]	.	.	735	43827
17	[illegible]	[illegible]	.	.	[illegible]	29753	.	.	178	44096
18	[illegible]	[illegible]	.	.	[illegible]	[illegible]	.	.	54	47588
19	.	.	.	.	[illegible]	[illegible]	.	.	6	33197
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17948	857523	17170

TABLE 17

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1979 FOR ALL PERMANENT, FULL-TIME EMPLOYEES

	PAY PLAN									
	GS		WG		WS		WL		TOTAL	
GRADE	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG
0	1	37935	1	17534	-	-	-	-	2	27735
1	322	6654	830	11151	211	16238	14	13972	1377	10946
2	5046	7875	6836	11745	284	16818	396	13257	12562	10353
3	35965	9183	3636	12865	469	19094	112	14130	40167	9636
4	69836	10634	6449	13240	831	19426	333	14984	77415	10951
5	81129	12140	26406	14056	1475	19453	773	16165	109783	12728
6	34129	13717	19231	15105	1739	20538	613	16329	55682	14439
7	52733	15075	15392	15727	2207	20956	364	17648	70696	15614
8	11314	17179	29606	16257	3013	21603	907	18162	44539	16868
9	61136	18259	26249	17230	4166	22674	1443	19174	93041	18181
10	6173	20580	78608	18151	7744	23314	3031	20122	95156	18775
11	69218	22652	27836	19115	2577	24295	947	21000	96578	21377
12	68963	26599	9873	19627	1403	24955	156	21072	80275	25727
13	36317	32263	3180	20563	1759	26090	70	21780	41326	31082
14	14955	38040	898	21396	918	27015	13	23138	16794	36535
15	5931	44673	75	21338	400	28061	1	20134	6407	43360
16	557	48338	-	-	139	29235	-	-	697	44767
17	136	49548	-	-	51	31850	-	-	189	44556
18	48	49323	-	-	5	32827	-	-	53	47769
19	-	-	-	-	5	36811	-	-	5	34811
TOTAL	555151	13419	259708	16811	29351	22732	9173	18594	942744	18394

TABLE 18

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1980
FOR ALL PERMANENT, FULL-TIME EMPLOYEES

	PAY PLAN									
	GS		WG		WS		WL		TOTAL	
GRADE	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG
	0	27576	3	15544	1	27310	.	.	12	22482
1	135	7514	745	11519	150	17489	11	13313	1103	12265
2	4556	9571	5577	10956	357	19227	344	14145	11044	11047
3	24773	9723	3302	17770	452	19526	94	15100	38571	10239
4	62614	11297	6060	14307	657	20165	311	16377	76453	11654
5	[illegible]	12432	27071	15135	1457	21047	896	17492	111836	13601
6	34374	14630	18019	16303	1693	22035	596	17979	54677	15447
7	57041	15038	15043	17076	2225	22769	353	19060	70660	16486
8	12477	13273	29091	17658	2975	23488	937	19787	43431	18251
9	61273	12459	25618	19771	4321	24593	1331	20922	92258	19513
10	58461	22027	74345	19774	7753	25274	2944	21310	91390	20451
11	67314	23083	25914	20375	2597	26419	753	22844	94467	23062
12	77375	23539	9613	21623	1356	27125	165	23185	80929	27604
13	[illegible]	34343	7694	22423	1767	28328	81	23990	60053	33218
14	14670	41542	813	27993	895	29251	13	25040	16386	39049
15	5674	47033	40	22672	395	30657	1	24419	6124	45935
16	78	49955	.	.	127	31851	.	.	205	38720
17	7	[illegible]	.	.	47	31552	.	.	54	35795
18	[illegible]	51132	.	.	5	34310	.	.	8	40239
19	.	.	.	.	5	35613	.	.	5	35618
[illegible]	.	.	1	15163	.	.	.	.	1	15163
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	24661	8743	20243	829667	19392

TABLE 19

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1981 FOR ALL PERMANENT, FULL-TIME EMPLOYEES

	PAY PLAN										TOTAL	
	GS		WG		WS		WL		GM			
GRADE	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG
[illegible]	4	17454	3	13157	1	20736	.	.	.	.	8	17634
1	575	[illegible]	955	[illegible]	143	13572	12	14697	.	.	1435	12749
2	4771	9377	5122	11714	215	19733	309	15134	.	.	10007	11988
3	34029	[illegible]	7474	14565	414	21113	94	16428	.	.	37961	11115
4	77175	12247	6043	15446	871	21913	313	17536	.	.	77418	12626
5	65693	14034	29547	16337	1484	22795	852	18964	.	.	116576	14745
6	35026	15639	18136	17675	1655	23934	568	19613	.	.	55361	16757
7	54359	17439	15281	18431	2501	24798	361	20669	.	.	72302	17899
8	17619	19675	31391	19040	2959	25619	954	21602	.	.	45963	19727
9	63216	[illegible]	24721	20415	4057	25730	1370	22742	.	.	93364	21184
10	5757	[illegible]	75024	21493	8029	27499	3424	23627	.	.	92244	22255
11	71957	[illegible]	27361	22591	2347	29794	853	24902	.	.	97518	25035
12	75479	[illegible]	5634	[illegible]	1401	29577	165	24794	.	.	85479	30120
13	35057	37416	2973	24213	1879	30892	114	25796	1086	36130	41015	36111
14	15175	[illegible]	795	24972	928	31626	18	25846	150	42027	15996	42465
15	6527	[illegible]	45	[illegible]	395	33328	1	26624	11	47752	6481	48144
16	44	[illegible]	.	.	171	[illegible]	.	.	.	.	200	40150
17	5	[illegible]	.	.	46	35395	.	.	.	.	51	38191
18	3	[illegible]	.	.	4	37123	.	.	.	.	7	42693
[illegible]	.	.	.	.	6	[illegible]	.	.	.	.	6	40914
-3	.	.	1	19741	.	.	.	.	.	.	1	18741
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9423	22113	1243	36945	850393	21117

TABLE 20

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1982
FOR ALL PERMANENT, FULL-TIME EMPLOYEES

GRADE	PAY PLAN										TOTAL	
	GS		WG		WS		WL		GM			
	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG
[illegible]	615	[illegible]	6	[illegible]	2	[illegible]	.	.	2	43214	623	17222
[illegible]	[illegible]	[illegible]	1146	[illegible]	153	[illegible]	19	16344	.	.	1506	15528
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16132	.	.	8338	12878
[illegible]	[illegible]	11141	[illegible]	[illegible]	396	[illegible]	75	17557	.	.	35485	11631
4	[illegible]	[illegible]	[illegible]	15360	892	[illegible]	295	18641	.	.	77089	13252
5	[illegible]	[illegible]	[illegible]	[illegible]	1515	[illegible]	875	19842	3	21805	116773	15443
6	[illegible]	[illegible]	17550	[illegible]	1511	24675	550	20576	.	.	55966	17503
7	55952	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	363	21629	2	17515	73661	18733
8	[illegible]	[illegible]	[illegible]	[illegible]	2938	[illegible]	1005	22694	1	1341	45682	20729
9	[illegible]	[illegible]	24127	[illegible]	4174	[illegible]	1381	23722	.	.	96332	22153
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3582	24926	.	.	91966	23346
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	860	26205	1	39186	101619	26218
12	[illegible]	[illegible]	[illegible]	24717	1399	[illegible]	142	25967	5	35826	89343	31637
13	14333	[illegible]	[illegible]	[illegible]	1940	[illegible]	133	27753	22577	38834	42118	37745
14	3349	[illegible]	[illegible]	25972	949	[illegible]	23	28503	11971	45809	17579	44311
15	[illegible]	[illegible]	[illegible]	[illegible]	419	[illegible]	2	26344	5528	53231	6788	51560
16	57	[illegible]	.	.	[illegible]	[illegible]	.	.	.	.	207	41055
17	[illegible]	[illegible]	.	.	[illegible]	[illegible]	.	.	.	.	53	39539
18	[illegible]	[illegible]	1	[illegible]	3	[illegible]	.	.	.	.	6	41040
19	.	.	.	.	6	[illegible]	.	.	.	.	6	42068
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	29149	[illegible]	[illegible]	[illegible]	42599	860934	22280

TABLE 21

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1983
FOR ALL PERMANENT, FULL-TIME EMPLOYEES

GRADE	PAY PLAN: GS #	GS AVG	WG #	WG AVG	WS #	WS AVG	WL #	WL AVG	GM #	GM AVG	TOTAL #	TOTAL AVG
0	14	13660	7	22419	1	26565	1	21597	8	44776	31	26908
1	113	9419	729	14426	113	21113	23	15135	.	.	960	14528
2	5197	10471	4057	15092	193	21553	232	16772	.	.	7589	13420
3	30055	11525	2631	15341	391	22969	65	17987	1	11000	33164	12200
4	70117	13345	5259	17129	886	24038	294	19413	.	.	76558	13752
5	67311	15262	25364	18116	1475	24394	893	20593	1	17383	117044	16028
6	37032	17249	17429	19263	1619	25932	533	21391	1	45756	56614	18164
7	57831	18924	14717	20120	2283	26957	369	22645	1	36946	75251	19474
8	10538	21541	30578	20930	2993	27856	946	23627	.	.	45025	21590
9	63981	22676	27635	22243	4172	29136	1385	24806	1	18585	98350	23016
10	5574	25039	75077	23469	9170	29743	3526	26053	1	75306	92348	24299
11	79223	27820	27572	24707	2390	31575	842	27227	1	33495	105028	27235
12	62637	33692	9070	25611	1363	37333	154	27006	5	31136	92199	32943
13	13775	43930	2931	26591	1953	33666	155	28359	23716	40153	42458	39134
14	3319	49454	744	27301	936	34951	21	29287	13357	47534	18057	46198
15	593	55228	25	26623	412	36721	2	26895	6396	55786	7128	54516
16	47	57530	.	.	138	39771	.	.	.	.	185	43677
17	3	57575	.	.	47	40519	.	.	.	.	50	41538
18	3	57530	.	.	5	47369	.	.	.	.	8	47343
19	.	.	.	.	6	41673	.	.	.	.	6	41603
TOTAL	552130	21960	234623	21755	29534	29373	9434	24369	42367	44618	868053	23289

TABLE 22

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1984
FOR ALL PERMANENT, FULL-TIME EMPLOYEES

GRADE	PAY PLAN										TOTAL	
	GS		WG		WS		WL		GM			
	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG
0	3	[illegible]	6	24402	1	415	.	.	4	46729	14	25048
1	136	[illegible]	593	14480	97	21745	15	15692	.	.	831	14626
2	3032	10675	3752	15573	174	22178	219	16912	.	.	7187	13793
3	27424	12157	2416	15791	347	23855	43	18293	.	.	32270	12640
4	67803	13372	5235	17500	693	24579	275	20107	1	48165	76168	14292
5	93116	15630	25874	19673	1575	25482	889	21273	.	.	121384	16573
6	37698	17957	17151	19813	1526	26677	550	21982	.	.	56965	18783
7	57774	19671	14677	20673	2290	27641	395	22186	2	23935	75138	20128
8	10598	22378	31013	21512	3021	28697	990	24261	1	19399	45523	22231
9	72225	[illegible]	23077	22643	4150	30037	1362	25587	.	.	101414	23778
10	5592	27199	75014	24130	9197	30976	3551	26775	.	.	92336	25021
11	83093	23753	21993	25412	2325	32272	846	28053	.	.	108847	28148
12	86095	35954	7553	26251	1341	33262	146	27927	3	38776	95155	34228
13	16097	42310	2927	27117	1927	34919	149	29183	25171	41822	44183	40559
14	3327	50234	775	28564	941	36383	19	30937	13301	49790	18795	49583
15	535	59354	25	27464	445	39457	4	29617	6303	58941	7560	57567
16	44	67777	.	.	140	40262	.	.	.	.	234	45323
17	3	67670	.	.	45	42845	.	.	.	.	51	44990
18	2	57072	.	.	3	44017	.	.	.	.	5	53130
TOTAL	[illegible]	[illegible]	253576	22362	29471	30293	9442	25091	45454	46686	884022	24218

TABLE 23

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1985
FOR ALL PERMANENT, FULL-TIME EMPLOYEES

GRADE	PAY PLAN										TOTAL	
	GS		WG		WS		WL		GM			
	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG
0	2	31343	5	21224	1	457	11	23133	.	.	9	21685
1	118	10153	447	15082	94	22926	9	16275	.	.	668	15214
2	1024	11153	5596	16201	176	23097	194	17591	.	.	6790	14168
3	29133	12521	2555	17162	353	24555	52	19745	.	.	32151	13033
4	70390	14335	4783	19255	873	25405	277	20603	.	.	76323	14730
5	97243	16349	24763	19404	1453	26507	915	21975	.	.	124371	17118
6	38766	18534	15777	20554	1568	27651	522	22743	.	.	57633	19388
7	62346	20352	14563	21421	2060	28587	408	23917	.	.	79377	20764
8	10521	23039	31162	22296	3059	29726	991	25148	.	.	45733	23324
9	72677	26470	23536	23675	4172	31115	1330	26611	.	.	101715	24601
10	6273	27810	74831	25029	8406	32169	3629	27760	1	1159	93140	25966
11	88537	29652	22023	26411	2115	33327	827	28878	.	.	113532	29094
12	89256	35059	7275	27228	1153	34371	150	28985	2	40578	97846	35372
13	14132	43557	2793	28342	991	36509	143	30464	26550	43050	44709	42105
14	3053	52084	692	29537	1730	38327	19	31871	14536	51325	20020	49556
15	429	59923	28	29393	766	40003	2	30639	6363	60869	8068	58723
16	41	62270	.	.	376	47033	.	.	.	.	437	43934
17	4	[illegible]	.	.	139	44992	.	.	.	.	143	45518
18	1	[illegible]	.	.	41	47975	.	.	.	.	42	48286
TOTAL	586035	[illegible]	229077	23214	29546	31705	9467	26035	49362	48097	902705	25100

TABLE 24

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1986
FOR ALL PERMANENT, FULL-TIME EMPLOYEES

GRADE	PAY PLAN										TOTAL	
	GS		WG		WS		WL		GM			
	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG
0	1	20655	1	27714	1	459	.	.	.	.	3	16676
1	135	17515	377	15596	95	22396	6	15954	.	.	539	15809
2	2265	11715	3176	16328	166	23264	203	17594	.	.	5807	14771
3	25454	12038	2244	17236	355	24726	60	18945	.	.	28113	13220
4	67839	14373	4754	18425	854	25056	293	20196	.	.	73797	14788
5	94833	16352	25353	19556	1459	26592	926	22106	1	58214	122619	17181
6	39379	19490	15627	20803	1480	27993	526	22817	1	65129	58013	19635
7	62795	20298	14608	21725	2129	28925	418	24239	.	.	79951	20801
8	10451	22978	30735	22558	3028	29981	979	25475	.	.	45371	23215
9	76454	24566	23243	23946	4132	31473	1210	27053	4	47468	105053	24713
10	6396	27757	74014	25368	8199	32679	3687	28275	.	.	92284	26298
11	91514	29831	21931	26693	2115	33814	815	29332	.	.	116375	29285
12	93014	36143	7238	27576	1146	34949	149	29443	6	41123	101523	35512
13	14325	43610	2743	29318	891	36394	139	31185	28102	43075	46226	42232
14	3130	51771	674	29507	1732	39713	20	31825	15212	51396	20738	49599
15	413	67534	27	29594	840	40489	2	30639	7157	61174	8439	58985
16	41	63675	.	.	440	42471	.	.	.	.	501	44142
17	3	67520	.	.	141	45217	.	.	.	.	144	45624
18	2	63530	.	.	37	49756	.	.	.	.	39	49528
42	.	.	1	23171	.	.	.	.	.	.	1	23171
TOTAL	523690	23921	227555	23517	29646	32172	9432	26351	50513	45146	905536	25461

TABLE 25

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1987
FOR ALL PERMANENT, FULL-TIME EMPLOYEES

GRADE	PAY PLAN										TOTAL	
	GS		WG		WS		WL		GM			
	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG
0	2	23554	2	19032	1	45301	.	.	.	.	5	26299
1	213	10732	453	15931	173	22244	2	17153	.	.	778	15390
2	2338	11982	2952	16589	151	23735	199	18042	.	.	5720	14904
3	23616	13254	1959	17694	343	25339	58	18897	.	.	26166	13757
4	65431	14954	4281	19963	851	26122	284	20596	.	.	70847	15353
5	95614	16936	24922	20035	1412	27222	917	22662	1	61754	122866	17725
6	40659	19133	15931	21254	1439	28615	513	23306	1	47132	58553	19980
7	62458	20915	14532	22188	2088	29535	478	24857	.	.	79556	21398
8	10561	23659	30941	23098	3002	30594	915	25892	.	.	45419	23715
9	77782	25275	22936	24357	4033	32068	1158	27527	4	61920	105883	25361
10	6300	23556	72711	25819	8232	33113	3805	28842	.	.	91048	26794
11	94675	30727	21798	27198	2136	34319	813	29796	.	.	119460	30140
12	95632	37131	6951	29170	1137	35458	150	29836	5	39905	103875	36549
13	14848	44076	2719	29391	816	37225	139	31663	29365	44226	47887	43368
14	3242	53266	673	30308	1751	39238	15	32417	16092	52733	21773	51307
15	408	61539	27	30390	870	41130	2	31096	7596	62921	8903	60623
16	43	67754	.	.	465	43135	.	.	.	.	508	44380
17	2	63830	.	.	140	45136	.	.	.	.	142	46385
18	2	63830	.	.	39	49393	.	.	.	.	41	49815
TOTAL	594095	24834	223798	23995	29007	32695	9448	26895	53364	49682	909410	26338

TABLE 26

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1988
FOR ALL PERMANENT, FULL-TIME EMPLOYEES

GRADE	PAY PLAN GS #	GS AVG	WG #	WG AVG	WS #	WS AVG	WL #	WL AVG	GM #	GM AVG	TOTAL #	TOTAL AVG
0	2	26236	1	22110	1	47674	.	.	.	.	4	30574
1	174	10616	572	15840	135	22946	1	19739	.	.	852	15651
2	1613	12539	2961	15944	155	24024	192	18345	.	.	4921	15771
3	15936	13659	1557	17882	315	25744	57	19299	.	.	21175	14235
4	61265	15352	3692	19364	876	26796	258	21076	.	.	66213	15758
5	91637	17345	23497	20527	1376	27855	925	23123	.	.	117435	18150
6	41341	19562	14871	21732	1434	29261	490	23855	.	.	58136	20378
7	59298	21375	14452	22746	1971	30281	610	25282	.	.	76323	21896
8	10423	24213	28536	23571	2326	31199	737	26344	.	.	42522	24283
9	76792	25731	22448	24950	3878	32732	1148	28077	.	.	104266	25686
10	5382	29345	20752	25380	8123	33737	3804	29673	.	.	88061	27373
11	97344	31358	21205	27790	2126	35346	801	30416	1	33260	121477	30793
12	95579	37995	6795	28741	1088	35896	151	30627	6	41381	106619	37373
13	15426	45422	2624	29996	780	37957	184	31962	30567	45186	49681	44295
14	3445	54096	658	30845	1739	39976	17	33365	16763	53806	22832	52101
15	423	64512	26	31107	845	41953	2	32157	8102	64606	9398	62291
16	42	70750	.	.	490	44022	.	.	.	.	540	46102
17	2	72530	.	.	140	47397	.	.	.	.	142	47655
18	2	72530	.	.	37	49715	.	.	.	.	39	50883
TOTAL	592115	25735	219157	24566	27245	33401	9377	27499	55739	50602	890636	27284

TABLE 27

AVERAGE SALARY AND NUMBER OF DoD EMPLOYEES BY GRADE IN 1989
FOR ALL PERMANENT, FULL-TIME EMPLOYEES

GRADE	PAY PLAN										TOTAL	
	GS		WG		WS		WL		GM			
	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG	#	AVG
1	255	10921	513	15653	123	22732	2	17212	.	.	938	15204
2	1533	13056	3540	17389	147	24592	174	18485	.	.	4444	16129
3	17283	14133	1817	19259	505	26403	52	22373	.	.	19460	14779
4	61547	15957	3555	20050	771	27757	251	21362	.	.	66134	16328
5	94191	13117	22049	20990	1292	29371	882	23663	.	.	118994	18512
6	43022	20343	14257	22391	1395	30232	476	24689	.	.	59150	21099
7	61394	22309	14082	23326	1914	31369	573	26287	.	.	77963	22744
8	10448	25178	27436	24136	2737	33395	730	27205	.	.	41351	24981
9	75432	26696	21559	25730	3723	37741	1102	28863	.	.	101786	26914
10	46337	30626	67557	27136	7455	34774	3562	30229	.	.	84721	28194
11	107239	32034	20233	29090	2059	36193	759	31342	.	.	123260	32039
12	104725	39446	5749	29552	1070	36933	150	31513	.	.	112644	38523
13	16754	47076	2467	30950	726	38959	154	33893	32746	66856	52849	46034
14	3810	55932	633	31979	1591	40953	17	34265	18235	55756	24286	54187
15	495	66715	141	29222	778	43075	2	33469	8597	67023	10113	64618
16	35	73917	.	.	442	45538	.	.	.	.	477	47620
17	4	75530	.	.	140	49226	.	.	.	.	144	48983
18	2	75570	.	.	30	51115	.	.	.	.	38	52398
TOTAL	597435	26930	[illegible]	25264	26049	34347	[illegible]	[illegible]	59578	52515	898722	29516

APPENDIX B

TABLE 28
DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1974
FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ	BAS	ALL	CPY	SST	FIT	TOT	DIS	TAD	RMC
C/S	36000.00	3646.80	606.24	4253.04	40253.04	772.20	6510.00	9282.20	30970.84	3208.00	43461.04
O-10	36000.00	3603.81	606.24	4210.05	40210.05	772.20	6660.96	9433.16	30776.90	3224.09	43444.14
O-9	36000.00	3609.73	606.24	4215.97	40215.97	772.20	6704.28	9476.48	30739.49	3248.66	43464.63
O-8	36000.00	3830.23	606.24	4236.47	40236.47	772.20	8539.40	9311.60	30924.87	3212.07	43448.54
O-7	31564.80	3632.16	606.24	4238.40	35803.20	772.20	6773.00	7845.20	28258.00	2774.81	38578.01
O-6	26615.12	3248.70	606.24	3854.94	30470.06	772.20	4949.22	5721.42	24748.64	2054.78	32524.84
O-5	21490.40	3000.71	606.24	3606.95	25097.35	772.20	3077.46	4149.66	20947.70	1491.75	26589.10
O-4	17617.87	2697.24	606.24	3303.48	20721.18	772.20	2412.18	3184.38	17536.77	1138.38	21877.81
O-3	14105.74	2403.86	606.24	3010.10	17115.84	770.08	1846.09	2616.14	14499.70	952.48	18068.32
O-2	11063.68	2072.46	606.24	2678.70	13742.38	847.23	1426.00	2073.22	11669.16	693.84	14436.22
O-1	7962.80	1893.45	606.24	2499.69	10162.30	665.83	925.04	1590.88	8771.63	514.85	10877.06
O-3 E	16406.77	2403.86	606.24	3010.12	19415.89	772.20	2379.74	3151.94	16263.94	1057.39	20473.28
O-2 E	13568.28	2072.60	606.24	2678.84	16244.13	763.77	1918.12	2682.89	13561.24	868.55	17112.68
O-1 E	10659.06	1596.16	606.24	2200.40	13059.47	635.28	1477.03	2112.28	10947.19	579.98	13619.69
ALLO-3	14347.84	2403.86	606.24	3010.10	17357.94	770.28	1902.26	2672.54	14685.40	963.52	18321.46
ALLO-2	11254.72	2072.47	606.24	2678.71	13933.43	656.13	1463.65	2119.78	11813.65	707.18	14640.61
ALLO-1	8077.78	1593.68	606.24	2199.72	10277.51	472.55	946.95	1419.50	8858.01	516.33	10793.85
ALL CO	16246.26	2423.72	606.24	3029.96	18276.24	712.47	2176.43	2888.90	15387.34	1034.14	19310.38
W-4	16597.68	2607.22	606.24	3213.46	19810.68	772.20	2224.49	2996.69	16813.87	1081.81	20892.37
W-3	13743.49	2406.28	606.24	3012.52	16756.01	765.84	1519.42	2285.26	14470.95	871.11	17627.12
W-2	10958.07	2180.26	606.24	2786.50	13744.57	641.05	1047.05	1688.10	12056.47	635.61	14380.18
W-1	8277.25	1883.14	606.24	2489.38	11766.63	542.72	993.03	1535.75	10230.88	583.92	12320.56
ALL WO	12209.50	2234.96	606.24	2866.20	15074.70	682.82	1308.68	1991.50	13083.20	746.07	15820.77
ALLOFF	15056.19	2413.41	606.24	3019.65	18075.83	710.62	2122.11	2832.73	15243.11	1018.11	18091.94
E/S	18223.20	2332.80	879.65	3212.45	21435.65	772.20	2659.55	3431.75	18003.90	1148.22	22584.88
E-9	13988.53	2310.28	879.65	3189.93	17178.45	766.00	1607.13	2373.66	14802.78	942.08	18118.53
E-8	11659.31	2156.95	879.65	3036.60	14696.12	680.88	1172.48	1853.10	12842.97	745.16	15441.28
E-7	9041.22	2014.08	879.65	2893.73	12734.95	575.71	876.23	1451.96	11283.00	580.47	13323.42
E-6	8185.03	1843.89	879.65	2723.54	10918.57	479.41	642.98	1122.39	9796.18	642.04	11460.61
E-5	6883.24	1627.47	879.65	2507.12	9080.76	383.38	497.19	880.58	8180.20	545.41	9606.17
E-4 +4	6029.44	1276.52	879.65	2156.17	8226.61	355.12	562.67	917.79	7308.82	522.79	8749.40
E-4 -4	5284.74	1276.86	879.65	2156.21	7440.95	309.16	424.54	733.69	6707.25	483.90	7936.85
ALLE-4	6419.75	1276.86	879.65	2156.20	7575.85	317.08	448.28	765.31	6810.64	600.52	8076.47
E-3	4933.95	1031.03	879.65	1930.69	6864.54	288.63	407.76	696.39	6168.15	446.19	7312.73
E-2	4608.80	944.96	879.65	1824.61	6425.41	269.15	368.60	634.76	5790.64	419.80	6844.21
E-1	4129.20	875.64	879.65	1755.29	5884.49	241.56	292.00	533.56	5350.93	393.12	6277.61
ALLENL	6140.62	1369.42	879.65	2249.07	8389.69	350.61	601.21	950.02	7528.67	499.61	8868.30
ALLDOD	7376.88	1513.32	841.74	2355.06	9731.94	407.60	726.97	1133.86	8598.37	571.23	10303.17

TABLE 29

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1975 FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ	BAS	ALL	CFY	SST	FIT	TOT	DIS	TAD	RMC
O/S	37800.00	3830.40	636.60	4467.00	42267.00	824.85	8999.30	9824.15	32442.85	3526.19	45792.19
O-10	37800.00	3800.44	636.60	4443.04	42243.04	824.85	9054.09	9878.94	32364.09	3536.74	45779.78
O-9	37800.00	3805.86	636.60	4442.46	42242.46	824.85	9016.36	9841.21	32401.26	3526.30	45768.76
O-8	37790.83	3819.60	636.60	4456.40	42247.23	824.85	8750.34	9575.19	32672.04	3458.91	45704.14
O-7	33141.60	3818.46	636.60	4455.06	37596.66	824.85	6885.86	7710.71	29885.95	2957.31	40553.97
O-6	27598.60	3388.70	636.60	4025.30	31623.90	824.85	5105.69	5930.54	25693.36	2214.09	33837.99
O-5	22308.46	3131.05	636.60	3767.65	26270.11	824.85	3541.31	4366.15	21903.96	1620.12	27890.23
O-4	18322.57	2814.44	636.60	3451.04	21773.61	824.79	2533.76	3358.54	18415.08	1246.61	23020.22
O-3	14814.13	2521.49	636.60	3158.09	17972.22	820.08	1925.09	2745.16	15227.07	956.31	18928.54
O-2	11603.99	2179.79	636.60	2816.39	14420.38	678.83	1479.86	2158.70	12261.68	700.02	15120.40
O-1	8399.79	1882.94	636.60	2299.54	10699.33	491.39	937.51	1428.90	9270.43	594.59	11293.92
O-3 E	17256.78	2521.43	636.60	3158.03	20414.81	824.82	2456.10	3280.92	17133.89	1129.90	21544.71
O-2 E	14182.24	2179.72	636.60	2816.32	16998.56	808.56	1986.56	2795.12	14203.44	857.25	17855.81
O-1 E	11314.71	1662.30	636.60	2298.90	13613.61	661.91	1540.09	2202.00	11411.61	583.22	14196.83
ALLO-3	15088.77	2521.49	636.60	3158.09	18227.85	820.88	1980.66	2801.22	15426.63	974.48	19202.33
ALLO-2	11812.34	2179.78	636.60	2816.38	14628.72	680.32	1520.81	2210.13	12418.60	712.73	15341.46
ALLO-1	8568.52	1682.90	636.60	2299.50	10868.02	501.28	972.39	1473.65	9394.37	593.93	11461.95
ALL CO	16120.98	2551.29	636.60	3187.89	19308.88	763.72	2285.92	3049.64	16259.23	[illegible]9.93	20408.80
W-4	17489.82	2722.25	636.60	3358.85	20828.68	824.86	2324.63	3149.48	17679.20	[illegible]4	21992.42
W-3	14516.81	2514.38	636.60	3150.98	17466.77	811.65	1630.17	2441.82	15024.95	[illegible]	18329.09
W-2	11372.34	2270.34	636.60	2906.94	14279.28	680.28	1116.93	1762.22	12497.07	[illegible]	14930.10
W-1	10028.63	2095.48	636.60	2732.08	12760.71	586.67	879.66	1466.33	11294.38	[illegible].	71.06
ALL WO	12838.68	2360.43	636.60	2997.03	15835.81	712.67	1351.11	2063.78	13771.83	735.78	16391.38
ALLOFF	15904.62	2539.44	636.60	3176.04	19080.66	760.56	2227.84	2988.39	16092.26	1078.85	20159.20
R/S	19154.00	2448.00	923.45	3371.45	22506.46	824.85	2757.25	3582.10	18943.35	1224.00	23729.45
E-9	14677.78	2420.26	923.45	3343.71	18021.47	815.18	1671.04	2486.22	15535.26	934.46	18965.93
E-8	12187.80	2263.90	923.45	3177.35	15345.15	711.82	1222.93	1934.75	13410.40	710.93	16056.07
E-7	10300.31	2099.06	923.45	3022.53	13327.84	602.66	888.48	1409.34	11838.50	683.65	13991.49
E-6	8533.82	1928.34	923.45	2848.79	11383.62	499.53	606.27	1107.80	10276.12	649.90	12033.87
E-5	6843.81	1695.80	923.45	2619.25	9462.86	400.38	455.83	855.88	8606.98	596.01	10060.88
E-4 +4	6377.31	1331.48	923.45	2254.93	8632.23	373.07	539.01	912.09	7720.15	551.23	9183.46
E-4 -4	5318.14	1331.20	923.45	2254.65	7770.79	322.89	390.22	713.92	7057.87	516.73	8281.61
ALLE-4	5719.36	1331.27	923.45	2254.72	7974.07	334.58	425.34	759.92	7214.15	520.28	8494.36
E-3	5190.67	1082.20	923.45	2015.71	7206.38	303.80	381.12	684.77	6511.60	466.80	7673.17
E-2	4831.20	959.64	923.45	1882.89	6714.19	282.03	355.92	636.35	6078.64	438.27	7149.45
E-1	4334.40	890.96	923.45	1814.41	6148.81	253.56	278.17	529.73	5619.08	409.14	6557.95
ALLENL	6423.02	1418.87	923.45	2340.32	8763.34	375.42	480.13	855.55	7907.79	530.14	9299.48
ALLDOD	7714.33	1569.75	884.38	2454.13	10168.47	427.87	718.18	1146.03	9022.44	610.01	10776.48

TABLE 30

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1976 FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ	BAS	ALL	CPY	SST	FIT	TOT	DIS	TAD	RMC
O7S	39600.00	4456.80	667.32	5124.12	44724.12	965.25	9486.00	10453.25	34270.87	4328.10	49052.22
O-10	39600.00	4450.80	667.32	5124.12	44724.12	965.25	8519.55	10484.80	34239.32	4336.61	49060.73
O-9	39600.00	4442.40	667.32	5109.72	44709.72	965.25	9460.90	10426.15	34283.57	4316.82	49028.24
O-8	39486.04	4441.92	667.32	5109.24	44694.28	965.25	9300.61	10265.88	34328.42	4272.16	48966.44
O-7	34340.40	4448.09	667.32	5116.41	39456.81	965.25	7106.99	8074.24	31382.57	3982.25	43039.06
O-6	26809.92	3908.43	667.32	4575.75	33185.68	965.25	5114.05	6080.10	27105.57	2604.04	35789.72
O-5	23023.24	3566.63	667.32	4233.95	27869.09	965.19	3616.08	4481.27	23077.82	1891.01	29460.10
O-4	18972.75	3191.20	667.32	3858.52	22831.28	963.01	2452.90	3415.98	19415.30	1417.31	24248.59
O-3	15447.65	2826.86	667.32	3498.18	18943.83	698.85	1680.88	2779.74	16164.09	1075.75	20019.58
O-2	12136.49	2418.16	667.32	3085.48	15221.97	709.99	1394.01	2104.00	13117.97	784.93	16008.90
O-1	8664.09	1846.82	667.32	2514.14	11200.23	508.02	842.65	1350.67	9849.56	601.47	11801.70
O-3 E	17920.91	2826.86	667.32	3494.17	21417.08	984.48	2412.12	3376.61	18040.47	1291.59	22708.66
O-2 E	14655.03	2418.12	667.32	3085.44	17840.47	881.47	1871.37	2722.84	14917.63	935.68	18576.05
O-1 E	11621.60	1848.74	667.32	2516.06	14137.67	879.67	1412.48	2092.35	12045.52	643.22	14781.09
ALLO-3	16716.98	2826.86	667.32	3494.18	19212.15	905.97	1938.52	2844.49	16367.66	1039.17	20311.32
ALLO-2	12366.43	2418.16	667.32	3085.47	15450.91	723.36	1439.20	2162.56	13288.33	799.19	16250.10
ALLO-1	8843.67	1846.82	667.32	2514.14	11358.80	617.36	873.79	1391.14	9966.66	603.73	11963.54
ALL CO	18832.97	2865.95	667.32	3553.27	20360.24	856.41	2244.14	3100.55	17265.69	1256.06	21642.30
W-4	18166.78	3068.92	667.32	3736.24	21895.02	964.42	2277.00	3241.42	18653.60	1334.06	23229.08
W-3	14881.50	2603.98	667.32	3471.30	18432.81	876.26	1535.22	2470.47	15962.34	962.30	19395.11
W-2	11879.01	2520.26	667.32	3187.58	15066.59	694.92	1032.23	1727.15	13339.44	723.79	15790.38
W-1	10423.19	2312.18	667.32	2979.50	13402.69	609.78	795.46	1405.20	11997.46	672.46	14076.15
ALL WO	13341.86	2640.38	667.32	3307.71	16649.68	767.88	1316.66	2084.11	14666.58	862.26	17611.95
ALLOFF	18617.48	2870.79	667.32	3538.11	20155.69	860.93	2186.80	3037.81	17117.78	1231.75	21387.34
H/S	19825.20	2743.20	987.25	3710.45	23535.66	965.25	2680.05	3646.30	19890.35	1365.98	24921.63
E-9	15180.93	2717.97	987.25	3683.22	18866.15	886.09	1584.87	2472.95	16393.19	1025.95	19892.09
E-8	12636.87	2617.10	987.25	3484.35	16121.22	739.25	1117.97	1857.23	14263.99	793.71	16914.93
E-7	10897.43	2292.40	987.25	3259.65	13957.08	626.80	810.21	1436.01	12521.07	732.45	14669.53
E-6	8610.42	2114.43	987.25	3081.68	11892.10	516.41	602.36	1017.76	10874.34	693.75	12585.85
E-5	7097.53	1885.09	987.25	2852.34	9949.87	415.21	300.78	715.98	9233.89	670.99	10620.86
E-4 +4	6833.17	1480.96	987.25	2448.21	9081.38	386.04	427.39	813.44	8268.94	690.14	9671.52
E-4 -4	5747.49	1480.97	987.25	2448.22	8195.71	338.23	264.04	600.28	7595.44	577.42	8773.13
ALLE-4	6980.73	1480.97	987.25	2448.22	8408.94	348.70	303.37	652.07	7756.86	580.49	8989.43
E-3	5339.94	1226.85	987.25	2194.10	7534.04	312.39	280.33	592.72	6941.32	496.46	8030.52
E-2	5007.60	1051.34	987.25	2018.59	7026.19	292.92	267.87	560.81	6465.37	441.08	7467.27
E-1	4492.80	990.46	987.25	1957.71	6450.51	262.63	212.71	475.34	5974.97	410.15	6860.66
ALLENL	6881.44	1571.33	987.25	2536.58	9190.02	369.11	370.30	739.41	8430.60	881.24	9771.25
ALLOOD	7986.10	1745.35	927.08	2672.44	10658.53	460.98	613.58	1084.54	9594.00	686.36	11328.89

TABLE 31

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1977
FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ	BAS	ALL	CPY	SST	FIT	TOT	DIS	TAD	RMC
C/S	47498.40	5090.40	714.36	5804.76	53303.16	965.25	12871.23	13836.48	39466.68	6720.69	59023.85
O-10	47498.40	5090.40	714.36	5804.76	53303.16	965.25	12942.48	13907.73	39395.43	5726.31	59029.47
O-9	45643.94	5081.69	714.36	5796.05	51439.99	965.25	11936.83	12902.08	38537.91	5580.51	57023.50
O-8	41932.39	5075.42	714.36	5789.78	47722.17	965.25	10169.11	11134.36	36587.81	5180.96	52919.13
O-7	36468.00	5079.58	714.36	5793.94	42261.94	965.25	7700.33	8745.58	33516.36	4067.75	46629.69
O-6	30354.67	4406.98	714.36	5123.34	35477.91	965.25	5840.26	6805.51	28672.40	3150.56	38628.47
O-5	24731.67	4016.34	714.36	4730.70	29462.37	965.25	3798.27	4763.52	24698.84	2256.64	31719.20
O-4	20204.82	3879.11	714.36	4284.47	24489.29	965.23	2672.43	3637.65	20851.64	1670.91	26160.20
O-3	16463.11	3164.71	714.36	3879.07	20342.19	941.24	1968.87	2910.11	17432.07	1337.24	21679.43
O-2	12904.76	2696.99	714.36	3411.35	16316.11	754.93	1418.43	2173.36	14142.76	1050.83	17366.94
O-1	9284.85	2053.89	714.36	2768.26	12052.81	541.98	812.60	1354.66	10678.15	695.52	12728.33
O-3 E	19081.68	3164.78	714.36	3879.14	22960.81	908.23	2610.62	3575.85	19384.96	1495.65	24456.66
O-2 E	15461.41	2697.28	714.36	3411.64	18873.05	904.49	1993.65	2898.14	15974.92	1203.87	20076.93
O-1 E	12337.00	2053.77	714.36	2768.13	15105.13	721.71	1428.89	2150.60	12954.53	858.26	15963.39
ALLO-3	16737.07	3184.72	714.36	3879.08	20616.15	943.75	2036.01	2979.70	17636.38	1353.83	21969.98
ALLO-2	13154.93	2697.02	714.36	3411.38	16566.31	769.56	1474.72	2244.28	14322.03	1065.80	17632.11
ALLO-1	9498.19	2053.89	714.36	2768.25	12266.44	555.68	859.54	1415.19	10851.25	707.90	12974.34
ALL CO	17828.30	3218.03	714.36	3932.39	21761.70	877.53	2378.64	3256.17	18505.53	1518.15	23279.84
W-4	19931.38	3444.94	714.36	4159.30	24190.68	965.11	2371.65	3336.76	19851.92	1532.80	24721.64
W-3	15630.15	3118.90	714.36	3833.26	19363.41	906.12	1580.72	2486.84	16876.57	1210.77	20574.18
W-2	12824.78	2791.42	714.36	3505.78	16130.56	738.55	996.51	1735.06	14395.50	930.05	17066.61
W-1	11042.98	2558.79	714.36	3274.15	14317.11	646.01	724.20	1370.21	12946.90	797.65	15114.76
ALL WO	13998.25	2929.63	714.36	3643.99	17640.24	799.48	1290.11	2089.60	15550.64	1066.22	18706.47
ALLOFF	17582.30	3209.20	714.36	3914.56	21606.86	872.70	2311.34	3184.04	18322.82	1490.20	22997.06
M/S	21052.80	3067.20	1036.60	4103.80	25156.60	965.25	2809.60	3854.86	21301.76	1616.89	26773.19
E-9	16152.25	3038.10	1036.60	4074.70	20226.95	927.14	1633.64	2560.78	17666.17	1294.06	21521.01
E-8	13388.13	2802.59	1036.60	3839.19	17207.33	782.04	1057.91	1839.94	15367.38	1049.67	18257.00
E-7	11327.98	2587.07	1036.60	3624.27	14952.25	692.69	691.05	1334.24	13598.01	886.94	15839.19
E-6	9308.96	2344.67	1036.60	3381.27	12690.23	644.57	411.52	956.09	11734.13	753.20	13443.42
E-5	7526.22	2066.60	1036.60	3095.20	10620.42	440.23	259.41	699.64	9920.78	675.21	11295.63
E-4 +4	7038.73	1628.87	1036.60	2665.47	9704.21	411.76	381.20	793.04	8911.17	615.16	10319.37
E-4 -4	6101.63	1628.87	1036.60	2665.47	8767.10	356.95	223.21	580.15	8186.94	580.79	9347.89
ALLE-4	6366.66	1628.87	1036.60	2665.47	9034.12	372.57	268.25	640.81	8393.31	590.59	9624.71
E-3	5662.40	1333.78	1036.60	2370.38	8032.78	331.25	263.98	595.23	7437.55	505.80	8538.58
E-2	5317.20	1168.65	1036.60	2205.25	7522.45	311.00	255.40	566.52	6955.92	463.27	7985.72
E-1	4770.00	1108.42	1036.60	2145.02	6915.02	279.05	184.27	463.32	6451.70	423.38	7338.40
ALLENL	7048.87	1729.63	1036.60	2766.23	9815.11	412.23	326.18	738.40	9076.70	612.57	10427.68
ALLDOD	8452.32	1926.38	993.71	2919.09	11371.41	473.52	590.42	1063.95	10307.46	729.40	12100.81

TABLE 32

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1978
FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ	BAS	ALL	CPY	SST	FIT	TOT	DIS	TAO	RMC
C/S	47498.40	6371.20	783.60	6124.80	63823.20	1070.86	12871.23	13942.08	39881.12	6040.73	59693.93
O-10	47498.40	6371.20	783.60	6124.80	63823.20	1070.86	12975.23	14046.08	39677.12	6049.09	59672.28
O-9	47498.40	6361.64	783.00	6116.44	63613.84	1070.86	12763.82	13834.67	39789.17	6018.37	59632.21
O-8	44239.13	5992.86	783.60	6116.46	60305.08	1070.86	11161.37	12232.23	38123.37	5778.42	56132.01
O-7	36473.20	5361.45	783.60	6116.06	44666.20	1070.86	8571.84	9642.69	34948.66	4964.54	49552.79
O-6	31969.65	4658.89	783.60	6412.49	37402.94	1070.86	6206.83	7279.68	30122.66	3542.61	40944.95
O-5	26018.17	4243.27	783.60	4990.87	31013.04	1070.86	4176.44	5246.29	25766.75	2645.82	33658.66
O-4	21291.60	3769.67	783.60	4523.17	26818.00	1070.86	2980.36	4050.91	21764.09	1865.11	27680.11
O-3	17363.66	3321.09	783.60	4074.69	21428.85	1031.63	2226.18	3256.81	18171.54	1492.40	22920.74
O-2	13362.60	2837.36	783.60	3590.96	16943.76	807.86	1526.71	2334.58	14609.20	1144.82	18088.28
O-1	9868.80	2190.14	783.60	2913.74	12782.88	584.97	898.39	1480.36	11102.27	706.86	13339.48
O-3 E	20093.06	3321.10	783.60	4074.70	24167.76	1070.78	2926.14	3996.92	20171.83	1676.93	25844.69
O-2 E	16287.10	2837.03	783.60	3590.83	19877.93	986.37	2207.06	3192.42	16685.51	1336.60	21214.53
O-1 E	13191.70	2190.22	783.60	2913.82	16040.80	794.42	1610.85	2405.30	13640.27	958.37	17004.97
ALLO-3	17636.21	3321.09	783.60	4074.69	21709.90	1036.66	2297.12	3332.78	18377.12	1511.36	23221.26
ALLO-2	13668.69	2837.32	783.60	3590.92	17260.61	827.01	1600.16	2427.17	14833.34	1168.28	18425.79
ALLO-1	10018.07	2190.18	783.60	2913.76	12931.82	606.08	967.83	1573.83	11358.19	777.28	13709.10
ALL OC	16702.07	3360.90	783.60	4134.60	22836.58	961.91	2630.61	3592.52	19244.04	1689.23	24525.80
W-4	20111.28	3942.61	783.60	4998.41	24507.89	1070.41	2621.73	3694.16	20813.53	1695.62	26203.31
W-3	16736.31	3305.86	783.60	4059.26	19794.67	950.84	1622.23	2673.07	17221.60	1293.11	21187.69
W-2	13586.81	2982.89	783.60	3716.59	17283.0	820.77	1164.82	1985.59	15297.71	1045.84	18328.94
W-1	11841.71	2714.76	783.60	3468.36	15110.08	704.32	826.62	1529.94	13580.13	872.63	16982.70
ALL WO	14865.09	3097.99	783.60	3851.69	18616.88	867.01	1416.76	2283.76	16230.93	1166.39	19682.67
ALLOFF	19443.46	3382.77	783.60	4116.37	22859.62	966.63	2552.96	3506.61	19061.01	1656.71	24218.64
M/S	22212.00	3236.40	1095.00	4331.40	26643.40	1070.66	3193.90	4264.76	22278.66	1817.64	28361.04
E-9	16773.43	3194.16	1095.00	4289.16	21062.59	1004.60	1602.50	2607.10	18255.48	1419.28	22481.86
E-8	14152.08	2945.56	1095.00	4040.56	18192.62	856.20	1234.20	2090.40	16102.22	1170.08	19362.70
E-7	11928.66	2726.01	1095.00	3821.01	15747.66	721.66	808.10	1528.68	14221.18	973.64	16721.50
E-6	9751.26	2459.81	1095.00	3554.81	13306.07	589.96	610.07	1100.02	12206.06	818.81	14124.68
E-5	7962.12	2174.83	1095.00	3269.83	11221.95	481.10	338.46	819.56	10402.40	719.43	11941.37
E-4 +4	7409.73	1739.42	1095.00	2834.42	10244.15	448.28	432.74	881.03	9363.11	661.87	10906.02
E-4 -4	6421.07	1739.41	1095.00	2834.41	9255.48	388.47	251.64	640.12	8615.36	643.95	9899.43
ALLE-4	6862.23	1739.41	1095.00	2834.41	9496.64	403.07	295.82	698.88	8797.76	648.32	10144.96
E-3	5981.22	1421.85	1095.00	2516.85	8498.07	361.94	300.13	662.09	7836.05	548.06	9046.14
E-2	5608.80	1262.74	1095.00	2357.74	7966.54	339.33	266.82	620.15	7340.39	502.66	8469.42
E-1	5032.80	1153.63	1095.00	2248.63	7281.43	304.48	230.73	535.21	6746.22	463.97	7745.40
ALLENL	7447.06	1839.46	1095.00	2934.46	10375.53	450.11	368.91	837.02	9538.51	668.00	11043.53
ALLOCD	8911.78	2043.09	1049.36	3092.45	12004.21	617.71	676.46	1194.16	10810.06	800.03	12804.24

TABLE 33

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1979 FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ	BAS	ALL	CPY	SST	FIT	TOT	DIS	TAD	RMC
O/S	50112.00	6749.20	806.52	6555.72	56667.72	1403.77	13273.14	14676.91	41990.81	6290.17	62957.90
O-10	50112.00	6749.20	806.52	6555.72	56667.72	1403.77	13446.61	14850.28	41817.44	6298.34	62966.08
O-9	50112.00	6736.83	806.52	6548.16	56657.16	1403.77	13216.40	14620.17	42036.98	6272.57	62929.72
O-8	47369.78	6740.47	806.52	6548.99	53890.78	1403.77	11834.67	13238.44	40652.34	6043.20	59939.98
O-7	41173.20	6736.78	806.52	6546.30	47719.50	1403.77	9123.72	10527.49	37191.02	5305.00	53024.40
O-6	34309.98	6000.24	806.52	5808.76	40118.74	1403.77	6457.42	7861.19	32256.55	3645.18	43981.87
O-5	27839.97	4831.04	806.52	5637.56	33177.53	1403.21	4414.66	5817.78	27359.75	2669.12	35846.64
O-4	22812.86	4034.80	806.52	4841.32	27654.97	1383.94	3130.74	4494.68	23159.29	1965.47	29609.45
O-3	18658.05	3561.62	806.52	4368.04	23014.09	1143.62	2363.84	3527.46	19486.63	1538.70	24552.80
O-2	14354.43	2972.66	806.52	3779.18	18133.60	879.92	1731.16	2611.08	15522.53	1223.46	19357.07
O-1	10372.84	2307.12	806.52	3113.64	13486.18	635.84	972.20	1608.04	11878.14	805.14	14291.32
O-3 E	21447.10	3561.62	806.52	4368.14	25606.24	1314.71	3073.52	4388.22	21417.02	1748.14	27551.38
O-2 E	17386.98	2972.66	806.52	3779.07	21146.05	1084.72	2436.10	3520.82	17647.23	1421.85	22569.90
O-1 E	14014.68	2306.87	806.52	3113.49	17128.08	869.09	1721.65	2590.74	14547.34	999.29	18127.37
ALLO-3	16939.70	3651.63	806.52	4368.05	23297.75	1161.00	2483.93	3614.94	19682.81	1559.78	24857.53
ALLO-2	14686.61	2972.66	806.52	3779.17	18465.88	900.28	1808.81	2709.09	15756.69	1248.32	19711.00
ALLO-1	10780.36	2307.10	806.52	3113.62	13893.98	681.48	1058.18	1719.63	12184.35	827.42	14731.40
ALL CO	19898.06	3583.62	806.52	4390.04	24288.10	1131.83	2778.80	3908.69	20379.52	1769.79	26047.90
W-4	21498.79	3679.62	806.52	4486.04	26150.83	1316.10	2843.82	4159.92	21990.91	1769.93	27843.18
W-3	18930.31	3521.34	806.52	4327.86	21258.17	1097.83	1882.20	2980.03	18038.14	1344.83	22602.98
W-2	14670.32	3158.16	806.52	3984.67	18655.00	893.16	1344.67	2237.83	16297.17	1082.19	19617.18
W-1	12162.14	2678.81	806.52	3663.03	15845.17	746.54	956.62	1702.16	14143.01	912.30	16757.47
ALL WO	16872.98	3298.02	806.52	4104.54	19777.50	980.75	1608.82	2589.28	17208.22	1213.81	20991.11
ALLOFF	19628.65	3566.31	806.52	4371.83	24000.49	1120.73	2702.46	3823.19	20177.30	1724.97	25725.46
M/S	23770.80	3463.20	1171.65	4634.85	28405.65	1403.77	3311.40	4715.19	23690.46	1899.12	30304.77
E-9	18279.55	3422.69	1171.65	4594.24	22873.79	1120.84	1982.54	3083.07	19790.71	1446.27	24320.06
E-8	15189.30	3146.30	1171.65	4317.95	19467.24	929.88	1345.77	2276.65	17211.59	1179.94	20667.18
E-7	12770.03	2911.49	1171.65	4083.14	16853.17	782.80	917.52	1700.32	15152.85	995.14	17848.31
E-6	10476.89	2641.87	1171.65	3813.52	14289.40	642.17	584.32	1226.49	13062.92	805.24	15154.64
E-5	8493.68	2313.84	1171.65	3485.49	11979.17	520.88	336.72	857.36	11119.79	656.15	12837.32
E-4 +4	7918.42	1824.36	1171.65	2996.01	10911.42	480.22	481.51	961.73	9944.79	737.27	11643.79
E-4 -4	8944.63	1824.35	1171.65	2996.00	9940.63	425.72	300.20	725.91	9214.91	726.49	10867.31
ALLE-4	7207.00	1824.36	1171.65	2996.00	10203.00	441.79	349.17	790.96	9412.04	729.40	10932.40
E-3	6437.07	1481.66	1171.65	2653.21	9090.29	394.69	358.20	752.79	8337.50	616.05	9706.34
E-2	6001.20	1288.27	1171.65	2457.92	8459.12	367.67	344.26	712.13	7746.98	556.92	9016.03
E-1	5385.60	1201.27	1171.65	2372.92	7758.52	330.14	263.24	593.38	7165.14	517.88	8276.40
ALLENL	6005.31	1845.45	1171.65	3117.10	11122.40	490.72	437.65	928.38	10194.03	743.37	11665.76
ALLDOD	9570.01	2164.62	1122.26	3286.87	12856.88	578.97	744.09	1320.06	11644.62	876.19	13741.07

TABLE 34

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1980
FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ	BAS	ALL	CPY	SST	FIT	TOT	DIS	TAD	RMC
O/S	50112.00	6422.40	990.96	7413.36	57525.36	1587.67	13273.14	14860.81	42664.55	7136.82	64662.18
O-10	50112.00	6422.40	990.96	7413.36	57525.36	1587.67	13294.38	14882.05	42643.31	7134.15	64659.51
O-9	50112.00	6410.88	990.96	7401.84	57513.84	1587.67	13245.00	14832.67	42680.97	7118.81	64632.15
O-8	50112.00	6418.72	990.96	7408.88	57518.88	1587.67	12954.34	14542.01	42976.88	7095.73	64614.41
O-7	46990.00	6408.26	990.96	7399.22	53389.22	1587.67	11101.81	12689.48	40699.74	6661.71	60050.93
O-6	38262.87	6589.36	990.96	6580.34	44863.21	1587.67	7850.70	9438.37	35424.83	4926.03	49788.24
O-5	30940.93	6072.62	990.96	6063.46	37004.41	1586.25	5292.00	6878.24	30126.17	3812.87	40816.99
O-4	25434.61	4506.33	990.96	5497.29	30931.91	1530.84	3796.61	5327.06	25604.85	2525.77	33457.87
O-3	20616.24	3953.02	990.96	4943.98	25769.23	1276.96	2916.12	4192.09	21867.13	1976.77	27736.00
O-2	16090.41	3306.34	990.96	4297.30	20387.71	986.34	2145.44	3131.79	17256.93	1554.83	21942.54
O-1	11679.10	2566.29	990.96	3557.25	15136.36	709.60	1209.61	1919.21	13218.06	1006.26	16142.92
O-3 E	23909.15	3953.03	990.96	4943.99	28853.14	1465.63	3733.37	5199.00	23654.14	2272.79	31125.93
O-2 E	19481.84	3306.96	990.96	4296.91	23778.76	1194.24	3006.42	4200.66	19578.09	1813.57	25592.33
O-1 E	15933.98	2568.18	990.96	3557.14	19491.10	976.75	2171.61	3148.26	16342.84	1299.89	20790.99
ALLO-3	21182.03	3953.03	990.96	4943.99	26106.01	1297.23	3007.72	4304.95	21801.06	2009.06	28115.07
ALLO-2	16531.44	3306.28	990.08	4297.26	20828.70	1013.36	2257.41	3270.79	17557.91	1558.48	22417.17
ALLO-1	12108.42	2566.26	990.96	3557.24	15665.66	742.26	1325.66	2067.61	13597.86	1041.35	16707.61
ALL CO	22064.04	3972.50	990.96	490 46	27027.49	1261.08	3365.56	4616.64	22410.85	2252.64	29260.13
W-4	24003.09	4330.96	990.96	5341.91	29345.00	1471.39	3467.77	4939.16	24405.84	2314.92	31689.92
W-3	18011.41	3947.01	990.96	4937.97	23949.38	1166.40	2294.87	3460.27	20489.11	1704.24	25653.67
W-2	16334.48	3637.05	990.96	4628.01	20862.50	1001.30	1695.26	2696.56	18166.94	1357.62	22220.12
W-1	13766.43	3227.37	990.96	4218.33	17986.76	844.01	1239.15	2083.16	15903.61	1134.13	19120.88
ALL WO	17818.82	3686.85	990.96	4680.81	22199.63	1073.90	1989.05	3062.96	19136.67	1526.86	23726.29
ALLOFF	21765.89	3953.96	990.96	4944.92	26710.92	1246.81	3265.96	4614.77	22196.15	2206.04	28916.96
E/S	25553.60	1870.00	1438.10	5308.10	31861.70	1587.67	4072.01	5659.68	26202.02	2490.19	34351.89
E-9	20461.41	3629.97	1438.10	5268.07	26729.48	1264.28	2402.42	3656.71	23072.78	1857.87	27587.35
E-8	16988.79	3628.72	1438.10	4906.82	21925.62	1039.68	16-0.90	2680.48	19245.14	1477.04	23402.66
E-7	14241.48	3248.12	1438.10	4864.22	18925.70	870.00	1160.02	2033.02	16892.68	1237.21	20162.92
E-6	11713.88	2948.68	1438.10	4386.68	16100.54	716.06	786.16	1606.22	14594.12	1050.48	17160.62
E-5	9809.67	2666.48	1438.10	4006.58	13816.43	582.96	586.23	1149.18	12667.25	963.86	14480.12
E-4 +4	8647.62	2026.46	1438.10	3464.56	12312.18	542.36	680.92	1223.28	11088.90	866.26	13178.44
E-4 -4	7791.63	2026.47	1438.10	3464.57	11258.09	477.62	478.63	956.26	10302.84	844.16	12180.28
ALLE-4	8132.89	2026.46	1438.10	3464.56	11597.46	498.65	641.99	1040.64	10556.92	861.31	12446.77
E-3	7240.76	1840.88	1438.10	3278.98	10319.84	443.88	521.58	965.46	9354.39	739.91	11059.74
E-2	6703.20	1432.72	1438.10	2870.82	9574.02	410.91	478.82	889.73	8684.29	668.61	10242.92
E-1	6016.80	1321.74	1438.10	2759.84	8775.44	368.78	382.50	751.28	8024.16	623.38	9398.80
ALLENL	8977.06	2164.87	1438.10	3602.77	12579.82	550.29	627.08	1177.38	11402.45	881.62	13461.46
ALLOCO	10726.67	2409.73	1378.88	3788.59	14515.27	648.97	988.61	1634.48	12880.79	1062.68	15578.15

TABLE 35

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1981 FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ+VHA	BAS	ALL	CPY	SST	FIT	TOT	DIS	TAD	RMC
C/S	50112.00	7340.40	1132.68	8473.08	51244.68	1975.05	13107.22	15082.27	36162.41	7992.47	66577.55
O-10	50112.00	7516.87	1132.68	8649.25	52154.89	1975.05	13142.81	15117.86	37037.03	8159.00	66920.26
O-9	50112.00	7453.71	1132.68	8586.39	51816.77	1975.05	12957.85	14932.90	36883.87	8079.32	66777.71
O-8	50112.00	7854.93	1132.68	8987.61	54104.80	1975.05	12832.35	14807.40	39297.39	8465.89	67575.51
O-7	50112.00	7688.22	1132.68	9020.90	54094.78	1975.05	12792.44	14767.49	39627.28	8485.10	67618.00
O-6	40734.18	7340.78	1132.68	8473.46	49866.08	1975.05	9986.28	11961.33	37904.75	7234.91	59442.56
O-5	35248.80	6948.20	1132.68	8080.88	41869.78	1972.77	6727.46	8700.23	33169.55	6654.62	48942.84
O-4	29043.75	6209.96	1132.68	7342.64	34977.48	1938.38	4038.01	6736.38	28241.11	4153.70	40540.08
O-3	23742.68	5083.17	1132.68	6215.85	28839.57	1578.89	3713.01	5291.90	23547.67	2944.39	32902.92
O-2	18448.28	4043.24	1132.68	5175.92	22252.85	1226.81	2759.65	3986.46	18266.39	2174.95	25799.18
O-1	13294.20	3412.36	1132.68	4545.04	17069.37	884.07	1538.67	2482.74	14586.63	1498.21	19317.44
O-3 E	27276.03	5574.87	1132.68	6707.55	32867.35	1813.99	4750.85	6564.84	26302.51	3761.96	37747.54
O-2 E	22347.71	4511.29	1132.68	5643.97	26620.08	1486.12	3849.74	5335.86	21284.22	2634.13	30625.81
O-1 E	18064.58	3953.49	1132.68	5086.17	22379.52	1201.30	2755.47	3956.78	18422.76	2173.70	25324.48
ALLO-3	24124.64	5136.28	1132.68	6268.97	29274.74	1604.29	3825.14	5429.43	23845.31	3002.73	33426.54
ALLO-2	18035.00	4113.66	1132.68	5246.34	22909.95	1265.83	2923.66	4189.49	18720.46	2274.13	26566.47
ALLO-1	13839.43	3474.21	1132.68	4606.89	17676.30	920.32	1730.89	2651.21	15025.09	1576.41	20021.73
ALL CO	25167.96	5270.32	1132.68	6403.00	30290.25	1586.72	4269.44	5856.17	24484.08	3465.00	33805.98
W-4	27547.99	5673.14	1132.68	6805.82	32632.03	1801.94	4124.09	6006.03	26626.00	3392.53	37746.34
W-3	21643.36	4976.66	1132.68	6111.34	26113.72	1439.29	2606.52	4124.81	21988.91	2329.39	30084.10
W-2	16803.92	4480.01	1132.68	5612.69	22808.76	1250.48	2085.46	3335.92	19172.85	1872.80	26289.11
W-1	15931.78	3983.82	1132.68	5116.50	19564.48	1059.48	1642.07	2701.54	16862.94	1662.05	22610.11
ALL WO	20070.68	4664.38	1132.68	5797.06	24136.04	1334.70	2411.78	3746.48	20389.57	2117.94	27985.68
ALLOFF	24640.29	5231.36	1132.68	6364.04	29894.63	1551.81	4150.02	5701.83	24192.80	3378.41	34682.74
M/S	31068.00	4424.40	1642.50	6066.90	32710.50	1975.05	5386.68	7361.63	25348.87	3491.33	40626.23
E-9	24161.65	5330.93	1642.50	6973.43	29769.97	1606.75	3249.48	4856.29	24913.76	3005.68	34140.76
E-8	19970.92	4892.29	1642.50	6534.79	26030.77	1328.07	2242.71	3570.77	21459.99	2298.70	28804.41
E-7	16637.98	4466.02	1642.50	6108.52	21220.55	1106.43	1565.69	2092.12	18558.43	1838.78	24586.28
E-6	13740.99	3942.67	1642.50	5585.17	17815.68	913.78	1140.64	2054.42	15761.27	1501.34	20827.50
E-5	11143.68	3326.88	1642.50	4969.38	14818.07	741.07	891.00	1632.07	12886.00	1269.09	17384.36
E-4 >4	9983.28	2548.76	1642.50	4191.26	12284.63	663.92	913.82	1577.74	10686.89	1098.16	15273.21
E-4 -4	8864.97	2548.76	1642.50	4191.26	11145.78	589.52	686.80	1276.32	9869.46	1057.75	14113.96
ALLE-4	9301.73	2548.76	1642.50	4191.26	11582.56	618.57	775.42	1393.99	10188.57	1073.33	14566.52
E-3	8048.77	2101.66	1642.50	3744.16	9413.24	535.24	661.31	1196.55	8216.69	928.35	12320.88
E-2	7419.60	1726.83	1642.50	3369.33	8167.43	493.40	591.45	1084.85	7082.57	811.50	11600.13
E-1	6616.90	1557.31	1642.50	3199.81	7062.25	440.02	474.41	914.43	6147.83	747.32	10564.14
ALLENL	10315.61	2798.95	1642.50	4441.45	12759.60	885.99	874.32	1760.31	11198.29	1187.60	15824.87
ALLDOD	12308.92	3132.77	1572.53	4705.30	15111.14	804.81	1323.86	2128.67	12982.47	1471.01	18485.23

TABLE 36

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1982
FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ+VHA	BAS	ALL	CPY	SST	FIT	TOT	DIS	TAD	RMC
C/S	50112.00	7040.40	1132.68	8473.08	58585.08	1975.05	13107.22	15082.27	43502.81	7992.47	66577.55
O-10	50112.00	9102.12	1132.68	10234.80	60346.80	1975.05	13142.81	15117.86	45228.94	9705.40	70052.20
O-9	50112.00	9153.36	1132.68	10286.04	60398.04	1975.05	12957.85	14932.90	45465.14	9737.01	70135.05
O-8	50112.00	9007.77	1132.68	10140.45	60252.45	1976.05	12832.35	14807.40	45445.05	9580.51	69832.96
O-7	50112.00	8936.70	1132.68	10069.38	60181.38	1975.05	12792.44	14767.49	45413.89	9507.70	69689.08
O-6	43734.18	7091.83	1132.68	9024.51	52758.70	1976.05	9986.28	11961.33	40797.36	7751.50	60510.20
O-5	35246.83	7337.32	1132.68	8470.00	43716.83	1972.77	6727.46	8700.23	35016.60	6967.26	49684.10
O-4	29043.73	6609.14	1132.68	7741.82	36785.87	1898.36	4838.01	6736.38	30049.19	4426.60	41212.17
O-3	23742.68	5274.84	1132.68	6407.32	30150.00	1678.89	3713.01	5291.90	24858.10	3045.82	33195.82
O-2	18448.29	4226.12	1132.68	5358.80	23807.08	1220.81	2759.65	3980.46	19820.62	2263.87	26070.96
O-1	13294.20	3605.42	1132.68	4738.10	18032.29	864.07	1098.67	2482.74	15549.56	1809.31	19601.61
O-3 E	27278.03	5929.78	1132.68	7062.46	34340.49	1813.99	4750.85	6564.84	27775.65	3988.14	38328.63
O-2 E	22347.71	4967.72	1132.68	6100.40	28448.11	1486.12	3849.74	5335.86	23112.24	3098.70	31546.80
O-1 E	18064.58	4345.38	1132.68	5478.06	23542.64	1201.30	2755.47	3956.76	19585.87	2359.06	25901.69
ALLO-3	24124.64	5345.42	1132.68	6478.10	30602.75	1604.29	3825.14	5429.43	25173.32	3147.63	33750.38
ALLO-2	19035.00	4237.70	1132.68	5370.38	24605.38	1265.83	2523.66	4189.49	20315.89	2369.48	26884.86
ALLO-1	13839.41	3689.99	1132.68	4822.67	18662.10	920.32	1730.89	2651.21	16010.89	1859.76	20321.86
ALL CO	25187.96	5562.53	1132.68	6695.21	31883.17	1566.72	4269.44	5836.17	26027.01	3664.55	35517.73
W-4	27047.99	6029.32	1132.68	7153.00	34200.98	1831.94	4174.09	6006.03	28094.96	3602.88	38303.87
W-3	21643.38	5232.49	1132.68	6365.17	28008.56	1439.29	2685.52	4124.81	23883.74	2443.90	30452.45
W-2	18803.92	4868.14	1132.68	6000.82	24804.74	1250.46	2085.46	3335.92	21468.82	2022.73	26827.47
W-1	15931.76	4229.00	1132.68	5361.74	21293.50	1068.46	1642.07	2701.54	18591.97	1645.82	22939.32
ALL WO	20070.68	4963.28	1132.68	6115.96	26186.03	1334.70	2411.78	3746.48	22440.15	2252.58	28439.22
ALLOFF	24840.29	5526.29	1132.68	6657.97	31498.26	1551.81	4150.02	5701.83	25798.43	3564.43	35062.69
M/S	31068.00	4424.40	1842.50	6066.90	37134.90	1978.05	5386.58	7361.63	29773.27	3491.33	40626.23
E-9	24181.65	6748.81	1842.50	7391.31	31552.96	1608.75	3249.45	4856.20	20696.76	3219.82	34772.78
E-8	19970.92	5387.65	1842.50	7010.15	26981.07	1328.07	2242.71	3570.77	23410.29	2497.09	29478.15
E-7	16637.96	4912.65	1842.50	6585.15	23223.14	1106.43	1585.69	2692.12	20531.02	2007.70	25230.83
E-6	13740.99	4362.87	1842.50	6005.37	19746.36	913.78	1140.64	2054.41	17691.94	1633.98	21380.33
E-5	11143.68	3878.63	1842.50	5319.13	16463.01	741.07	691.00	1432.07	14830.94	1375.83	17838.84
E-4 >4	9993.78	2843.51	1642.00	4486.01	14479.79	669.92	913.82	1577.74	12882.05	1193.23	15653.02
E-4 -4	8864.97	2843.52	1642.50	4486.02	13350.99	589.52	686.80	1276.32	12074.67	1147.01	14498.00
ALLE-4	9301.73	2843.61	1642.50	4486.01	13787.75	618.57	775.42	1393.99	12393.76	1165.06	14952.81
E-3	8048.77	2819.30	1842.50	4252.80	12301.56	535.24	661.21	1196.55	11105.01	1083.60	13385.36
E-2	7419.60	2118.56	1842.50	3761.06	11180.38	493.40	591.45	1084.85	10095.82	916.93	12097.61
E-1	8616.80	1922.16	1842.50	3864.66	10181.46	440.02	474.41	914.43	9267.04	842.81	11024.28
ALLENL	10315.81	3198.80	1642.50	4031.30	15146.91	685.99	874.32	1560.31	12398.90	1287.83	16434.74
ALLOCD	12308.92	3509.45	1572.53	5081.98	17390.90	804.81	1323.86	2128.67	15262.23	1600.28	18991.19

TABLE 37

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1983 FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ+VHA	BAS	ALL	CPY	SST	FIT	TOT	DIS	TAX	RMC
O/S	57499.20	7035.60	1176.04	8810.64	66077.24	2170.80	15196.05	17367.45	41309.79	7909.10	74221.94
O-10	57499.20	7035.60	1176.04	8810.04	66677.24	2170.80	15269.46	17440.26	41236.98	7928.33	74238.17
O-9	57499.20	6059.00	1176.04	9237.04	66552.71	2170.80	15103.36	17274.16	40278.54	8294.05	75039.29
O-8	57499.20	6279.33	1176.04	9457.37	61639.61	2170.80	15000.89	17171.69	44468.12	8483.02	75439.59
O-7	54669.60	6346.67	1176.04	9524.91	69316.79	2170.80	13651.25	15822.05	43494.74	9252.41	72446.92
O-6	45397.06	7072.57	1176.04	9050.61	62229.27	2170.80	9788.41	11959.21	40269.06	6601.21	61249.77
O-5	36599.03	7394.64	1176.04	8572.68	43782.89	2164.51	6581.53	8746.04	35016.64	5429.62	50601.83
O-4	30256.88	6841.75	1176.04	7819.79	36737.38	2022.09	4769.27	6791.36	29946.02	4064.30	42139.97
O-3	24543.23	6422.77	1176.04	6600.81	29940.77	1644.40	3643.37	5287.77	24653.00	2860.26	34024.30
O-2	18377.65	4405.19	1176.04	5581.23	22847.29	1231.30	2459.83	3691.13	18956.16	2048.01	26008.69
O-1	13906.35	3563.81	1176.04	4741.85	17440.33	931.86	1512.16	2444.02	14996.31	1397.80	20048.00
O-3 E	28340.68	5789.65	1176.04	6967.69	34104.94	1898.82	4695.91	6594.74	27510.20	3583.69	38891.84
O-2 E	23232.33	4848.97	1176.04	6025.01	27993.40	1559.92	3714.00	5273.92	22719.49	2735.11	32042.44
O-1 E	18918.27	4047.91	1176.04	5225.95	22932.66	1267.59	2627.63	3895.22	19037.33	2031.73	26146.98
ALLO-3	24940.28	5461.12	1176.04	6639.16	30376.17	1871.00	3753.42	5624.42	24951.74	2853.80	34633.24
ALLO-2	19103.01	4470.62	1176.04	5646.66	23437.94	1279.90	2646.31	3925.21	19512.73	2149.83	26901.20
ALLO-1	14618.99	3822.90	1176.04	4800.94	18110.72	972.84	1548.31	2621.16	15489.57	1471.82	20792.48
ALL CO	26078.92	5826.37	1176.04	6803.41	31542.11	1660.80	4166.17	5817.03	25726.07	3333.69	36216.03
W-4	28327.76	5962.88	1176.04	7141.02	33727.80	1897.98	4018.44	5916.39	27811.11	3219.86	38868.64
W-3	22781.47	5312.85	1176.04	6490.89	27674.99	1626.02	2703.32	4228.34	23446.64	2319.22	31871.38
W-2	18436.17	4724.85	1176.04	5902.89	23242.48	1302.18	2048.98	3352.14	19890.35	1842.82	27180.98
W-1	16314.63	4177.40	1176.04	5366.44	20093.08	1093.09	1662.87	2655.86	17437.59	1505.69	23175.86
ALL WO	20778.12	4824.69	1176.04	6102.73	26100.80	1382.00	2366.96	3758.95	21341.85	2071.38	28950.24
ALLOFF	25738.10	5580.34	1176.04	6756.38	31126.11	1643.58	4041.18	5684.76	25443.35	3252.66	35749.04
M/S	32310.00	4600.80	1706.20	6309.00	34018.20	2164.77	5262.00	7426.77	26591.43	3326.90	41945.90
E-9	25092.57	5601.37	1706.20	7309.57	30972.60	1981.20	3192.63	4674.03	26098.77	2894.81	35296.95
E-8	20697.17	5128.68	1706.20	6836.76	26996.52	1386.71	2199.28	3585.99	22410.83	2230.00	28763.99
E-7	17173.32	4656.95	1706.20	6364.15	21943.82	1160.81	1554.66	2706.46	19238.16	1789.31	25326.77
E-6	14150.21	4143.43	1706.20	5851.63	18462.14	946.06	1109.00	2067.07	16406.07	1455.68	21467.83
E-5	11515.57	3474.32	1706.20	5182.52	16028.87	771.64	887.78	1639.33	13989.56	1206.99	17897.09
E-4 14	10376.62	2673.31	1706.20	4381.51	12728.14	695.23	884.78	1580.01	11148.13	1042.61	15800.64
E-4 -4	9173.51	2673.33	1706.20	4381.53	11523.10	614.63	662.41	1277.04	10246.07	1001.51	14658.58
ALLE-4	9594.07	2673.33	1706.20	4381.53	11843.64	642.90	740.14	1382.94	10460.69	1015.84	14891.44
E-3	8260.07	2186.26	1706.20	3894.46	9713.41	554.76	627.23	1181.98	8531.43	877.26	13051.80
E-2	7711.80	1827.38	1706.20	3533.58	8544.28	516.69	568.66	1085.56	7458.78	786.06	12015.48
E-1	6883.20	1650.99	1703.20	3359.19	7407.41	481.17	454.43	915.60	6491.81	708.22	10948.62
ALLENL	10704.40	2948.30	1706.20	4667.50	13290.06	717.19	849.80	1567.09	11722.96	1120.23	16492.14
ALLDOC	12797.70	3315.66	1634.38	4950.03	16773.63	848.18	1294.25	2140.44	10600.40	1417.14	19154.87

TABLE 38

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1984
FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ+VHA	BAS	ALL	CPY	SST	FIT	TOT	DIS	TAD	RMC
O/S	65998.80	7941.60	1225.20	9166.80	67224.00	2532.60	16343.50	18876.10	48347.90	6638.03	81803.63
O-10	65998.80	7941.60	1225.20	9166.80	67224.00	2532.60	16379.04	18911.64	48312.36	6638.02	81803.62
O-9	65998.80	6259.99	1225.20	9485.19	69196.89	2532.60	16393.69	18926.29	50270.60	6881.14	82365.10
O-8	65394.00	8418.90	1225.20	9642.10	69606.88	2532.60	16012.40	18545.00	51061.88	7000.49	82036.59
O-7	56854.80	6404.21	1225.20	9669.41	61490.46	2532.60	12509.94	15042.54	46647.92	6353.10	73097.30
O-6	47255.37	7894.65	1225.20	9119.75	53995.10	2531.07	9067.30	11518.37	42376.73	5472.30	61847.42
O-5	38192.63	7436.01	1225.20	8660.21	45406.86	2479.60	6153.82	8533.42	36773.44	4360.29	51236.03
O-4	31678.55	6895.99	1225.20	7921.19	38237.35	2122.46	4480.07	6502.53	31634.82	3384.31	42984.05
O-3	25869.25	5437.87	1225.20	6663.07	31084.60	1721.18	3399.60	5120.79	25963.81	2440.47	34792.79
O-2	19804.89	4425.26	1225.20	5650.46	24072.56	1326.93	2411.69	3738.62	20334.53	1754.47	27209.91
O-1	14370.52	3597.66	1225.20	4822.86	17956.19	962.82	1407.46	2370.28	15587.81	1185.97	20379.34
O-3 E	29583.03	5824.95	1225.20	7050.15	35364.77	1982.06	4368.73	6348.79	29015.98	2987.68	39620.87
O-2 E	24212.99	4885.61	1225.20	6110.81	28939.09	1622.27	3395.61	5017.88	23921.51	2300.75	32624.56
O-1 E	19671.01	4084.10	1225.20	5309.30	23745.12	1317.96	2447.61	3765.46	19979.68	1874.43	26654.74
ALLO-3	26139.93	5482.68	1225.20	6707.88	31580.01	1751.36	3511.64	5262.92	26317.09	2503.81	35351.82
ALLO-2	20320.99	4500.03	1225.20	5725.23	24863.09	1374.91	2571.01	3945.91	20917.17	1843.20	28089.42
ALLO-1	15002.92	3658.45	1225.20	4883.65	18681.36	1007.20	1637.43	2644.64	16036.74	1247.01	21163.56
ALL CO	27209.42	6849.99	1225.20	6875.19	32772.84	1780.74	3890.49	5671.23	27101.62	2766.46	36931.08
W-4	29197.00	6038.39	1225.20	7263.59	34659.60	1956.20	3683.03	5639.23	29020.37	2703.24	39163.83
W-3	23853.01	5374.00	1225.20	6599.20	28667.14	1598.15	2535.58	4133.74	24453.40	2013.41	32465.82
W-2	20001.92	4847.77	1225.20	6072.97	23936.51	1340.13	1875.51	3215.64	20720.86	1585.74	27640.63
W-1	16752.51	4097.30	1225.20	5322.50	20442.87	1122.43	1587.11	2709.54	17733.33	1299.96	23375.07
ALL WO	21478.52	4973.29	1225.20	6198.49	25772.06	1438.93	2213.65	3652.78	22119.30	1769.78	29444.79
ALLOFF	26916.44	5806.57	1225.20	6831.77	32323.64	1758.80	3782.91	5541.72	26781.93	2702.61	36460.72
M/S	33602.40	4784.40	1777.55	6561.95	35379.95	2261.36	4856.64	7809.99	28269.95	2833.73	42998.08
E-9	28103.30	5648.85	1777.55	7426.40	32034.32	1748.92	2987.19	4736.11	27298.21	2497.04	36026.73
E-8	21374.43	5188.43	1777.55	6965.98	28757.13	1432.09	2052.97	3485.06	23272.07	1920.88	30201.39
E-7	17793.29	4733.65	1777.55	6511.40	22874.37	1192.16	1473.69	2665.84	20008.53	1613.14	25817.82
E-6	14668.12	4228.64	1777.55	6006.09	19106.70	982.77	1052.73	2035.50	17071.20	1235.24	21909.46
E-5	12014.02	3586.14	1777.55	5363.69	15656.71	804.94	831.42	1636.37	14020.34	1046.71	18394.41
E-4 +4	10832.84	2759.39	1777.55	4536.94	13351.90	725.80	831.20	1557.00	11794.89	898.36	16268.14
E-4 -4	9571.04	2759.37	1777.55	4536.92	12090.05	641.26	635.40	1276.66	10813.39	856.40	14964.30
ALLE-4	10098.76	2759.38	1777.55	4536.93	12617.79	676.62	717.29	1393.91	11223.88	873.95	15509.64
E-3	8651.11	2275.54	1777.55	4053.09	10214.67	579.62	598.46	1178.10	9036.57	765.38	13469.58
E-2	8024.40	1914.21	1777.55	3691.76	8870.74	537.63	532.53	1070.16	7800.59	600.03	12396.20
E-1 +4	7156.80	1709.62	1777.55	3487.17	7702.47	479.51	431.16	910.67	6791.80	628.73	11272.90
E-1 -4	6863.20	1657.68	1708.20	3366.08	7420.47	461.17	392.65	853.82	6566.65	600.37	10849.63
ALLE-1	6974.40	1675.16	1731.32	3406.50	7514.47	467.28	405.49	872.77	6641.70	608.82	10990.72
ALLENL	11227.44	3054.79	1773.03	4828.43	13978.46	752.24	815.50	1567.74	12410.72	972.58	17028.45
ALLOOD	13448.81	3416.09	1695.98	5112.08	16575.91	894.76	1235.65	2130.40	14445.51	1217.52	19778.40

TABLE 39

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1985
FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ+VHA	BAS	ALL	CPY	SST	FIT	TOT	DIS	TAD	RMC
C/S	68698.60	7930.80	1274.18	9204.98	69072.98	2791.80	17014.74	19806.54	50106.42	6665.68	84569.42
O-10	66698.60	7879.66	1274.18	9153.82	69972.90	2791.80	17273.06	20064.86	49908.10	6601.60	84534.21
O-9	56690.60	8443.74	1274.16	9717.90	72123.22	2791.80	17103.35	19895.16	52228.07	7049.69	85466.39
O-8	68011.20	8735.60	1274.18	10009.76	72778.25	2791.80	16725.93	19517.73	53260.52	7267.39	85288.34
O-7	59130.00	8838.98	1274.16	10113.12	64516.17	2791.60	13109.74	15901.54	48554.63	6690.06	78133.77
O-6	49286.32	8679.18	1274.18	9953.32	67015.90	2790.20	9489.62	12259.88	44756.02	6000.29	65238.93
O-5	39836.57	8231.50	1274.18	9505.98	48047.46	2734.97	6432.58	9167.55	36079.91	4860.11	54201.34
O-4	33009.10	7448.25	1274.18	8722.44	40510.66	2327.14	4697.82	7024.96	33485.92	3784.95	45518.48
O-3	26743.30	5903.24	1274.18	7177.40	32783.26	1888.41	3544.97	5430.37	27352.91	2654.37	36378.13
O-2	20066.96	4600.66	1274.18	5874.82	24708.86	1414.02	2388.31	3802.32	20908.54	1779.35	27711.13
O-1	15036.63	3747.96	1274.18	5022.11	18976.47	1060.23	1556.92	2617.14	16359.32	1292.92	21383.88
O-3 E	30761.52	6303.08	1274.16	7577.24	37192.08	2167.98	4543.01	6710.99	30481.09	3237.31	41366.07
O-2 E	24718.40	5132.91	1274.18	6407.07	29897.32	1742.44	3407.22	5149.65	24747.67	2386.44	33488.90
O-1 E	19980.47	4365.62	1274.18	5639.78	24504.73	1408.51	2544.39	3950.90	20553.83	1819.92	27410.17
ALLO-3	27200.14	5948.81	1274.18	7222.97	33266.72	1917.61	3658.71	5576.31	27709.41	2720.81	37143.91
ALLO-2	20620.45	4665.62	1274.18	5939.78	26342.04	1484.08	2512.65	3966.74	21376.30	1851.00	28416.22
ALLO-1	15687.07	3825.72	1274.18	5099.88	19672.52	1103.83	1681.25	2785.08	16887.45	1369.27	22118.23
ALL CO	28606.91	6170.70	1274.18	7444.86	34704.20	1969.70	4081.58	6041.28	28662.93	3041.48	38993.22
W-4	30623.78	6727.47	1274.16	8001.63	37314.32	2161.93	3879.14	6031.07	31283.25	3033.48	41588.88
W-3	25018.33	5827.74	1274.18	7101.90	30440.19	1763.79	2858.77	4422.86	26017.63	2190.68	34310.89
W-2	20822.25	5236.97	1274.18	6511.13	25290.88	1463.87	1903.18	3417.02	21873.67	1700.74	28634.11
W-1	17222.28	4257.60	1274.18	5531.76	21139.27	1214.17	1666.71	2880.88	18258.38	1384.82	24118.85
ALL WO	22608.78	5416.92	1274.18	6691.08	27645.87	1593.92	2381.28	3975.16	23070.49	1965.69	31268.55
ALLOFF	28121.71	6121.47	1274.18	7395.63	34243.22	1935.81	3970.53	5906.34	28338.88	2971.19	38488.54
M/S	34945.20	5138.80	1846.90	7005.70	36792.10	2403.64	5050.68	7514.32	29277.78	3032.67	44983.77
E-9	27147.82	6293.07	1846.90	8139.97	33869.65	1913.90	3108.72	5022.63	28837.23	2761.98	38049.48
E-8	22194.56	5759.12	1846.90	7606.02	28238.41	1564.72	2108.26	3873.98	24562.43	2103.81	31904.40
E-7	18420.97	5243.62	1846.90	7090.62	23847.57	1299.03	1500.71	2799.75	21047.82	1646.09	27162.68
E-6	15260.41	4617.72	1846.80	6464.62	20109.70	1076.86	1105.48	2181.34	17928.38	1343.05	23068.08
E-5	12640.77	3819.93	1846.90	5666.83	16461.94	884.33	888.32	1770.68	14691.28	1127.98	19338.58
E-4 >4	11288.93	2962.77	1846.90	4809.67	13992.42	794.32	869.04	1663.35	12329.08	956.18	17032.78
E-4 <4	9981.73	2962.76	1846.90	4809.68	12677.20	701.59	649.47	1351.06	11326.14	928.78	15690.14
ALLE-4	10550.78	2962.76	1846.90	4809.66	13278.28	743.83	749.48	1493.31	11782.98	941.23	16301.88
E-3	9054.31	2556.66	1846.90	4403.40	10848.99	638.33	610.09	1248.43	9597.56	840.86	14298.42
E-2	8344.80	2107.11	1846.90	3954.01	9384.48	588.31	549.84	1138.15	8246.31	733.50	13032.31
E-1 >4	7444.80	1902.28	1846.90	3749.18	8251.97	524.86	423.89	948.86	7303.13	683.10	11677.09
E-1 <4	6863.20	1902.33	1708.20	3610.53	7609.18	485.27	344.50	829.77	6839.38	646.87	11140.80
ALLE-1	7070.40	1902.31	1754.43	3668.75	7863.42	498.47	370.99	869.46	6993.96	658.95	11386.09
ALLENL	11771.26	3366.61	1840.00	5208.61	14648.31	829.87	853.08	1682.95	13163.35	1062.46	18042.33
ALLDOD	14119.56	3763.98	1758.74	5522.72	17032.18	908.71	1300.82	2289.53	15342.62	1336.60	20978.87

TABLE 40

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1986
FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ+VHA	RAS	ALL	CPY	SST	FIT	TOT	DIS	TAD	RMC
O/S	60098.80	8168.40	1312.44	9480.84	70011.24	3003.00	16851.19	19854.19	50157.05	6860.18	85039.82
O-10	60890.80	8113.89	1312.44	9426.33	70011.24	3003.00	17089.01	20092.01	49919.23	6860.60	85005.73
O-9	60098.80	8168.40	1312.44	9480.84	71502.30	3003.00	16791.71	19794.71	51707.59	6854.73	85034.37
O-8	60098.80	8148.96	1312.44	9459.40	72715.17	3003.00	16815.05	19818.05	52892.12	6862.43	85020.63
O-7	60904.80	9145.38	1312.44	10457.82	66340.81	3003.00	13718.35	16721.35	49619.46	7141.47	78504.08
O-6	50766.17	6984.55	1312.44	10296.98	58637.70	3000.64	9819.39	12820.03	45817.68	6209.11	67272.27
O-5	41149.75	8535.45	1312.44	9847.89	49554.64	2907.19	6680.26	9573.45	39981.19	5037.86	56035.50
O-4	33899.39	7694.24	1312.44	9006.68	41496.74	2423.81	4806.12	7229.92	34266.81	3803.30	46791.37
O-3	27350.83	6113.31	1312.44	7425.75	33502.65	1955.56	3563.54	5519.10	27983.52	2699.77	37476.35
O-2	20947.38	4003.85	1312.44	6110.29	25808.83	1497.74	2475.08	3973.02	21835.22	1845.10	28908.77
O-1	15534.84	3954.83	1312.44	5267.27	19701.07	1108.60	1685.44	2074.04	17027.03	1326.22	22098.33
O-3 E	31689.31	6593.29	1312.44	7905.73	38031.25	2206.50	4632.05	6838.54	31432.71	3351.70	42956.74
O-2 E	25728.97	5415.55	1312.44	6727.99	31202.69	1839.62	3519.75	5359.37	25843.32	2493.33	34940.29
O-1 E	21015.92	4507.37	1312.44	5819.81	25764.36	1502.64	2662.69	4165.33	21599.03	1857.25	28702.99
ALL O-3	27867.64	6170.36	1312.44	7482.80	34076.53	1992.54	3690.53	5683.07	28393.46	2777.25	38127.69
ALL O-2	21589.68	4883.46	1312.44	6195.90	26610.82	1542.23	2611.74	4153.97	22356.85	1928.17	29693.74
ALL O-1	16224.44	4026.98	1312.44	5339.42	20492.77	1160.05	1708.71	2868.76	17624.01	1398.86	22960.72
ALL CO	29415.23	6416.08	1312.44	7729.12	35779.77	2050.00	4185.91	6240.79	29532.98	3134.38	40276.73
W-4	31452.50	6937.86	1312.44	8250.30	38257.21	2246.85	4039.62	6288.48	31968.74	3137.37	42840.17
W-3	25817.94	6007.68	1312.44	7320.12	31345.25	1845.98	2755.47	4601.45	26743.80	2254.02	35392.08
W-2	21933.08	5473.54	1312.44	6785.98	26719.46	1568.21	2067.67	3636.09	23080.39	1790.40	30509.48
W-1	17244.35	4478.68	1312.44	5791.12	21165.65	1232.97	1504.40	2737.37	18428.28	1320.08	24585.55
ALL WO	23583.06	5648.88	1312.44	6961.32	28686.39	1684.04	2463.82	4147.86	24538.53	2096.59	32550.98
ALL OFF	29030.72	6388.31	1312.44	7878.75	35314.49	2036.16	4072.96	6109.11	29205.38	3062.37	39771.84
E/S	35992.80	5313.60	1901.65	7215.25	37894.45	2573.49	5171.04	7744.53	30149.92	3098.23	46308.28
E-9	29107.01	6537.99	1901.65	8439.64	35014.89	2009.65	3263.64	5273.29	29741.60	2678.78	39425.44
E-8	22832.70	6018.92	1901.65	7920.57	29204.94	1632.54	2169.30	3801.84	25403.11	2161.99	32935.26
E-7	18042.41	5469.12	1901.65	7370.77	24699.73	1361.53	1546.53	2908.07	21791.66	1705.27	28118.45
E-6	15763.16	4831.71	1901.65	6733.36	20871.65	1127.08	1132.54	2259.60	18612.05	1390.87	23887.39
E-5	12956.28	4004.76	1901.65	5906.41	17126.72	926.37	894.96	1821.33	15305.39	1160.49	20023.17
E-4 +4	11592.45	3109.87	1901.65	5011.52	14538.09	828.86	869.86	1698.72	12839.37	981.34	17585.31
E-4 -4	10179.32	3109.88	1901.65	5011.53	13124.98	727.82	644.56	1372.38	11752.60	964.15	16134.99
ALL E-4	10762.89	3109.87	1901.65	5011.52	13708.54	769.55	737.60	1507.15	12201.40	989.51	16733.92
E 3	9268.82	2662.50	1901.65	4564.15	11175.88	662.72	612.60	1275.40	9900.48	889.30	14092.27
E 2	8598.80	2173.90	1901.65	4075.55	9657.14	614.67	588.84	1183.51	8473.62	748.36	13420.73
E-1 +4	7668.00	1916.66	1901.65	3818.31	8328.73	540.26	447.81	996.07	7332.60	687.08	12173.39
E-1 -4	7088.40	1916.81	1758.30	3675.91	7729.34	506.82	366.26	873.08	6858.27	649.04	11413.35
ALL E-1	7201.60	1916.63	1806.76	3723.30	7929.14	520.63	393.44	914.08	7015.06	661.72	11666.70
ALL INL	12168.83	3537.23	1894.83	5432.06	15440.51	870.07	870.56	1740.65	13707.87	1096.62	18097.50
ALL GOU	14895.25	3944.34	1811.02	5755.36	18307.22	1037.87	1331.40	2369.27	15937.98	1379.49	21730.10

TABLE 41

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1987 FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ+VHA	BAS	ALL	CPY	SSI	FIT	TOT	DIS	TAD	RMC
C/S	70801.20	8413.20	1351.80	9765.00	72159.00	3131.70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
O-10	70801.20	8362.45	1351.80	9714.25	72573.64	3131.70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
O-9	70801.20	8413.20	1351.80	9765.00	73621.97	3131.70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
O-8	70801.20	8190.47	1351.80	9742.27	74887.48	3131.70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
O-7	62793.60	9329.74	1351.80	10681.54	67955.39	3131.70	[illegible]	[illegible]	[illegible]	[illegible]	79190.76
O-6	51876.01	9203.45	1351.80	10555.25	59884.08	3129.68	[illegible]	10883.45	[illegible]	[illegible]	[illegible]
O-5	42248.38	8758.54	1351.80	10110.34	50933.57	3003.01	[illegible]	8201.99	[illegible]	4050.53	56457.25
O-4	34844.00	7883.12	1351.80	9234.92	42649.19	2491.35	3838.25	6329.60	36319.60	3876.87	47185.78
O-3	28107.17	6294.66	1351.80	7646.46	34536.73	2009.66	3003.94	5093.60	25443.13	2075.08	37828.71
O-2	21589.51	4926.11	1351.80	6277.91	26686.16	1543.65	2202.06	3745.71	22940.45	1636.06	29503.48
O-1	15521.81	4015.79	1351.80	5367.59	19887.40	1109.81	1360.42	2470.62	17416.78	99?.93	21882.33
O-3 E	32800.51	6710.42	1351.80	8062.22	39643.41	2345.24	3901.97	4327.21	33318.20	2762.72	43625.45
O-2 E	26787.64	5535.78	1351.80	6887.58	32491.61	1915.32	3255.43	5170.75	27320.86	2144.23	35819.45
O-1 E	22119.08	4661.23	1351.80	6013.03	27132.68	1581.51	2450.23	4031.75	23100.92	1850.12	29982.24
ALLO-3	28705.98	6347.71	1351.80	7699.51	35188.52	2052.48	3198.51	5250.99	29937.53	2162.81	38568.29
ALLO-2	22261.13	5004.88	1351.80	6358.68	27436.24	1591.67	2338.16	3929.63	23506.42	1701.72	30319.53
ALLO-1	16258.83	4087.90	1351.80	5439.70	20696.81	1162.50	1482.52	2645.03	18051.73	1088.70	22787.22
ALL CO	30187.39	6578.88	1351.80	7930.68	36785.10	2120.87	3474.25	5594.82	31190.20	2520.20	40630.27
W-4	32031.29	7079.24	1351.80	8431.04	39028.21	2290.24	3098.06	5388.32	33639.89	2130.62	42591.82
W-3	26519.91	6223.95	1351.80	7575.75	32368.11	1898.17	2224.20	4120.30	28247.73	1427.03	35522.69
W-2	22067.16	5620.30	1351.80	6972.10	27086.45	1577.80	1643.64	3221.44	23865.02	1339.24	30370.51
W-1	17980.37	4644.49	1351.80	5996.29	22025.43	1285.59	1173.24	2450.83	19966.60	1152.20	25178.95
ALL WO	24357.01	5897.23	1351.80	7249.03	29797.20	1741.53	1976.31	3717.83	[illegible]	[illegible]	[illegible]
ALL OFF	29806.77	6534.38	1351.80	7886.18	36328.31	2055.82	[illegible]	5472.23	[illegible]	[illegible]	40144.74
M/S	37072.80	5472.00	1960.05	[illegible]	[illegible]	2050.71	[illegible]	6579.30	[illegible]	[illegible]	47005.97
E-9	23648.41	6696.27	1960.05	8656.32	35740.14	2046.26	2570.25	4618.61	[illegible]	[illegible]	39087.17
E-8	23432.53	6169.61	1960.05	8129.68	29942.03	1675.43	1737.61	3411.04	[illegible]	1496.33	33058.57
E-7	19601.57	5628.09	1960.05	7588.14	25515.62	1401.51	1191.63	2551.35	[illegible]	1398.22	28508.00
E-6	16223.05	4938.70	1960.05	5898.75	21454.42	1159.85	879.13	[illegible]	[illegible]	[illegible]	24079.09
E-5	13331.60	4107.43	1960.05	6067.48	17618.96	953.21	585.56	[illegible]	16080.19	1133.51	20555.72
E-4 +4	11909.53	3164.19	1960.05	5124.24	14824.74	861.53	659.09	1510.52	13314.11	977.04	18010.81
E-4 -4	10516.91	3164.18	1960.05	5124.23	13132.09	751.96	442.62	1194.50	12237.51	946.13	16627.27
ALLE 4	11093.62	3164.19	1960.05	5124.24	14008.81	793.19	532.27	1325.46	12634.55	932.36	17200.33
E-3	9550.47	2738.91	1960.05	4698.96	11517.43	683.43	462.35	1165.78	10351.64	867.44	15124.87
E-2	8856.00	2229.58	1960.05	4189.63	9925.63	633.20	465.30	1090.76	8826.80	737.07	13803.60
E-1 +4	7898.40	1952.49	1960.05	3912.54	8545.83	564.74	351.83	916.37	7629.26	699.33	12510.27
E-1 -4	7300.80	1952.43	1810.40	3762.83	7929.20	522.01	267.42	709.43	7139.76	661.23	11724.86
ALLE-1	7500.00	1952.45	1860.28	3812.73	8134.74	536.25	285.56	831.81	7302.93	673.93	11906.68
ALL ENL	12551.55	3628.07	1952.50	5580.58	15905.31	897.43	842.10	1539.53	14365.77	1041.26	19173.39
ALL DOD	15043.67	4047.82	1865.75	5913.57	18055.03	1070.51	[illegible]	2107.53	16717.50	1244.98	22202.22

TABLE 42

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1988
FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	BAQ+VHA	BAS	ALL	CPY	SST	FIT	TOT	DIS	TAD	RMC
O-3	72500.40	8582.40	1378.80	9961.20	73879.20	3379.50	13613.51	16993.01	56886.19	4199.58	86661.18
O-10	72500.40	8527.01	1378.80	9905.83	73879.20	3379.50	13905.21	17284.71	56594.48	4235.82	86642.05
O-9	72500.40	9019.38	1378.80	10398.18	73890.41	3379.50	13600.55	16980.05	56910.36	4403.61	87302.20
O-8	72500.40	9375.14	1378.80	10753.94	77286.33	3379.50	13603.46	16982.96	60303.37	4584.67	87839.01
O-7	69390.00	9462.72	1378.80	10841.52	69326.91	3379.50	11068.68	14448.18	54878.72	4255.94	79087.46
O-6	52991.60	9384.04	1378.80	10762.84	61230.99	3377.63	7781.39	11158.92	50072.07	4233.42	67987.86
O-5	43305.70	8942.11	1378.80	10320.91	52235.22	3237.66	5086.10	8323.77	43911.45	3920.07	57947.40
O-4	35605.21	7980.14	1378.80	9358.94	43389.78	2673.95	3029.25	6503.20	36886.58	2643.39	47615.54
O-3	28740.00	6409.54	1378.80	7788.34	35256.18	2158.98	3075.22	5234.20	30021.98	1826.27	38362.61
O-2	22657.48	5021.16	1378.80	6399.96	27736.76	1701.58	2289.59	3991.16	23745.60	1664.42	30721.86
O-1	16194.76	4178.42	1378.80	5557.22	20797.65	1216.22	1418.49	2634.72	18162.93	1034.82	22786.00
O-3E	33275.11	6849.97	1378.80	8228.77	40223.33	2498.96	3913.45	6412.41	33810.92	2218.34	43722.22
O-2E	27035.54	5602.67	1378.80	6981.47	32698.62	2030.37	3169.38	5199.74	27498.88	1910.06	35927.07
O-1E	21799.69	4087.40	1378.80	5266.20	27106.75	1637.16	2274.61	3911.77	23194.98	1778.67	29844.56
ALLO-3	29373.32	6470.38	1378.80	7849.18	35942.28	2205.94	3191.60	5396.94	30545.34	1880.43	39102.93
ALLO-2	23087.87	5078.33	1378.80	6457.13	28224.54	1733.90	2376.08	4109.97	24114.57	1688.57	31233.57
ALLO-1	16673.63	4238.99	1378.80	5617.79	21336.60	1252.19	1491.64	2743.82	18592.86	1097.64	23309.07
ALL CO	30794.47	6681.02	1378.80	8062.82	37464.32	2274.64	3436.54	5711.18	31783.14	2248.82	41106.11
W-4	32576.83	7147.57	1378.80	8526.37	39402.04	2446.52	3195.98	5642.50	33759.54	1807.44	42990.54
W-3	27004.48	6306.75	1378.80	7765.55	33278.04	2034.04	2286.67	4320.72	28956.12	1451.03	36301.04
W-2	22635.79	5698.98	1378.80	7077.78	27661.05	1699.95	1661.73	3361.68	24299.37	1354.70	31066.27
W-1	18370.60	4902.82	1378.80	6281.62	23202.43	1379.62	1102.19	2561.82	20640.61	1201.49	25053.60
ALL WO	24821.61	6022.27	1378.80	7401.07	30516.83	1871.61	2019.24	3890.86	26625.97	1450.19	33772.87
ALLOFF	30428.23	6642.75	1378.80	8021.55	37031.08	2249.50	3348.16	5597.66	31433.42	2199.02	40648.82
M/S	37814.40	5580.00	2000.20	7580.20	39814.60	2639.66	3898.41	6738.27	33076.33	2269.55	47664.15
E-9	29778.53	6799.94	2000.20	8800.14	36509.89	2198.82	2679.78	4878.59	31631.30	1691.25	39769.92
E-8	23883.58	6232.04	2000.20	8232.24	30434.79	1793.65	1766.68	3560.34	26874.46	1523.89	33639.71
E-7	20023.77	5667.70	2000.20	7667.90	26016.77	1503.79	1203.39	2709.17	23307.60	1415.64	29127.30
E-6	16583.12	5012.23	2000.20	7012.43	21935.47	1245.39	819.18	2064.57	19870.90	1261.55	24857.10
E-5	13676.47	4207.90	2000.20	6208.10	18096.31	1027.10	618.76	1645.87	16450.44	1129.43	21014.00
E-4+4	12149.11	3260.72	2000.20	5260.92	15194.40	912.40	692.54	1604.94	13589.46	943.81	18353.84
E-4-4	10710.30	3260.73	2000.20	5260.93	13755.59	804.34	470.86	1275.20	12480.40	933.30	16904.53
ALLE-4	11382.03	3260.73	2000.20	5260.93	14427.32	854.79	574.35	1429.14	12998.18	938.21	17581.16
E-3	9759.01	2770.83	2000.20	4771.03	11665.52	732.90	528.06	1260.97	10404.55	824.76	15354.80
E-2	9032.40	2251.04	2000.20	4251.24	10070.54	678.33	497.95	1176.28	8894.26	732.52	14016.15
E-1+4	8056.80	1975.67	2000.20	3975.87	8705.58	605.07	393.18	998.25	7707.32	668.52	12701.19
E-1-4	7448.40	1975.61	1846.90	3822.51	8079.70	559.37	308.76	868.13	7211.57	628.89	11899.81
ALLE-1	7651.20	1975.63	1898.00	3873.63	8288.33	574.60	336.90	911.50	7376.82	642.10	12166.93
ALLENL	12844.78	3694.86	1992.90	5687.76	16266.08	964.64	674.20	1638.85	14627.24	1015.71	19548.25
ALLDOD	18420.78	4126.73	1902.93	6029.66	19308.20	1152.80	1065.94	2218.82	17089.37	1189.07	22639.52

TABLE 43

DETAILED REGULAR MILITARY COMPENSATION TABLE IN 1989 FOR OFFICERS AND ENLISTEES BY GRADE

	BPY	HAQ+VHA	BAS	ALL	CPV	SST	FIT	TOT	DIS	TAD	RMC
C/S	75499.20	9054.00	1435.32	10489.32	76934.52	3604.80	14204.78	17809.58	59124.94	4438.71	90427.23
O-10	75499.20	9077.63	1435.32	10512.95	77270.36	3604.80	14255.09	17859.89	59410.47	4448.68	90460.83
O-9	75499.20	9552.48	1435.32	10987.80	79079.18	3604.80	13957.84	17562.44	61516.74	4620.80	91107.80
O-8	75474.00	9843.43	1435.32	11278.75	80324.16	3604.80	13914.84	17519.64	62804.52	4752.36	91505.11
O-7	66614.40	10042.27	1435.32	11477.59	72549.38	3004.80	11292.75	14902.55	57646.83	4507.65	82599.64
O-6	55556.24	9725.56	1435.32	11160.88	64246.67	3602.55	8088.22	11690.77	52555.90	4385.52	71102.64
O-5	45127.02	9637.22	1435.32	11072.54	54844.92	3389.04	5236.43	8675.47	46169.45	4211.28	60410.83
O-4	37165.32	8460.50	1435.32	9895.82	45860.16	2791.12	4010.13	6801.25	39058.91	2836.33	49897.47
O-3	29881.47	6691.00	1435.32	8126.32	36561.82	2244.10	3203.84	5447.94	31113.88	1905.94	39913.73
O-2	23043.40	5730.54	1435.32	6665.86	28233.10	1730.56	2320.83	4051.39	24181.71	1718.86	31427.92
O-1	16755.70	4342.06	1435.32	5777.38	21564.52	1258.35	1488.62	2746.98	18817.54	1068.51	23601.60
O-3 E	34642.02	7709.99	1435.32	8645.31	41732.67	2601.61	4084.15	6685.76	35048.90	2338.34	45823.66
O-2 E	28215.07	6090.75	1435.32	7466.07	33997.15	2118.95	3351.32	5470.27	28526.89	2060.52	37747.66
O-1 E	22407.72	5119.03	1435.32	6554.35	27815.07	1682.82	2347.82	4030.64	23784.44	1873.22	30835.30
ALLO-3	30582.99	6767.48	1435.32	8202.80	37323.80	2296.78	3333.58	5630.34	31693.46	1969.36	40755.15
ALLO-2	23604.81	5317.41	1435.32	6752.73	28858.82	1772.72	2432.69	4205.41	24653.40	1756.42	32113.96
ALLO-1	17186.02	4401.22	1435.32	5836.54	22040.41	1290.67	1554.04	2844.71	19195.70	1129.78	24152.34
ALL CO	32249.47	7070.55	1435.32	8509.87	39341.67	2306.74	3611.20	5997.95	33343.73	2391.54	43150.80
W-4	33405.58	7365.46	1435.32	8800.78	40704.05	2508.76	3134.65	5843.41	35060.64	1832.27	44038.83
W-3	27503.55	6715.69	1435.32	8151.01	33943.41	2065.52	2218.25	4283.76	29659.64	1495.92	37150.48
W-2	23695.72	5978.08	1435.32	7413.40	28834.42	1779.55	1731.12	3510.66	25323.75	1407.68	32516.78
W-1	19460.02	5227.78	1435.32	6663.10	24744.87	1481.49	1253.71	2735.20	22029.67	1267.88	27391.61
ALL WO	25665.86	6288.70	1435.32	7724.02	31497.07	1927.50	2017.73	3945.22	27551.84	1480.30	34870.08
ALLOFF	31825.81	7023.90	1435.32	8459.22	38806.04	2357.14	3508.49	5865.64	32970.40	2332.80	42617.13
M/S	39366.00	5886.00	2080.50	7966.50	41446.50	2956.39	4074.90	7031.29	34415.21	2415.58	49748.06
E-9	30450.52	7088.13	2080.50	9168.63	37969.52	2286.83	2708.50	4995.34	32974.18	1732.25	41351.39
E-8	24886.82	6435.67	2080.50	8516.17	31636.47	1868.99	1805.58	3674.56	27961.90	1562.17	34964.96
E-7	20876.78	5846.14	2080.50	7926.64	26912.28	1567.85	1244.38	2812.23	2 0.05	1455.08	30258.51
E-6	17306.54	5286.61	2080.50	7367.11	22918.51	1299.72	850.89	2150.61	2076.91	1331.82	26005.28
E-5	14276.95	4483.56	2080.50	6564.06	18898.03	1072.20	639.11	1711.31	17186.72	1200.14	22041.15
E-4 >4	12645.69	3497.66	2080.50	5578.16	15766.83	949.69	729.26	1678.95	14087.88	1000.81	19224.66
E-4 -4	11138.68	3497.68	2080.50	5578.18	14249.89	835.77	495.40	1331.16	12918.72	991.60	17698.46
ALLE-4	11875.58	3497.67	2080.50	5578.17	14998.75	891.86	610.54	1502.40	13494.36	998.13	18449.88
E-3	10185.91	3011.43	2080.50	5091.93	12111.63	764.96	550.89	1315.85	10795.78	877.48	16155.32
E-2	9403.20	2440.68	2080.50	4521.18	10651.30	706.18	496.80	1202.98	9448.31	770.61	14694.99
E-1 >4	8388.00	2044.60	2080.50	4125.10	9030.77	629.94	422.95	1052.89	7977.87	696.15	13309.26
E-1 -4	7756.40	2044.54	1923.55	3968.09	8380.65	582.36	334.13	916.49	7464.16	656.78	12379.27
ALLE-1	7965.60	2044.56	1975.87	4020.43	8597.39	598.22	363.74	961.96	7635.39	689.91	12655.93
ALLENL	13439.87	3936.55	2073.52	6010.07	17002.91	1009.33	703.46	1712.80	15290.12	1073.96	20523.90
ALLOOO	16061.91	4378.86	1982.50	6359.36	20116.68	1201.55	1103.81	2305.06	17811.62	1253.49	23674.76

APPENDIX C

TABLE 44

COMPOSITION OF OUTLAYS IN CURRENT AND IN CONSTANT 1982 DOLLARS (1971-1982)

Category	1971	1972	1973	1974	1975	1976	TQ	1977	1978	1979	1980	1981	1982
In Billions of Current Dollars													
Total outlays	210,172	230,681	245,707	269,359	332,332	371,779	95,973	409,203	458,729	503,464	590,920	678,209	745,706
National defense [1]	78,872	79,174	76,681	79,347	86,509	89,619	22,269	97,241	104,495	116,342	133,995	157,513	185,309
Nondefense:													
Payments for individuals	80,412	92,892	104,524	120,137	153,519	180,132	45,377	196,321	210,986	232,878	277,487	323,413	356,739
Direct payments [2]	(70,030)	(79,112)	(90,860)	(105,557)	(137,074)	(160,492)	(40,396)	(174,144)	(186,811)	(206,024)	(245,568)	(286,482)	(318,863)
Grants to State and local governments	(10,381)	(13,780)	(13,664)	(14,581)	(16,445)	(19,640)	(4,980)	(22,177)	(24,175)	(26,854)	(31,927)	(36,931)	(37,875)
All other grants	17,683	20,550	28,126	28,112	33,272	39,365	10,924	46,141	53,655	55,911	59,431	57,756	50,252
Net interest [3]	14,641	15,478	17,349	21,449	23,244	26,716	6,946	29,886	35,441	42,615	52,512	68,734	84,995
All other [4]	28,471	32,171	32,437	36,462	49,390	50,335	14,563	54,493	69,872	73,194	87,437	98,834	94,511
Undistributed offsetting receipts [5]	−10,107	−9,583	−13,409	−16,749	−13,602	−14,386	−4,206	−14,879	−15,720	−17,476	−19,942	−28,041	−26,099
Total nondefense	131,300	151,507	169,026	190,017	245,824	282,160	73,704	311,962	354,234	387,121	456,925	570,696	560,397
In Billions of Constant (FY 1982) Dollars													
Total outlays	595.4	527.6	527.5	528.7	586.0	609.8	157.4	622.6	652.2	660.2	699.1	726.5	745.7
National defense [1]	202.7	190.9	175.1	163.3	159.8	153.6	37.1	154.3	155.0	159.1	164.8	171.4	185.3
Nondefense:													
Payments for individuals	181.0	200.1	215.7	228.4	265.8	291.7	71.2	295.5	296.8	301.6	329.7	344.3	356.7
Direct payments [2]	(157.7)	(170.4)	(187.5)	(200.7)	(237.4)	(259.9)	(63.4)	(262.1)	(262.8)	(266.8)	(287.3)	(305.0)	(318.9)
Grants to State and local governments	(23.4)	(29.7)	(28.2)	(27.7)	(28.5)	(31.8)	(7.8)	(33.4)	(34.0)	(34.8)	(37.4)	(39.3)	(37.9)
All other grants	43.3	47.4	60.5	56.8	58.5	64.3	17.3	70.1	75.7	71.8	68.4	61.3	50.3
Net interest [3]	34.0	33.6	35.9	41.1	40.4	43.0	10.8	44.6	49.4	54.7	62.0	73.7	85.0
All other [4]	75.7	79.7	68.3	71.8	84.9	80.1	22.5	79.9	96.9	95.9	103.8	106.0	94.5
Undistributed offsetting receipts [5]	−27.3	−24.1	−28.1	−32.8	−23.4	−22.9	−6.4	−21.7	−21.7	−22.9	−23.8	−30.1	−26.1
Total nondefense	306.7	336.7	352.4	365.3	476.2	456.2	115.3	468.3	497.1	501.0	535.1	555.2	560.4

TABLE 45

COMPOSITION OF OUTLAYS IN CURRENT AND IN CONSTANT 1982 DOLLARS (1983-1995)

Category	1983	1984	1985	1986	1987	1988	1989	1990 estimate	1991 estimate	1992 estimate	1993 estimate	1994 estimate	1995 estimate
In Billions of Current Dollars													
Total outlays	808.327	851.781	946.316	990.258	1,003.830	1,064.044	1,142.643	1,197.236	1,233.331	1,271.479	1,321.819	1,397.976	1,476.941
National defense [1]	209.903	227.413	252.748	273.375	281.999	290.361	303.559	296.342	303.251	309.212	311.892	315.669	318.567
Nondefense													
Payments for individuals	395.351	399.821	425.637	449.439	469.474	498.758	534.144	577.769	609.972	650.665	694.419	738.789	782.930
Direct payments [2]	(353.715)	(355.537)	(377.547)	(396.603)	(413.072)	(437.776)	(468.223)	(503.198)	(529.207)	(563.800)	(601.509)	(639.186)	(676.355)
Grants to State and local governments	(41.636)	(44.284)	(48.090)	(52.836)	(56.352)	(60.981)	(65.922)	(74.571)	(80.764)	(86.865)	(92.910)	(99.603)	(106.575)
All other grants	50.773	53.198	57.650	59.345	51.847	54.125	55.629	59.013	62.984	62.378	62.112	62.218	62.497
Net interest [3]	89.774	111.058	129.430	135.969	138.570	151.748	169.137	175.581	172.979	163.482	156.963	147.761	136.105
All other [4]	96.501	92.248	113.550	105.137	98.445	106.019	117.389	124.982	127.723	129.525	142.689	180.108	226.341
Undistributed offsetting receipts [5]	- 33.976	- 31.957	- 32.698	- 33.007	- 36.455	- 36.967	- 37.212	- 36.462	- 43.578	- 43.833	- 46.177	- 46.570	- 49.540
Total nondefense	598.424	624.368	693.568	716.882	721.831	773.683	839.083	909.894	930.080	962.216	1.009.926	1.087.306	1.158.373
In Billions of Constant (FY 1987) Dollars													
Total outlays	775.0	788.1	849.6	868.0	858.0	879.6	907.1	912.2	900.8	892.5	893.4	912.6	933.9
National defense [1]	201.3	211.3	230.0	244.0	251.0	252.9	255.9	240.5	235.5	230.7	224.8	219.1	214.3
Nondefense													
Payments for individuals	378.6	368.7	380.0	390.6	392.2	399.8	410.3	426.7	432.7	444.3	457.2	470.5	483.6
Direct payments [2]	(328.7)	(327.9)	(337.1)	(344.8)	(345.2)	(350.9)	(359.7)	(371.7)	(375.5)	(385.0)	(396.1)	(407.1)	(417.8)
Grants to State and local governments	(39.9)	(40.8)	(42.9)	(45.9)	(47.1)	(48.9)	(50.6)	(55.0)	(57.3)	(59.3)	(61.2)	(63.4)	(65.3)
All other grants	48.8	49.3	51.0	50.9	43.3	43.4	42.6	42.9	43.3	40.7	38.6	37.0	35.7
Net interest [3]	86.1	102.7	116.0	118.7	117.4	124.8	133.5	133.2	126.0	114.5	106.0	96.5	86.2
All other [4]	92.6	85.6	101.7	92.3	84.8	88.9	93.8	96.2	94.7	92.7	98.4	119.6	145.2
Undistributed offsetting receipts [5]	- 32.5	- 29.4	- 29.0	- 28.6	- 30.8	- 30.2	- 29.1	- 27.4	- 31.4	- 30.4	- 30.9	- 30.1	- 31.1
Total nondefense	573.7	576.8	619.7	624.0	607.0	626.7	651.2	671.7	665.3	661.8	669.4	693.5	719.6

DESCRIPTION OF ABBREVIATIONS USED AS COLUMNAR HEADINGS

COLUMNAR HEADING	DEFINITION
GS	General Schedule Civilian Employee
GM	General Schedule Civilian Employee (Managerial Positions)
WG	Wage-Grade Civilian Employee
WS	Wage-Grade Civilian Employee (Supervisory Positions)
WL	Wage-Grade Civilian Employee (Leadership Positions)
BPY	Base Pay
BAQ	Basic Allowance for Quarters
BAS	Basic Allowance for Subsistence
ALL	BAQ + BAS
CPY	BPY + BAQ + BAS
SST	Social Security Tax
FIT	Federal Income Tax
TOT	SST + FIT
DIS	Disposable Income (CPY - TOT)
TAD	Tax Advantage
RMC	Regular Military Compensation (CPY + TAD)

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