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INSTITUTE FOR DEFENSE ANALYSES

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Volume 2: Supporting Documentation

David E. Hunter, Project Leader
Raymond Boland
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PREFACE

The Institute for Defense Analyses (IDA) prepared this two-volume paper for the Department of Veterans Affairs under a task titled "Support to the Department of Veterans Affairs (VA)." The paper fulfills the task objective of providing analytical support to the VA by reporting on IDA's detailed scientific study of the state-by-state and VA regional office variation in disability compensation claims, ratings, and monetary benefits. This volume contains supporting documentation for the methods, analyses, findings, and recommendations presented in the first volume.

Stephen J. Balut, David R. Graham, and Stanley A. Horowitz of IDA were the technical reviewers for this paper. The authors acknowledge the contributions of the following individuals who were also part of the study team: Christina H. Bittle, Lark L. Lewis, Neang I. Om, Karen W. Tyson, Molly J. Whipple, Claire C. Willis, and James P. Woolsey.

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APPENDIX A:
DATA SOURCES

We used the Compensation and Pension Master Record (CPMR) as the primary data source for our research with a focus on the September 2005 snapshot. In addition to the CPMR, we used data from the Department of Veteran Affairs' (VA's) Annual Reports, Beneficiary Information Record Locator System (BIRLS), Systematic Technical Accuracy Review (STAR), appeals, the Veteran Population Model 2001-Adjusted (VetPop 2001-Adjusted), the Veteran Population Model 2004 (VetPop 2004), and U.S. Census Bureau reports. In the next section, we give an overview of the CPMR, and in the following sections we discuss the data used for each factor we studied.

COMPENSATION AND PENSION MASTER RECORD

The CPMR database contains information on benefits paid to veterans and demographic characteristics about these veterans. For the analysis in our study, we examined seven snapshots of the CPMR:

- September 2005,
- September 2004,
- September 2000,
- March 2000,
- September 1995,
- September 1990, and
- September 1985.

Since we are interested only in veterans receiving awards for compensation, we filtered out records for veterans only receiving other benefits such as pension. We filtered these data by including veterans with an entitlement code in the CPMR having a last digit of 1. To determine the state in which compensation recipients live, we used the three-digit mail code in the CPMR. For their VA regional offices (VAROs) of jurisdiction, we used the station number for the VARO in the CPMR. For a recipient's county, we mapped the ZIP code field in the CPMR to a county according to a ZIP code database released in April 2006 (http://www.zip-codes.com).

We computed average annual compensation from a snapshot of the CPMR by using the gross award field and the net award field if the gross award field was blank. These monthly payment rates are multiplied by 12 to estimate average annual compensation.

BRANCH OF SERVICE

For branch of service, we partitioned recipients according to their branch of service code in the CPMR. Recipients were grouped into the four major services with branch code A for Army, B for Navy, C for the Marine Corps, and F for Air Force. The remaining codes for smaller groups of veterans such as the Coast Guard or Special Philippine Scouts were aggregated into an "other" category. For the veteran population, we only have national estimates by branch of service, so we were unable to examine this factor across states.

INITIAL COMPLETED CLAIMS

To estimate the number of completed claims by VARO, we used the Distribution of Operational Resources (DOOR) Reports.

We combined completed claims for end-product codes 010 and 110 for the past 12 months to estimate completed initial claims for a year.[1]

DEPENDENTS

We used the dependent paid record code to determine the status of dependents for recipients in the CPMR.

GENDER

For gender, we used the corresponding field in the CPMR and the state veteran population estimates by gender from VetPop 2004.

GENERAL POPULATION DISABILITY STATISTICS

We used Census 2000 data to obtain county statistics on general population disability rates. The statistics we used were the percentage of each county's population

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1 The Veterans Benefits Administration (VBA) organizes claims by end-product code. End-product codes 010 and 110 are assigned to initial disability compensation claims with 8 or more issues and 7 or fewer issues, respectively.

with any disability, a physical disability, a mental disability, and an employment disability for the civilian non-institutionalized population ages 16 to 64. We also considered the percentage of the employment disabled population that is unemployed. That is, the rate of unemployed in the county population with a disability that makes it difficult to work.

For each of these statistics, we partitioned recipients and the veteran population into groups according to their county of residence. For the percentage of the general population with any disability, we partitioned counties into two groups depending on whether their rate of any disability was above or below 20%. For physical disabilities of the general population, we used groups of below 5%, from 5% up to 7.5%, and 7.5% or higher. Counties were partitioned into three groups according to general population mental disabilities. These groups were less than 3%, 3% up to 4%, and 4% or higher. Counties were divided into two groups according to the percentage of the general population with an employment disability, above and below 12%. Finally, we partitioned the rate of unemployment for the employment disabled population into groups of less than 35%, 35% up to 40%, and 40% or higher.

HISTORICAL ANALYSIS

From the VA's annual reports for 1935–2001, we used the "Estimated Expenditures by State" table and the columns for compensation and pension for living veterans with service-connected disabilities.[2] The annual report for 1991 contained incorrect data, so we interpolated between the 1992 and 1990 totals to estimate the 1991 values. We used the VBA's Annual Benefits Reports for fiscal years 2002–2004[3] and the September snapshot of the CPMR for 2005.

INDIVIDUAL UNEMPLOYABILITY

We determined that a recipient had an Individual Unemployability (IU) rating if their CPMR employability code is 2.

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2 See for example, Department of Veterans Affairs, "Annual Report of the Secretary of Veterans Affairs, Fiscal Year 1996," February 1997, p. 146.

3 Department of Veterans Affairs, Veterans Benefits Administration, "Annual Benefits Report, Fiscal Year 2002 [2003 and 2004]," August 2003 [June 2004 and June 2005]. Reports for all three fiscal years are available online at http://www.vba.va.gov/reports.htm.

INITIAL AWARD TO VETERANS (ESTIMATE)

To estimate the number of veterans with an initial award between September 1995 and September 2005, we compared the September 1995 CPMR with the 2005 CPMR to determine the set of veterans who were in the latter but not the former. Of veterans who appeared on the rolls for the first time, some received an award as a result of an initial claim and others from a reopened denied claim. To estimate the numbers from an initial claim, we determined the earliest change reason code by matching scrambled Social Security numbers (SSNs) for the different snapshots of the CPMR we had after 1995. We looked at the change reason codes and prior change reason codes to determine the earliest code. Specifically, we assumed the ratio of the number of recipients with change reason code 00 (initial award) to change reason code 60 (reopened claim) at a VARO also applies to the codes other than 00 or 60. Note that this method fails to account for veterans who came onto the compensation rolls in September 2005 having not been on the rolls in September 1995 for reasons other than an initial claim or a reopened claim. For instance, a veteran may have switched from compensation to pension and back to compensation. However, our analysis led us to believe this number of recipients is relatively small. Our analysis also does not account for veterans who receive an initial award after September 1995 and leave the rolls before September 2005.

MEDIAN FAMILY INCOME

We used the county median family income from Housing and Urban Development (HUD) for 2005. We partitioned recipients and the veteran population into three groups according to the median family income for the general population in their county. These three groups consisted of median family income levels of less than $50 thousand, from $50 thousand up to $60 thousand, and $60 thousand and above. Note that we excluded 48,924 recipients from Puerto Rico, foreign territories, and with unknown county codes.

MILITARY RETIREE STATUS

For military retiree status in the CPMR, we used the special law code 06. These totals for retirees and non-retirees were consistent with the VA Office of the Inspector General report[4] for the September 2004 CPMR. However, our analysis indicated that

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4 Department of Veterans Affairs, Office of the Inspector General, "Review of State Variances in VA Disability Compensation Payments," Report No. 05-00765-137, May 19, 2005.

many of these retirees had less than 20 years of service so we combined retiree status with years of service in our analysis. For the veteran population for military retirees, we used the Department of Defense (DoD) Office of the Actuary Statistical Report for Fiscal Year (FY) 2005.[5] In particular, we used the column for the number retired from DoD in the table called "Military Personnel Receiving and Not Receiving Pay from DoD as of September 30, 2005."

NUMBER OF SERVICE-CONNECTED DISABILITIES

To determine the number of service-connected disabilities, we used the field for the number of service-connected disabilities in CPMR. Note that this code goes up to only 9 disabilities.

OFFICER OR ENLISTED STATUS

We matched the April 2006 snapshot of BIRLS to the September 2005 CPMR with scrambled SSNs and then used the PAYGRADE1 code from BIRLS to determine officer or enlisted status for veterans in the CPMR. If the PAYGRADE1 code was WO1-WO5 or O0-O10, we categorized the recipient as an officer. Conversely, if the code was E1-E9, we placed the recipient in the enlisted category. However, we were unable to determine the office/enlisted status of 901,160 recipients. For the veteran population, VetPop 2004 provides national estimates for officer or enlisted status, but state estimates are not available.

PERIOD OF SERVICE

We partitioned veterans into five periods of service: World War II, Korean Conflict, Vietnam Era, Gulf War, and peacetime. In the CPMR, we used the entitlement code to map recipients to their period of service. We grouped World War I or Mexican Border Period veterans with peacetime veterans, and we grouped the Philippine pesos period of service (entitlement code 91) with World War II veterans. The entitlement code in the CPMR denotes the period of service when a veteran's primary disability occurred. For the veteran population, we used VetPop 2004 and mapped veterans to their earliest

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5 U.S. Department of Defense, Office of the Actuary, "Fiscal Year 2005 DoD Statistical Report on the Military Retirement System," 2006.

period of service if their service spanned multiple periods. Less than 4% of the veteran population has served in multiple periods of service.

POPULATION DENSITY

We divided each county's general population from Census 2000 by the county's land area according to the Census 2000 U.S. Gazetteer File. We mapped recipients and the veteran population into three groups according to their county population density. These counties were partitioned as less than 100 people per square mile, from 100 up to 500 people per square mile, and 500 or more people per square mile.

POWER OF ATTORNEY

We analyzed the group of recipients with any power of attorney representation compared to the group of recipients without power of attorney representation. We counted recipients in the CPMR with a null power of attorney field as having no power of attorney representation and those with a code in this field as having power of attorney representation.

PRIMARY BODY SYSTEM AND DIAGNOSTIC CODES

To determine the primary body system or primary diagnostic code for a recipient in the CPMR, we assigned recipients the body system associated with their service-connected disability with the highest percentage of disability. If two or more service-connected disabilities were tied for the highest percent disability, the first of these body systems or diagnostic codes was selected as the primary disability. In considering body systems, we partitioned Post-Traumatic Stress Disorder (PTSD) from other mental disabilities in our analysis in order to more closely examine the high leverage of PTSD.

SERVICE-CONNECTED ISSUES

To analyze disabilities at the issue level for each recipient, we considered the diagnostic codes and percentage disabilities, such as DX1 (the first diagnostic code) and PCT1 (the percentage of disability for the first diagnostic code), up to the minimum between the number of service-connected disabilities and six issues.

SPECIAL MONTHLY COMPENSATION

We used the special monthly compensation code in the CPMR to determine the special monthly compensation status of recipients.

TIME ON ROLLS

Unfortunately, historical information is limited on when a veteran first filed a claim. As much as 37% of recipients have a blank original award effective date in the September 2005 CPMR. To approximate when veterans came on the rolls, we compared scrambled SSNs for snapshots of the CPMR on 5-year intervals from September 2005 to September 1985. If a recipient was not in the snapshot of the CPMR from 5 years earlier, we assumed the recipient was new to the rolls during this time period. Cases exist where this assumption did not hold (for example, if a veteran opted to move from the compensation rolls to the pension rolls and back to compensation). However, we also computed an upper bound on the original award effective date when it was blank. To do this, we matched different snapshots of the CPMR and found the earliest prior date available. The upper bound on the original award effective date and the difference between snapshots of the CPMR indicated similar trends.

VETERAN DENSITY

We computed veteran density by dividing each county's veteran population by the county's general population. Census 2000 was the source for each county's general population. For each county's veteran population, we used VetPop 2001-Adjusted estimates for FY 2005. We mapped recipients and the veteran population to two groups according to their county veteran density: counties with less than 10% of the general population having veteran status and 10% or more of the county's population having veteran status.

VETERAN POPULATION

For state and national veteran populations in FY 2005, we used VetPop 2004 to estimate the veteran population. For historical analysis on the percentage of veterans receiving compensation, we used census estimates of the state veteran population back to 1960. We could not find state estimates of the veteran population before 1960. For county estimates of the veteran population, we scaled VetPop 2001-Adjusted county estimates to VetPop 2004 state totals.

YEARS OF SERVICE

We used BIRLS as our primary source for years of service. For both CPMR snapshots and BIRLS, we received scrambled SSNs. We matched scrambled SSNs from the April 2006 snapshot of BIRLS to the September 2005 CPMR snapshot. To compute years of service for veterans in the CPMR, we took the sum of the differences of the three pairs of dates for entered on duty (EOD) and released from active duty (RAD) in BIRLS. For the veterans who were not in BIRLS or did not have an entry for EOD and RAD in BIRLS, we subtracted the EOD and RAD dates from the CPMR and used this difference for years of service.

APPENDIX B:
DATA MINING AND ANALYSIS OF COVARIANCE

INTRODUCTION

One goal of our investigation of differences in disability compensation across states was to find any important relationships in the data, including any that had not been previously identified by the VA's Office of the Inspector General or hypothesized by any of the interested parties. If we could find such hidden relationships, they might point us toward unsuspected causal mechanisms or toward previously unexamined behaviors of the disability compensation system.

There are many systematic methods for finding unsuspected relationships in data. Some of these techniques have been developed within the framework of traditional statistical inference methods, and are sometimes grouped together under the title "Exploratory Data Analysis" (EDA). Others have their origins in artificial intelligence research, and are more likely to be labeled "Data Mining" (DM). These techniques are designed not to test the truth or falsehood of proposed relationships in the data, but rather to identify relationships worth testing or exploiting.

EDA/DM techniques fall into two broad categories: predictive modeling and knowledge discovery. Predictive modeling aims at making accurate predictions about future behavior, without necessarily understanding why the predictions are accurate. In some cases this can lead to "black box" predictive models, in which there is no cognitive link between the data and the prediction. Neural network methods are a common example of a predictive modeling technique that can perform well without conveying any insight to the user.

Knowledge discovery, on the other hand, aims at developing human understanding of the system, ideally by identifying causal processes and relationships implicit in the data. Since our overall goal was to understand the causes of differences in compensation across states, we focused on knowledge discovery techniques in our explorations of the data.

There are three main types of knowledge discovery technique—graphical, logical, and numerical. Graphical techniques, sometimes called "data visualization," take

advantage of the pattern-recognition capabilities of human brains, by displaying data in a variety of ways intended to help underlying patterns or relationships stand out. Logical techniques look for recurring logical relationships or associations among the data (e.g., "if A, then B" or "if A and B, then not C"). Numerical techniques identify quantitative relationships among numerical data, or data with a mix of numerical (e.g., age) and categorical (e.g., gender) attributes.

SOFTWARE

We used StatSoft's STATISTICA Data Miner v7.1 as our primary knowledge discovery tool for visualization, logical analysis, and numerical techniques. The techniques we used included both traditional statistical methods and more modern artificial intelligence-based techniques. We also used a graphical knowledge discovery tool, Mondrian (http://www.rosuda.org/Mondrian/) for some analyses in addition to the basic graphics and pivot chart capabilities of Microsoft Excel.

KNOWLEDGE DISCOVERY

The primary dataset for our knowledge discovery efforts was the Compensation and Pension Master Record (CPMR) database of 2.6 million veterans currently receiving disability compensation. Each record in this database includes several numerical and categorical factors. In addition, several of the categorical factors—including state, the factor of most direct interest to the study—can take dozens of distinct non-numeric values. Most traditional statistical techniques do not work well on categorical variables with such an enormous number of combinations.

In our preliminary investigations, we worked primarily with smaller samples drawn from the overall population of benefit recipients. This allowed us to pursue many more avenues of investigation than would have been available had we tried to incorporate the entire CPMR database of 2.6 million records into each exploration. As we discovered promising factors, clusters, and relationships, we periodically re-sampled larger and larger subsets of the data to increase the confidence of the analysis and validate the earlier results. The final analyses reported in this paper were performed on the entire data set, sometimes requiring many hours per evaluation.

We first explored the VA compensation data using visualization. We used categorized histograms, stem-and-leaf plots, categorized boxplots, and quantile plots to look at combinations of many different independent variables. Some of these plots were

suggestive, but the number of different categories and category values (or "factors" and "factor levels" in standard statistical parlance) made it very difficult to produce useful visualizations, or to interpret the patterns discovered.

This was a recurring challenge in the data analysis—finding the right level of data aggregation to identify some important relationships without masking others. Over the course of the study, we iteratively refined our clustering of category values into a smaller number of aggregated categories to highlight and explore the most important predictive factors in the data. We discuss this process more below.

After our preliminary visualization efforts, we examined the data using Association Rules, a logical modeling technique that finds statistically unusual correlations among individuals' attributes. We did not find many useful relationships this way. We later discovered that this is because of the complex interactions among the various important factors contributing to award amounts. We also applied cluster analysis, an approach that identifies geometric groupings in the data according to normalized and scaled continuous factors. There were no interesting clusters in the overall data.

With that in mind, we turned to a family of data mining methods designed to prioritize factors and relationships among factors. For continuous output variables, such as individual veteran compensation awards, we used General Classification and Regression Trees (C&RT). C&RT is a technique that constructs a recursive partition of the data, based on which predictive factor leads to the largest differences in average output when you split based on that factor. C&RT finds the best first variable to split on for predictive power, then the best second variable for each of the resulting subsets of the data, and so forth. The results of the C&RT analysis confirmed what we had expected—certain variables had good predictive power, but their predictive power was different (and sometimes even in a different direction) depending on the values of other variables. There were significant and complex interactions among the various factors.

For categorical output variables, such as Individual Unemployability (IU) status, we used a related technique called Chi-Squared Automatic Interaction Detection, or CHAID. CHAID is also a recursive partitioning method, but it is not restricted to constructing binary trees. It is similar to a forward stepwise regression for identifying entering variables, where the desirability of a candidate variable is evaluated using a chi-squared test to estimate the predictive power contributed by the new variable.

We also used a variant CHAID technique to identify useful aggregations of categorical variable values, for those categorical variables that could take many different

distinct values. The CHAID category analysis helped us to identify clusterings of values that had similar statistical effects. We then experimented with combinations of clusterings that represented good compromises between predictive power and adequate sample size for each combination of clustered factor values. We used this approach to determine (for example) that most of the fifteen defined primary body system category values could be clustered together without loss of predictive power or statistical validity, but that it was useful to separate out Post-Traumatic Stress Disorder claims from other mental condition claims as a separate category value.

Finally, in cases where we discovered a nonlinear or non-monotonic relationship between disability award amounts and some continuous factor, we sometimes grouped the continuous factor into range categories. This was useful for characterizing effects like time on the rolls, where certain averages tend to be high for both recent and long-tenure veterans, but low for veterans with moderate tenure on the disability rolls.

PREDICTIVE MODELS

Once we had identified a set of potentially useful predictive factors (and partitioned the categorical factors into appropriate clusters), we built a series of predictive models relating award amounts to the various factors. We used simple regression, one-way Analysis of Variance (ANOVA), two-way factorial ANOVA, and two-way factorial Analysis of Covariance (ANCOVA) models. The factorial ANCOVA models proved to be the most effective for analyzing the sources and causes of variation in disability compensation awards.

Factorial ANCOVA is a variation on hierarchical regression that generalizes both multiple linear regression and factorial ANOVA. It is designed to apportion the observed variation in a continuous output measure (such as compensation award amount) among both categorical and continuous predictive factors, and their interactions. Our purpose in developing ANCOVA models of award amount was threefold:

- To see how much of the variation in award amounts across veterans could be explained without reference to the veteran's location
- To see how much additional predictive power adding location to the model provides
- To characterize and quantify the differences across states in factors (other than location) that contribute to observed variability in award amounts across states.

For categorical dependent variables, such as the IU status of veterans, we used logit regression and (to a lesser extent) probit regression to identify significant factors with

substantial effects. We used these techniques primarily to drill down on intermediate dependent variables (such as IU status or combined degree of disability) known to be strongly predictive of average awards. This helped us to identify predictive factors important to those particular mechanisms, as a supplement and cross-check to the other knowledge-discovery techniques being used.

For our best ANCOVA model, we included the following continuous and categorical factors:

- Continuous Factors:
  - Years of service
  - Age
  - Date released from active duty
  - County veteran density
  - County population land density
  - County median family income
  - County percentage of general population
    - Employment disability
    - Employment disability unemployed
    - Physical disability
    - Mental disability
- Categorical Factors
  - Power of attorney
  - Period of service
  - Time on rolls
  - Primary body system
  - Retirees by years of service

We found that 68.7% of the variation across states is explained by this model. Note that state of residence was not one of the categorical factors used in our best ANCOVA model. Adding state as a factor did not substantially improve the predictive power of the model.

APPENDIX C:
DETAILS ON MAJOR FACTORS

In Volume 1 of this report, we identified the major effect of Individual Unemployability (IU) and 100% awards on the variability across states. In addition, we identified Post-Traumatic Stress Disorder (PTSD), power of attorney, and period of service (POS) as major factors in explaining the observed variability across states. In this appendix, we provide the data we used and show more detailed analyses on those major factors.

INDIVIDUAL UNEMPLOYABILITY

We showed in Volume 1 that IU was a significant factor affecting the observed variation in average dollars across states. Recipients are eligible to apply for IU if they are unable to work due to their service-connected disabilities and meet the schedular requirement for IU. A recipient who has one issue rated at least 60% or a combined degree of disability rated at least 70% with one issue rated at least 40% meets the schedular requirement. Here we examine compensation recipients who meet the schedular requirement for IU and those who receive IU.

We studied the interaction between IU and a recipient's highest rated disability. The VA classifies disabilities into a set of 15 body systems. Table C-1 shows the names of the 15 body systems from Title 38, Code of Federal Regulations, mapped to their shortened names in our analysis. Our analysis considers PTSD as a separate body system from other mental claims for a total of 16 body systems. If a recipient is receiving an award for multiple disabilities, the body system for the highest rated disability is the recipient's primary body system. We analyzed IU by partitioning recipients into unique groups defined by their primary body system.

Table C-1. Body System Name Mapped to Shortened Body System Name

Body System Name	Shortened Body System Name
1. Musculoskeletal System	Musculoskeletal
2. Organs of Special Sense	Visual
3. Impairment of Auditory Acuity	Auditory
4. Infectious Diseases, Immune Disorders, and Nutritional Deficiencies	Systemic
5. Respiratory System	Respiratory
6. Cardiovascular System	Cardiovascular
7. Digestive System	Digestive
8. Genitourinary System	Genitourinary
9. Gynecological Disorders and the Breast	Gynecological
10. Hemic and Lymphatic Systems	Hemic
11. The Skin	Skin and Scars
12. Endocrine System	Endocrine
13. Neurological Conditions and Convulsive Disorders	Neurological
14. Mental Disorders	a) Mental not PTSD b) PTSD
15. Dental and Oral Conditions	Dental/Oral

For each primary body system, we calculated:

- Percentage of compensation recipients that meet the schedular requirement for IU,
- Percentage of compensation recipients that meet the schedular requirement for IU who are receiving IU, and
- Percentage of compensation recipients receiving IU.

Table C-2 shows these results. Table C-3 shows the average dollars to IU recipients broken out by primary body system. Table C-3 shows that there is little variability across primary body systems in the average IU award.

Figure C-1 shows IU recipients by primary body system. We see that over 25% of IU recipients have PTSD as their primary body system.

Table C-4 shows the number of compensation recipients and the percentage of compensation recipients receiving IU broken out by primary body system. Table C-4 does not include 64 recipients who did not have a primary body system indicated in the September 2005 Compensation and Pension Master Record (CPMR).

We looked at the effect of POS on the likelihood of a compensation recipient meeting the schedular requirement for IU. Table C-5 shows these data.

Table C-2. Percentage of Recipients that Receive IU and Meet Schedular Requirement by Primary Body System

Primary Body System	Percentage of Compensation Recipients for Primary Body System that Meet Schedular Requirement	Percentage of Compensation Recipients for Primary Body System Meeting Schedular Requirement that Receive IU	Percentage of Compensation Recipients for Primary Body System that Receive IU
Auditory	9.4%	31.8%	3.0%
Cardiovascular	26.7%	48.4%	12.9%
Dental/Oral	4.6%	44.7%	2.1%
Digestive	12.0%	35.4%	4.2%
Endocrine	9.4%	49.8%	4.7%
Genitourinary	38.7%	19.5%	7.5%
Gynecological	20.9%	21.2%	4.4%
Hemic	40.5%	8.8%	3.6%
Mental Not PTSD	48.5%	25.8%	12.5%
Musculoskeletal	9.3%	60.2%	5.6%
Neurological	25.9%	41.0%	10.6%
PTSD	64.1%	47.6%	30.5%
Respiratory	22.9%	23.7%	5.4%
Skin and Scars	3.6%	40.3%	1.5%
Systemic	48.0%	30.0%	14.4%
Visual	16.6%	36.9%	6.1%
Total	20.4%	41.3%	8.4%

Table C-3. Average Dollars to IU Recipients by Primary Body System

Primary Body System	Average Dollars
Auditory	$28,888
Cardiovascular	$28,493
Dental/Oral	$28,997
Digestive	$29,012
Endocrine	$29,430
Genitourinary	$29,624
Gynecological	$29,863
Hemic	$29,232
Mental Not PTSD	$28,988
Musculoskeletal	$29,180
Neurological	$29,300
PTSD	$28,925
Respiratory	$29,072
Skin and Scars	$29,086
Systemic	$27,831
Visual	$29,579
Total	$29,025

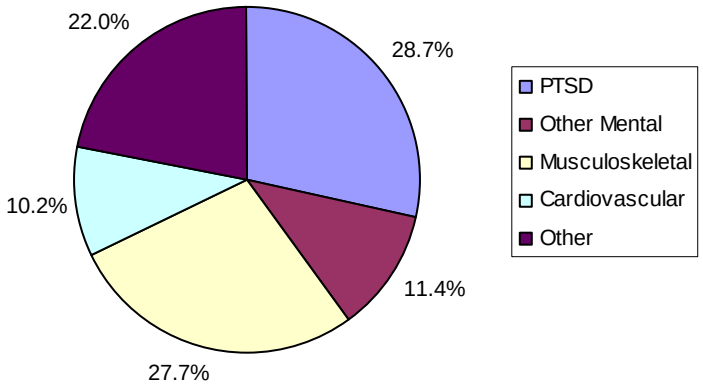

Figure C-1. IU Recipients by Primary Body System

Table C-4. Number and Percentage of Recipients with IU for Each Primary Body System

Primary Body System	Number of Recipients	Number of Recipients with IU	Percentage of Recipients for Primary Body System with IU
Auditory	206,853	6,224	3.0%
Cardiovascular	175,441	22,713	12.9%
Dental/Oral	5,141	106	2.1%
Digestive	98,461	4,172	4.2%
Endocrine	109,307	5,098	4.7%
Genitourinary	66,122	4,982	7.5%
Gynecological	21,600	958	4.4%
Hemic	12,805	456	3.6%
Mental Not PTSD	202,597	25,340	12.5%
Musculoskeletal	1,100,715	61,360	5.6%
Neurological	135,516	14,376	10.6%
PTSD	208,650	63,589	30.5%
Respiratory	126,931	6,892	5.4%
Skin and Scars	114,689	1,681	1.5%
Systemic	6,512	939	14.4%
Visual	45,575	2,790	6.1%
Total	2,636,979	221,676	8.4%

Table C-5. Recipients Meeting Schedular Requirement for IU by State and POS

State	World War II	Korea	Vietnam	Gulf War	Peacetime
Alabama	20.5%	21.6%	29.4%	10.8%	14.5%
Alaska	24.7%	17.6%	27.7%	10.2%	12.8%
Arizona	20.0%	22.5%	32.8%	11.4%	17.1%
Arkansas	26.3%	29.4%	39.2%	16.1%	23.6%
California	18.9%	19.5%	31.2%	9.3%	14.5%
Colorado	19.6%	20.7%	31.4%	10.2%	14.1%
Connecticut	11.8%	13.8%	28.7%	10.5%	16.3%
Delaware	13.3%	14.0%	24.3%	10.0%	12.5%
Florida	19.0%	21.9%	29.5%	9.2%	15.8%
Georgia	19.6%	23.6%	28.4%	8.6%	13.9%
Hawaii	19.5%	22.3%	32.5%	9.9%	15.2%
Idaho	18.7%	20.7%	30.9%	12.6%	15.5%
Illinois	14.5%	16.1%	26.7%	8.3%	14.1%
Indiana	14.8%	14.9%	22.1%	7.9%	13.4%
Iowa	17.3%	17.5%	25.0%	9.2%	16.2%
Kansas	17.7%	19.6%	27.4%	8.5%	14.3%
Kentucky	21.0%	21.7%	33.1%	11.0%	18.2%
Louisiana	21.3%	22.8%	35.3%	10.9%	18.2%
Maine	28.5%	26.5%	44.4%	16.2%	23.3%
Maryland	15.7%	18.6%	25.6%	9.8%	13.7%
Massachusetts	17.8%	18.3%	30.6%	10.6%	15.3%
Michigan	13.6%	15.3%	25.2%	9.0%	14.0%
Minnesota	18.7%	16.5%	28.3%	12.0%	17.3%
Mississippi	23.8%	25.4%	29.3%	11.1%	17.9%
Missouri	17.4%	18.4%	26.1%	9.8%	15.6%
Montana	18.5%	22.1%	31.9%	10.3%	16.8%
Nebraska	36.5%	28.4%	34.1%	13.4%	22.7%
Nevada	23.3%	23.5%	28.7%	10.5%	14.6%
New Hampshire	18.9%	20.4%	26.2%	9.5%	13.7%
New Jersey	13.5%	15.1%	28.1%	10.0%	14.8%
New Mexico	36.5%	36.0%	45.9%	16.0%	21.2%
New York	15.6%	18.4%	28.5%	9.9%	16.2%
North Carolina	20.5%	22.9%	34.1%	10.5%	17.4%
North Dakota	17.1%	14.5%	28.4%	11.2%	15.4%
Ohio	13.2%	16.1%	22.8%	7.7%	13.5%
Oklahoma	32.1%	30.4%	39.9%	12.9%	20.5%
Oregon	24.3%	25.4%	39.2%	13.9%	20.6%
Pennsylvania	14.7%	16.8%	26.9%	9.5%	16.1%
Rhode Island	21.3%	25.0%	33.8%	12.6%	16.4%
South Carolina	21.3%	24.7%	32.7%	9.9%	14.9%
South Dakota	23.2%	22.7%	29.7%	10.3%	17.0%
Tennessee	23.9%	25.3%	31.5%	9.4%	16.2%
Texas	22.7%	24.2%	30.4%	11.0%	15.9%
Utah	17.3%	20.1%	30.4%	10.6%	15.4%
Vermont	18.9%	21.2%	35.6%	12.6%	16.1%
Virginia	18.0%	21.1%	24.4%	9.6%	12.1%
Washington	20.1%	22.5%	32.9%	11.6%	15.7%
West Virginia	24.8%	26.9%	40.1%	13.7%	20.0%
Wisconsin	18.8%	18.6%	29.7%	10.7%	17.3%
Wyoming	19.2%	21.7%	25.8%	8.7%	14.3%
Total	19.0%	20.9%	30.4%	10.3%	15.9%

Table C-6 shows the percentage of compensation recipients from each POS that receives IU. Table C-7 shows the average dollars by POS for IU recipients. Table C-8 shows IU by state as a percentage of the veteran population.

Table C-6. Percentage of Recipients for POS Receiving IU

POS	Percentage of Compensation Recipients for POS Receiving IU
World War II	10.1%
Korea	10.7%
Vietnam	12.3%
Gulf War	3.1%
Peacetime	6.2%
Total	8.4%

Table C-7. Average Dollars for IU Recipients by POS

POS	Average Dollars for Recipients with IU
World War II	$28,381
Korea	$28,900
Vietnam	$29,061
Gulf War	$29,802
Peacetime	$29,209
Total	$29,025

Table C-8. Awards for IU as a Percentage of the Veteran Population and Recipients in Each State

State	Percentage of State Veteran Population	Percentage of Compensation Recipients in Each State
Alabama	1.0%	7.6%
Alaska	1.0%	5.6%
Arizona	1.1%	9.7%
Arkansas	1.7%	13.4%
California	0.9%	8.7%
Colorado	0.5%	4.2%
Connecticut	0.4%	5.6%
Delaware	0.5%	4.6%
Florida	1.0%	8.5%
Georgia	0.8%	6.4%
Hawaii	1.1%	7.9%
Idaho	1.1%	9.6%
Illinois	0.4%	6.1%
Indiana	0.5%	5.8%
Iowa	0.6%	7.7%
Kansas	0.6%	6.0%
Kentucky	1.1%	9.3%
Louisiana	1.1%	11.0%
Maine	2.3%	16.7%
Maryland	0.3%	3.2%
Massachusetts	1.0%	8.7%
Michigan	0.6%	7.3%
Minnesota	0.9%	8.2%
Mississippi	0.9%	7.8%
Missouri	0.9%	9.7%
Montana	1.4%	10.8%
Nebraska	1.2%	11.7%
Nevada	0.9%	8.2%
New Hampshire	0.9%	8.1%
New Jersey	0.6%	7.0%
New Mexico	2.9%	19.9%
New York	0.7%	7.2%
North Carolina	1.1%	8.7%
North Dakota	0.9%	6.6%
Ohio	0.5%	6.0%
Oklahoma	2.1%	14.3%
Oregon	1.1%	10.6%
Pennsylvania	0.6%	7.9%
Rhode Island	1.2%	10.6%
South Carolina	0.9%	7.2%
South Dakota	1.3%	9.3%
Tennessee	0.8%	7.0%
Texas	1.4%	10.4%
Utah	0.6%	6.4%
Vermont	0.9%	9.8%
Virginia	0.7%	5.3%
Washington	1.2%	9.4%
West Virginia	1.7%	14.2%
Wisconsin	0.8%	7.9%
Wyoming	0.7%	6.1%
Total	0.9%	8.4%

AWARDS FOR 100% DISABILITY (NO IU)

Awards for 100% can have two influences on the observed variation in average dollars across states. First, Volume 1 showed that the percentage of recipients across states with 100% awards accounts for 40.0% of the observed variation in average dollars. Second, differences in average dollars to recipients with a combined degree of disability of 100% could influence average dollar across states. We examined the relationship between overall average dollars by state and average dollars to compensation recipients with a combined degree of disability of 100% (no IU) by state. To do this, we first graphed these two values by state. Figure C-2 contains this graph.

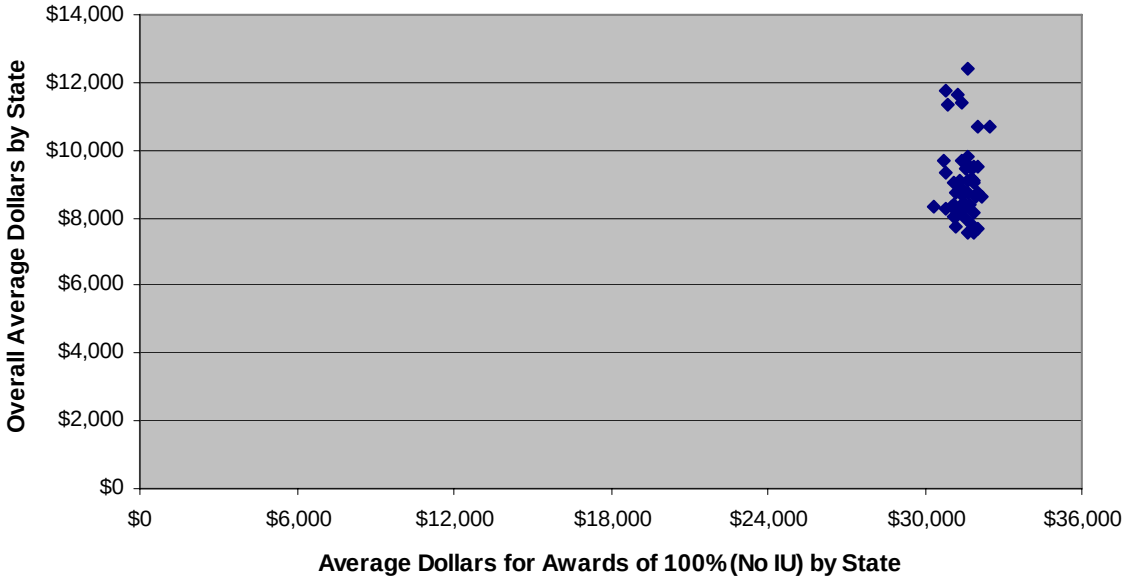

Figure C-2. Overall State Average Dollars versus State Average Dollars for 100% Awards

We calculated an r^2 value of 0.01, which indicates virtually no correlation between average dollars for 100% awards (no IU) and overall average dollars. Therefore, differences in average dollars for 100% awards across states do not significantly influence the observed variation in average dollars.

Table C-9 shows the average 100% award broken out by primary body system. Table C-10 shows the average 100% award by POS. Table C-11 shows by state the percentage of the veteran population and the percentage of compensation recipients with 100% awards.

Table C-9. Awards for 100% Disability by Primary Body System

Primary Body System	Average Dollars	Percentage of Compensation Recipients for Primary Body System Receiving 100% Awards
Auditory	$29,940	3.3%
Cardiovascular	$30,787	10.9%
Dental/Oral	$31,688	1.0%
Digestive	$32,020	5.6%
Endocrine	$32,377	3.1%
Genitourinary	$30,680	23.9%
Gynecological	$30,922	1.6%
Hemic	$29,990	35.4%
Mental Not PTSD	$29,203	31.6%
Musculoskeletal	$40,316	2.0%
Neurological	$40,155	10.6%
PTSD	$29,369	26.9%
Respiratory	$30,129	8.6%
Skin and Scars	$30,343	0.6%
Systemic	$30,581	20.7%
Visual	$40,019	8.7%
Total	$31,615	8.7%

Table C-10. Awards of 100% Disability (No IU) by POS

POS	Average Dollars	Percentage of Compensation Recipients for POS Receiving 100% Awards
World War II	$30,902	7.0%
Korea	$31,829	8.5%
Vietnam	$31,110	14.3%
Gulf War	$33,205	2.9%
Peacetime	$32,908	6.9%
Total	$31,615	8.7%

Table C-11. Awards for 100% Disability (No IU) as a Percentage of the Veteran Population and Recipients in Each State

State	Percentage of State Veteran Population	Percentage of Compensation Recipients in Each State
Alabama	1.2%	8.6%
Alaska	0.9%	5.2%
Arizona	1.1%	9.9%
Arkansas	1.5%	12.2%
California	0.8%	8.4%
Colorado	1.2%	10.1%
Connecticut	0.6%	8.3%
Delaware	0.8%	8.1%
Florida	1.0%	8.2%
Georgia	0.9%	7.8%
Hawaii	1.4%	10.1%
Idaho	0.9%	7.7%
Illinois	0.5%	7.4%
Indiana	0.6%	6.6%
Iowa	0.6%	7.6%
Kansas	0.9%	8.7%
Kentucky	1.2%	10.2%
Louisiana	1.0%	9.2%
Maine	1.6%	11.4%
Maryland	0.8%	8.1%
Massachusetts	0.9%	8.2%
Michigan	0.6%	7.6%
Minnesota	0.9%	8.8%
Mississippi	1.2%	10.9%
Missouri	0.7%	7.6%
Montana	1.1%	8.3%
Nebraska	1.0%	9.8%
Nevada	0.9%	8.1%
New Hampshire	0.8%	7.3%
New Jersey	0.7%	8.1%
New Mexico	1.5%	10.2%
New York	0.8%	9.1%
North Carolina	1.2%	9.5%
North Dakota	1.1%	8.2%
Ohio	0.6%	7.2%
Oklahoma	1.7%	11.8%
Oregon	1.3%	11.7%
Pennsylvania	0.6%	7.9%
Rhode Island	1.0%	9.3%
South Carolina	1.2%	9.7%
South Dakota	1.2%	8.6%
Tennessee	1.1%	10.4%
Texas	1.1%	7.9%
Utah	0.8%	7.7%
Vermont	1.0%	10.1%
Virginia	0.8%	6.0%
Washington	1.0%	7.8%
West Virginia	1.4%	11.6%
Wisconsin	0.9%	9.2%
Wyoming	1.0%	8.8%
Total	0.9%	8.7%

AWARDS FOR 0–90% DISABILITY (NO IU)

We showed in Volume 1 that the percentage of recipients across states in the groups 0–90% (no IU), 100% (no IU), and IU accounts for 93.7% of the observed variation in average dollars. Now we observe the effect of average dollars to recipients rated at 0–90% (no IU) across states. Figure C-3 shows the relationship between overall average dollars by state and average dollars to compensation recipients with a combined degree of disability between 0% and 90% (no IU) by state.

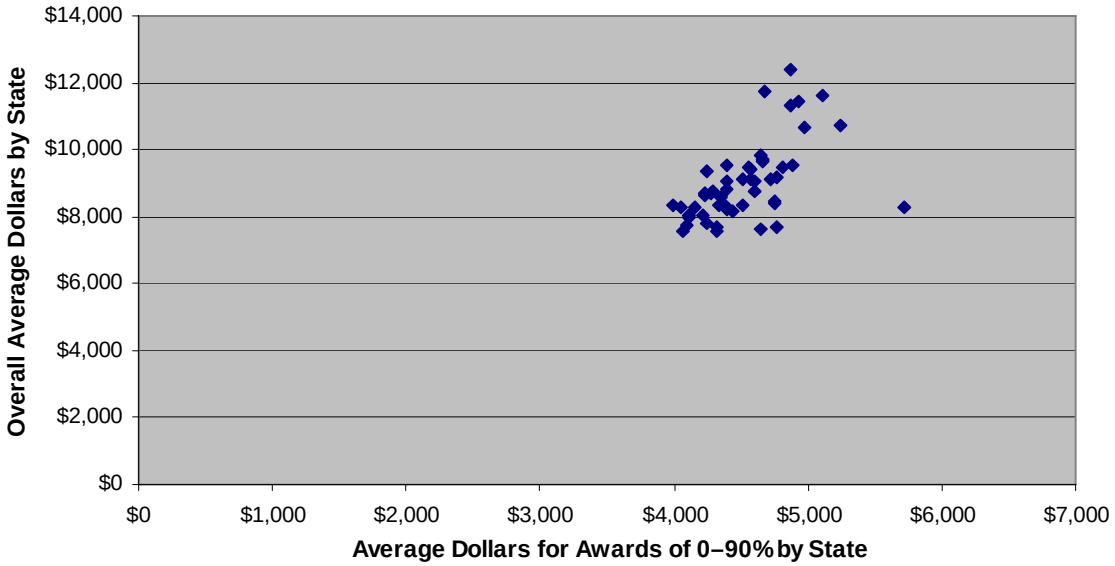

Figure C-3. Overall State Average Dollars versus State Average Dollars for 0–90% (No IU) Awards

We calculated an r^2 value of 0.31 for the positive correlation between average dollars for 0–90% awards (no IU) and overall average dollars across states. As we showed in Volume 1, the combined percentages of recipients across states in the groups 0–90% (no IU), 100% (no IU), and IU account for 93.7% of the observed variation in average dollars.

Also for recipients in the 0–90% (no IU) group, Table C-12 shows average dollars by primary body system and the distribution of compensation recipients across primary body systems, Table C-13 shows average awards and the distribution of recipients across different periods of service, and Table C-14 displays recipients across states normalized to the number of recipients and the veteran population.

Table C-12. Awards for 0–90% Disability (No IU) by Primary Body System

Primary Body System	Average Dollars	Percentage of Compensation Recipients for Primary Body System Receiving 0–90% Awards
Auditory	$3,256	93.7%
Cardiovascular	$4,712	76.1%
Dental/Oral	$4,353	96.9%
Digestive	$3,585	90.2%
Endocrine	$4,880	92.2%
Genitourinary	$5,846	68.6%
Gynecological	$9,371	93.9%
Hemic	$6,227	61.1%
Mental Not PTSD	$5,655	55.9%
Musculoskeletal	$3,976	92.5%
Neurological	$5,720	78.8%
PTSD	$8,775	42.7%
Respiratory	$5,067	86.0%
Skin and Scars	$2,896	98.0%
Systemic	$5,772	64.9%
Visual	$5,437	85.2%
Total	$4,476	89.2%

Table C-13. Awards for 0–90% Disability (No IU) by POS

POS	Average Dollars	Percentage of Compensation Recipients for POS Receiving 0–90% Awards
World War II	$3,979	82.9%
Korea	$4,052	80.8%
Vietnam	$4,952	73.4%
Gulf War	$4,915	94.0%
Peacetime	$3,757	86.9%
Total	$4,476	89.2%

Table C-14. Awards for 0–90% Disability (No IU) as a Percentage of the Veteran Population and Recipients in Each State

State	Percentage of State Veteran Population	Percentage of Compensation Recipients in Each State
Alabama	11.5%	83.8%
Alaska	15.7%	89.2%
Arizona	8.8%	80.4%
Arkansas	9.2%	74.4%
California	8.2%	82.9%
Colorado	10.3%	85.7%
Connecticut	6.6%	86.1%
Delaware	8.7%	87.4%
Florida	10.1%	83.3%
Georgia	10.4%	85.8%
Hawaii	11.2%	82.0%
Idaho	9.9%	82.7%
Illinois	6.1%	86.4%
Indiana	7.4%	87.6%
Iowa	6.7%	84.6%
Kansas	8.6%	85.3%
Kentucky	9.2%	80.5%
Louisiana	8.3%	79.8%
Maine	10.1%	71.9%
Maryland	9.1%	88.7%
Massachusetts	9.5%	83.2%
Michigan	6.6%	85.2%
Minnesota	8.9%	82.9%
Mississippi	9.1%	81.4%
Missouri	7.7%	82.7%
Montana	10.6%	80.9%
Nebraska	8.2%	78.5%
Nevada	8.9%	83.7%
New Hampshire	9.5%	84.6%
New Jersey	7.3%	84.9%
New Mexico	10.3%	69.9%
New York	7.7%	83.7%
North Carolina	10.6%	81.8%
North Dakota	11.8%	85.2%
Ohio	7.1%	86.8%
Oklahoma	10.6%	73.9%
Oregon	8.3%	77.7%
Pennsylvania	6.8%	84.2%
Rhode Island	8.8%	80.1%
South Carolina	10.0%	83.1%
South Dakota	11.3%	82.0%
Tennessee	9.1%	82.6%
Texas	10.9%	81.7%
Utah	8.7%	85.9%
Vermont	7.6%	80.1%
Virginia	11.9%	88.7%
Washington	11.0%	82.8%
West Virginia	8.8%	74.2%
Wisconsin	7.9%	82.9%
Wyoming	9.6%	85.1%
Total	9.0%	89.2%

POST-TRAUMATIC STRESS DISORDER

In Volume 1 we found PTSD to be the single most significant factor in explaining of the observed variation in average dollars across states. We found that differences across states in the percentage of recipients with PTSD accounts for 39.8% of the observed variation in average awards. Table C-15 shows the percentage of compensation recipients in each state with PTSD and the average PTSD award.

Table C-16 gives the average dollars, standard deviation, minimum, maximum and coefficient of variation (CV) for veterans with PTSD as the primary body system affected and for all other compensation recipients. We use this partitioning of recipients throughout our PTSD analysis.

The CV is a measure of the relative variability in average awards across states. For all compensation recipients, the CV across states is 0.13.

A quick look at the data shows that veterans with PTSD receive $20,449 on average while those without receive $7,897. This is shown in Figure C-4. Across states we see a minimum average dollar amount for PTSD of $17,031 and a maximum of $24,227. But despite this $7,196 range, the CV for PTSD is only 0.07. This is significantly lower than the overall CV (0.13).

Despite its low CV, PTSD has a large impact on variation in average dollars across states because of its high dollar awards. Figure C-5 is a graph of PTSD recipients broken down by their combined degree of disability, with states arranged from left to right in decreasing order of overall average dollars. IU recipients are included in Figure C-5 and grouped according to their combined degree of disability.

Table C-15. Percentage of Compensation Recipients with PTSD as Primary Disability and Average Awards by State

State	Overall Average Award	Percentage of Compensation Recipients with Primary PTSD	Average Primary PTSD Award
New Mexico	$12,395	17.6%	$24,227
Maine	$11,734	15.0%	$23,667
Oklahoma	$11,643	12.5%	$22,143
Arkansas	$11,412	9.6%	$21,304
West Virginia	$11,348	17.3%	$20,812
Nebraska	$10,719	7.8%	$20,515
Oregon	$10,677	13.5%	$21,509
Louisiana	$9,815	10.8%	$19,551
Vermont	$9,682	10.2%	$19,981
Kentucky	$9,673	9.0%	$20,740
North Carolina	$9,549	8.1%	$21,114
Arizona	$9,502	8.7%	$22,707
Texas	$9,484	7.0%	$20,609
Montana	$9,460	10.0%	$19,682
Mississippi	$9,424	7.1%	$20,130
Rhode Island	$9,337	11.2%	$21,368
Washington	$9,156	10.0%	$21,255
South Dakota	$9,125	7.9%	$21,617
South Carolina	$9,116	8.4%	$20,653
Tennessee	$9,111	7.3%	$20,933
Idaho	$9,063	8.7%	$19,855
Hawaii	$9,047	9.2%	$22,600
Wisconsin	$8,844	7.4%	$20,480
California	$8,755	9.0%	$21,058
Alabama	$8,752	9.8%	$18,297
Missouri	$8,721	7.6%	$18,771
Minnesota	$8,709	7.7%	$20,767
Florida	$8,617	5.8%	$21,195
Nevada	$8,606	6.8%	$21,207
Colorado	$8,476	7.8%	$20,557
Utah	$8,396	8.6%	$19,584
Wyoming	$8,360	8.5%	$18,666
Iowa	$8,348	7.1%	$18,039
Massachusetts	$8,348	9.6%	$20,244
New Hampshire	$8,317	8.1%	$20,288
Alaska	$8,300	5.5%	$19,633
New York	$8,278	9.5%	$19,216
Pennsylvania	$8,270	7.3%	$18,716
North Dakota	$8,237	6.5%	$20,212
Georgia	$8,163	5.2%	$19,422
Kansas	$8,052	6.8%	$21,273
New Jersey	$8,032	10.2%	$18,740
Michigan	$7,999	5.5%	$19,580
Illinois	$7,816	7.4%	$19,115
Connecticut	$7,737	7.8%	$18,976
Virginia	$7,706	4.0%	$19,353
Delaware	$7,679	6.2%	$19,535
Maryland	$7,654	5.3%	$19,920
Indiana	$7,573	5.2%	$18,406
Ohio	$7,556	6.0%	$17,031
Total	$8,890	7.9%	$20,449

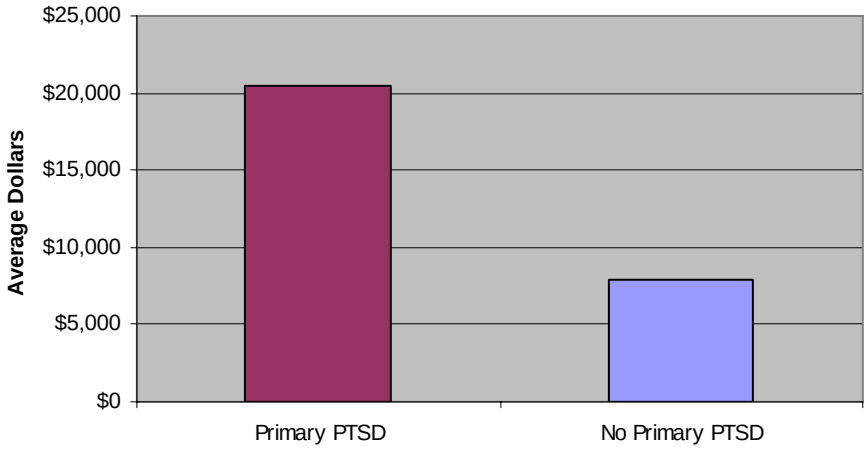

Figure C-4. Nationwide Average Dollars for PTSD

Table C-16. Summary Statistics for Average Dollars across States for PTSD

PTSD Status	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
PTSD Primary	208,650	$20,449	$1,397	$17,031	$24,227	0.07
Other Recipients	2,428,329	$7,897	$908	$6,786	$10,368	0.11
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

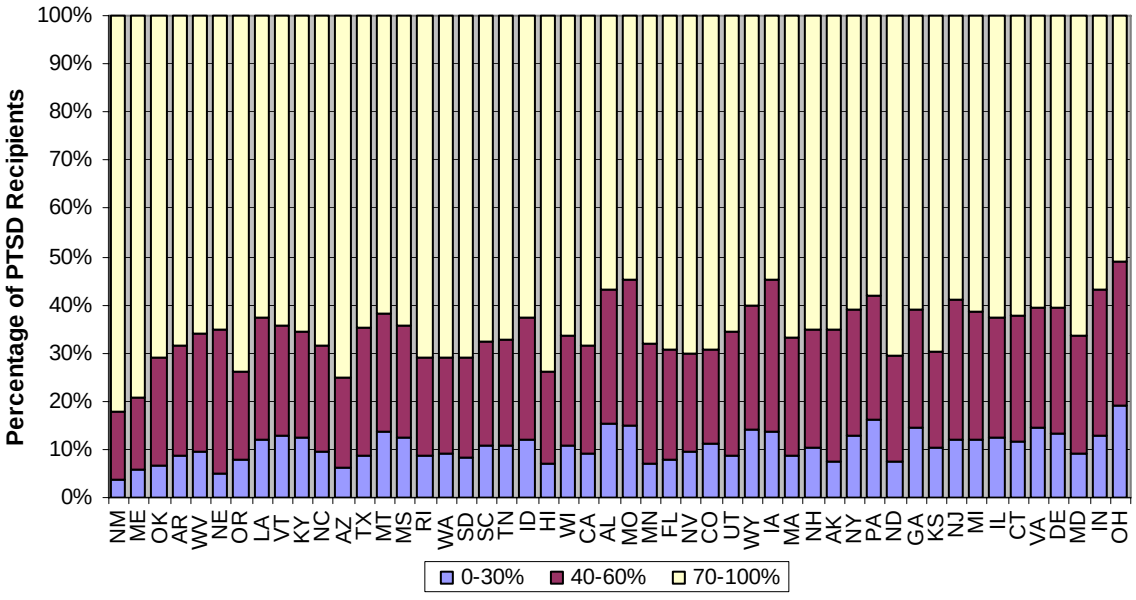

Figure C-5. Distribution of Combined Degree of Disability Groups for PTSD Recipients across States

PTSD Awards by Combined Degree of Disability

Table C-17 shows the average award and percentage of PTSD recipients by combined degree of disability.

Table C-17. Average Dollars and Percentage of Recipients with PTSD by Combined Degree of Disability

Combined Degree of Disability	Average Dollars for PTSD	Percentage of PTSD Recipients
0%	$1,296	0.0%
10%	$1,303	2.6%
20%	$2,523	0.4%
30%	$4,224	7.5%
40%	$6,120	6.1%
50%	$8,573	8.9%
60%	$10,937	7.9%
70%	$13,675	5.7%
80%	$16,083	2.8%
90%	$18,298	0.9%
100%	$29,369	26.9%
IU	$28,925	30.5%
Total	$20,449	100.0%

PTSD Awards over Time

We compared data for PTSD claims in 1995 with data from 2005. Table C-18 shows the number of recipients with PTSD and the average award by state for both 1995 and 2005.

Table C-18. Recipients with PTSD in 1995 versus 2005

State	Number of Recipients with PTSD, FY 1995	Average Compensation for PTSD, FY 1995 (TY $)	Number of Recipients with PTSD, FY 2005	Average Compensation for PTSD. FY 2005 (TY $)	Percentage Increase in Average Dollars, FY 1995–2005
Alabama	859	$8,106	5,669	$18,297	125.7%
Alaska	239	$14,318	646	$19,633	37.1%
Arizona	837	$10,567	5,282	$22,707	114.9%
Arkansas	884	$13,230	3,146	$21,304	61.0%
California	3,865	$7,196	20,264	$21,058	192.6%
Colorado	1,185	$8,677	3,972	$20,557	136.9%
Connecticut	370	$10,426	1,563	$18,976	82.0%
Delaware	131	$14,916	490	$19,535	31.0%
Florida	2,334	$9,918	12,500	$21,195	113.7%
Georgia	1,326	$9,571	4,843	$19,422	102.9%
Hawaii	395	$12,414	1,325	$22,600	82.0%
Idaho	329	$7,362	1,373	$19,855	169.7%
Illinois	811	$6,589	4,538	$19,115	190.1%
Indiana	602	$10,091	2,389	$18,406	82.4%
Iowa	387	$9,831	1,470	$18,039	83.5%
Kansas	446	$15,495	1,658	$21,273	37.3%
Kentucky	885	$11,922	3,673	$20,740	74.0%
Louisiana	649	$8,062	4,042	$19,551	142.5%
Maine	831	$14,841	2,984	$23,667	59.5%
Maryland	476	$11,293	2,589	$19,920	76.4%
Massachusetts	1,356	$10,324	5,214	$20,244	96.1%
Michigan	552	$7,975	3,547	$19,580	145.5%
Minnesota	698	$10,597	3,461	$20,767	96.0%
Mississippi	520	$11,723	1,903	$20,130	71.7%
Missouri	919	$10,834	3,910	$18,771	73.3%
Montana	308	$11,853	1,323	$19,682	66.1%
Nebraska	163	$10,256	1,266	$20,515	100.0%
Nevada	218	$7,180	1,763	$21,207	195.4%
New Hampshire	395	$11,721	1,178	$20,288	73.1%
New Jersey	1,113	$7,233	4,961	$18,740	159.1%
New Mexico	473	$10,466	4,602	$24,227	131.5%
New York	2,723	$10,097	9,917	$19,216	90.3%
North Carolina	1,039	$12,066	7,981	$21,114	75.0%
North Dakota	63	$11,266	488	$20,212	79.4%
Ohio	1,375	$8,459	5,047	$17,031	101.3%
Oklahoma	1,526	$14,046	6,319	$22,143	57.6%
Oregon	1,122	$10,816	5,205	$21,509	98.9%
Pennsylvania	1,776	$8,552	6,632	$18,716	118.8%
Rhode Island	216	$11,225	1,094	$21,368	90.4%
South Carolina	675	$11,098	4,166	$20,653	86.1%
South Dakota	154	$12,494	788	$21,617	73.0%
Tennessee	806	$10,564	4,279	$20,933	98.2%
Texas	2,726	$11,457	15,518	$20,609	79.9%
Utah	242	$8,303	1,290	$19,584	135.9%
Vermont	208	$10,856	549	$19,981	84.0%
Virginia	971	$10,747	3,983	$19,353	80.1%
Washington	2,052	$10,548	8,331	$21,250	101.5%
West Virginia	743	$11,122	3,820	$20,812	87.1%
Wisconsin	1,091	$11,581	3,320	$20,480	76.8%
Wyoming	167	$8,635	524	$18,666	116.2%
Total	44,604	$10,213	208,650	20,449	100.2%

PRIMARY BODY SYSTEM

Variability across Body Systems

In addition to looking at average dollars across all body systems, we calculated the CV for all body systems. Note that for our analysis, we considered PTSD claims separate from other mental claims. Table C-19 contains these values.

Table C-19. Variability across Body Systems

Primary Body System	CV	Average Dollars	Standard Deviation
Auditory	0.14	$4,896	$688
Cardiovascular	0.17	$10,639	$1,856
Dental/Oral	0.20	$5,132	$1,024
Digestive	0.14	$6,243	$875
Endocrine	0.14	$6,888	$967
Genitourinary	0.13	$13,562	$1,788
Gynecological	0.10	$10,630	$1,108
Hemic	0.10	$15,447	$1,486
Mental Not PTSD	0.11	$16,015	$1,797
Musculoskeletal	0.14	$6,094	$876
Neurological	0.09	$11,857	$1,121
PTSD	0.07	$20,449	$1,397
Respiratory	0.18	$8,529	$1,576
Skin and Scars	0.16	$3,432	$561
Systemic	0.17	$14,080	$2,344
Visual	0.13	$9,908	$1,276
Total	0.13	$8,890	$1,169

We note that PTSD claims exhibit significantly less relative variability than claims for other body systems. In fact, musculoskeletal claims (CV = 0.14) have twice as much relative variability than PTSD claims (CV = 0.07).

In Volume 1 we indicated that the percentage of compensation recipients with PTSD is a large driver of the observed variation in average dollars. Thus, the main impact of PTSD claims is differences across states in the percentage of compensation recipients with a PTSD award. Differences across states in average PTSD awards are a much less significant driver of the variation in average dollars.

DIAGNOSTIC CODE

In addition to analyzing primary body systems, we investigated the influence of primary diagnostic codes individually. Within a particular body system, such as the

musculoskeletal system, there can be a wide range of average awards by diagnostic code. Table C-20 shows the five primary diagnostic codes with the most recipients and their corresponding average dollars at the national level.

Table C-20. Five Most Common Primary Diagnostic Codes

Diagnostic Code	Number of Recipients	Average Dollars
PTSD	208,650	$20,449
Tinnitus	102,363	$1,808
Diabetes	99,538	$7,066
Knee Condition	97,796	$3,323
Traumatic Arthritis	97,723	$5,025

We quantified the percentage of the variation in average awards that was explained by differences in the percentage of recipients with each primary diagnostic code. To guarantee that we had a sufficient number of recipients in each group for the national averages, we grouped all diagnostic codes with less than 1,000 recipients together into an "other" category. We were able to explain 53.9% of the observed variation in average dollars with the percentage of recipients in each primary diagnostic code in that state. If we studied interactions between primary diagnostic codes with other factors, we would have insufficient sample sizing for these groups to draw conclusions from such analyses.

POWER OF ATTORNEY

Nationwide Effect

We identified power of attorney (POA) representation as a major factor in influencing the average awards to veterans. Figure C-6 shows the nationwide difference in average dollars of over $6,000.

One hypothesis is that veterans learn from their POA representatives about their eligibility for compensation for injuries they did not previously know they were eligible for. Figure C-7 shows that recipients with POA representation do have more issues per claim.

Figure C-8 shows that recipients with POA representation have not only more issues, but also a higher average degree of disability per issue.

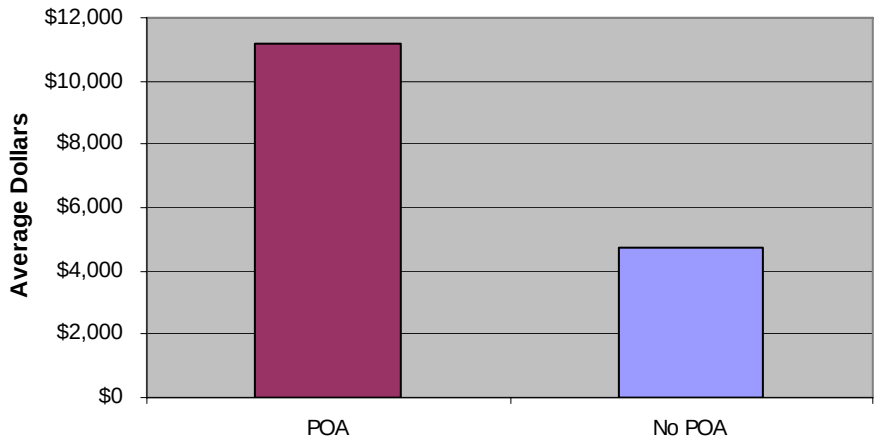

Figure C-6. Nationwide Average Dollars by POA Status

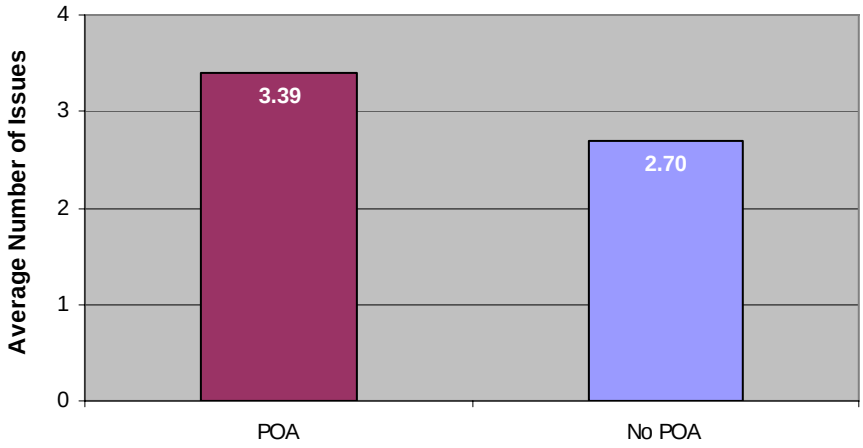

Figure C-7. Average Number of Service-Connected Issues by POA Status

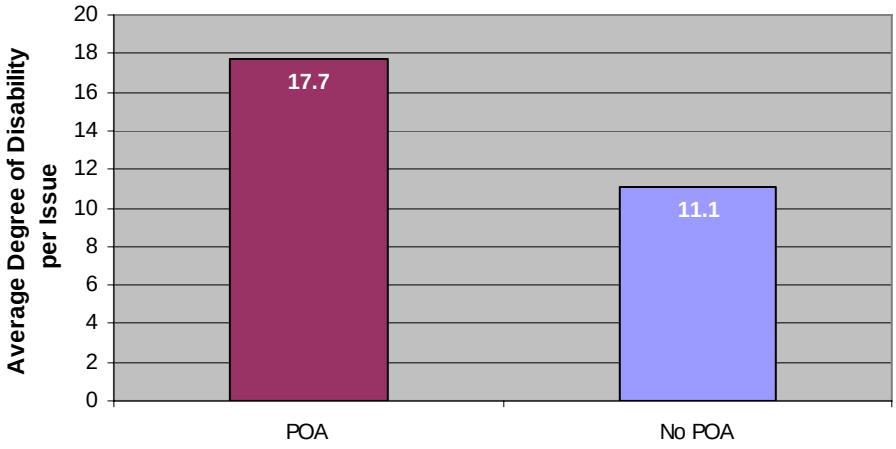

Figure C-8. Average Degree of Disability per Issue by POA Status

However, the high-leverage effect from POA representation is the difference in IU. In Figure C-9, we see that recipients with POA representation are over three times as likely to meet the schedular requirement for IU.

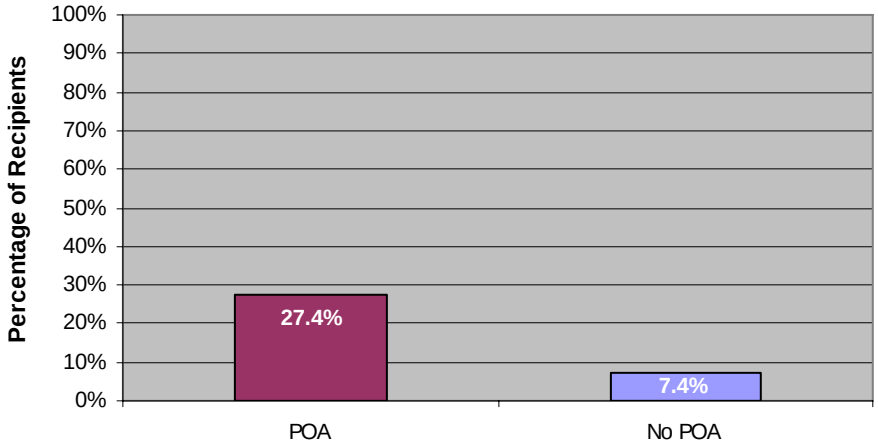

Figure C-9. Percentage of Recipients that Meet Schedular Requirement for IU by POA Status

Figure C-10 illustrates that recipients who meet the schedular requirement for IU are not only more likely to meet the schedular requirement, but also more likely to receive IU payments if they have POA representation.

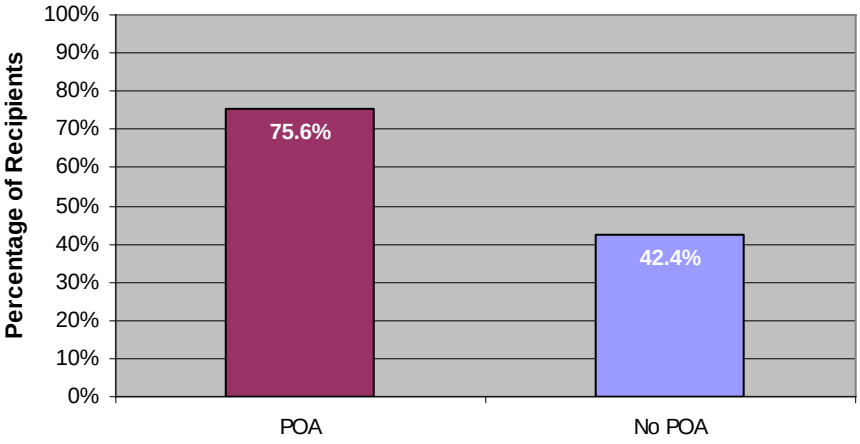

Figure C-10. Percentage of Recipients that Meet Schedular Requirement for and Receive IU by POA Status

Average Dollars across States

In Volume 1 we showed that the percentage of recipients with POA representation explains 15.5% of the variation across states. In Table C-21, we see the statistics for average dollars across states by POA status.

Table C-21. Statistics for Average Dollars across States by POA Status

POA Status	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV	r^2
POA	1,705,986	$11,162	$1,357	$9,140	$15,518	0.12	0.74
No POA	930,993	$4,728	$665	$3,638	$6,937	0.14	0.53
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13	

Table C-22 shows the percentage of recipients with POA representation by state. Note that these data are as of the 2005 CPMR. Veterans receiving compensation may have initially filed without POA representation, but they were included in the POA category if they used a POA representative to reopen their claims.

Table C-22. Percentage of Recipients with POA Representation by State

State	Percentage of Recipients with POA
Alabama	68.4%
Alaska	73.2%
Arizona	61.3%
Arkansas	67.5%
California	67.6%
Colorado	65.0%
Connecticut	49.6%
Delaware	58.1%
Florida	67.4%
Georgia	58.6%
Hawaii	45.9%
Idaho	74.9%
Illinois	59.0%
Indiana	59.5%
Iowa	67.6%
Kansas	69.9%
Kentucky	65.4%
Louisiana	73.8%
Maine	69.4%
Maryland	44.8%
Massachusetts	54.5%
Michigan	67.0%
Minnesota	78.4%
Mississippi	59.7%
Missouri	67.7%
Montana	77.7%
Nebraska	74.0%
Nevada	55.7%
New Hampshire	58.9%
New Jersey	53.3%
New Mexico	66.3%
New York	58.8%
North Carolina	72.3%
North Dakota	81.9%
Ohio	60.2%
Oklahoma	67.2%
Oregon	76.2%
Pennsylvania	52.1%
Rhode Island	56.6%
South Carolina	65.9%
South Dakota	75.6%
Tennessee	66.8%
Texas	68.9%
Utah	58.1%
Vermont	61.3%
Virginia	60.7%
Washington	75.5%
West Virginia	74.7%
Wisconsin	75.9%
Wyoming	61.5%
Total	64.7%

Interaction with Time on Rolls

We also examined the interaction between POA representation and time on rolls. To do this, we took five categories for time on rolls and split each one into two groups depending on whether or not the veteran had POA representation. In our Analysis of Covariance, we found the interaction between POA representation and time on rolls to be the most significant two-way interaction. Figure C-11 shows the effect of this interaction on average dollars at the national level.

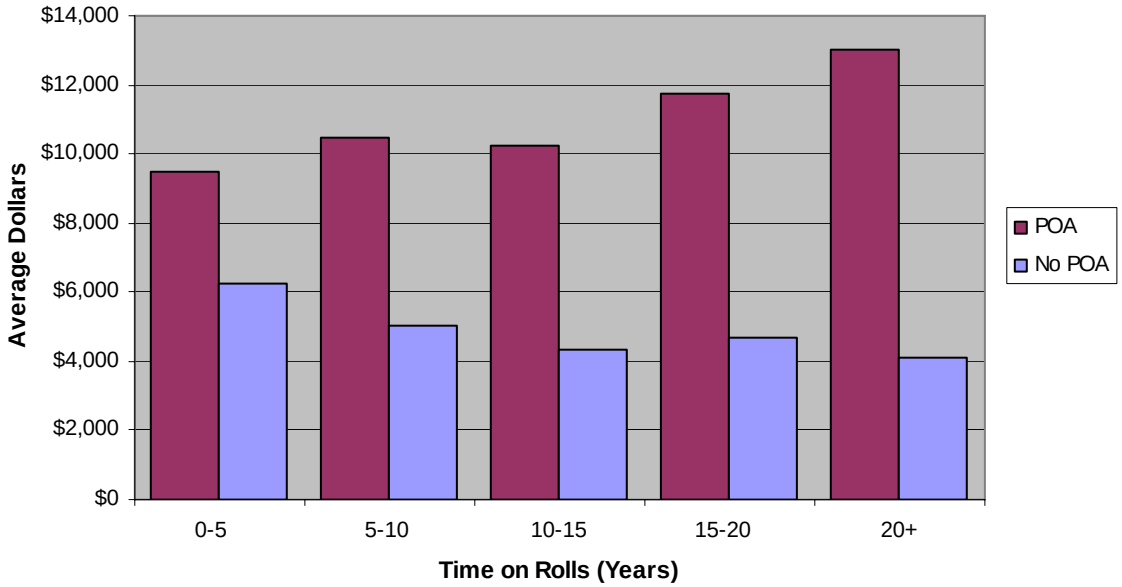

Figure C-11. Nationwide Average Dollars by Interaction with POA and Time on Rolls

Table C-23 gives the number of recipients, average dollars, standard deviation, minimum, maximum, and CV for each group across states. Using our metric for percentage of variation explained, we found that 20.1% of the variation in average dollars across states is due to the interaction between POA and time on rolls.

Table C-23. Statistics for Average Dollars across States by POA and Time on Rolls

Time on Rolls Category	POA Status	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
0–5 Years	No POA	193,216	$6,225	$715	$5,190	$8,364	0.11
0–5 Years	POA	495,354	$9,467	$1,417	$7,270	$15,341	0.15
5–10 Years	No POA	121,836	$5,061	$764	$3,730	$7,617	0.15
5–10 Years	POA	253,135	$10,462	$1,584	$8,031	$15,256	0.15
10–15 Years	No POA	102,687	$4,327	$677	$3,151	$6,705	0.16
10–15 Years	POA	209,530	$10,230	$1,442	$8,282	$15,269	0.14
15–20 Years	No POA	60,054	$4,694	$748	$3,464	$6,897	0.16
15–20 Years	POA	131,805	$11,735	$1,353	$9,669	$15,673	0.12
20+ Years	No POA	453,200	$4,095	$641	$3,186	$5,999	0.16
20+ Years	POA	616,162	$13,006	$1,488	$11,036	$17,462	0.11
Total	Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

Average Dollars versus Percentage of Recipients with POA

We showed in Volume 1 that veterans with POA representation average $11,162, while veterans without POA representation average $4,728. POA representation could potentially explain a large percentage of the variation across states in average dollars, considering the large difference between average dollars given to those with and without POA. However, our analysis shows that 15.5% of the variation is explained by POA representation.

Figure C-12 displays a likely reason for the moderate POA result. The x-axis corresponds to the percentage of recipients with POA representation by state. We plotted this against the difference between average dollars for recipients with POA representation and those without by state. Figure C-12 shows a negative correlation ($r^2 = 0.74$).

We considered this correlation with respect to a state's gap in average dollars between recipients with and without POA representation. This gap generally decreases as the percentage of recipients with POA representation increases in that state. If a state has a high percentage of recipients with POA representation, we would expect this state to have high overall average dollars due to the nationwide gap of over $6,000 between recipients with and without POA representation. However, since the gap generally decreases as the percentage of compensation recipients with POA representation increases, states with a high percentage of recipients with POA representation do not have as high average dollars as we might expect.

This negative correlation could be due to a selection bias. Each state may have a population of severely disabled veterans who always seek POA representation. If the proportion of recipients with POA representation is higher in a state, many of the recipients with POA representation may not come from this population of severely disabled veterans, and would receive lower average awards. For example, recipients represented by Paralyzed Veterans of America average almost $30,000. However, if they represented all recipients instead of focusing on a particular class of severely disabled veterans, we would expect average awards to be much lower than $30,000.

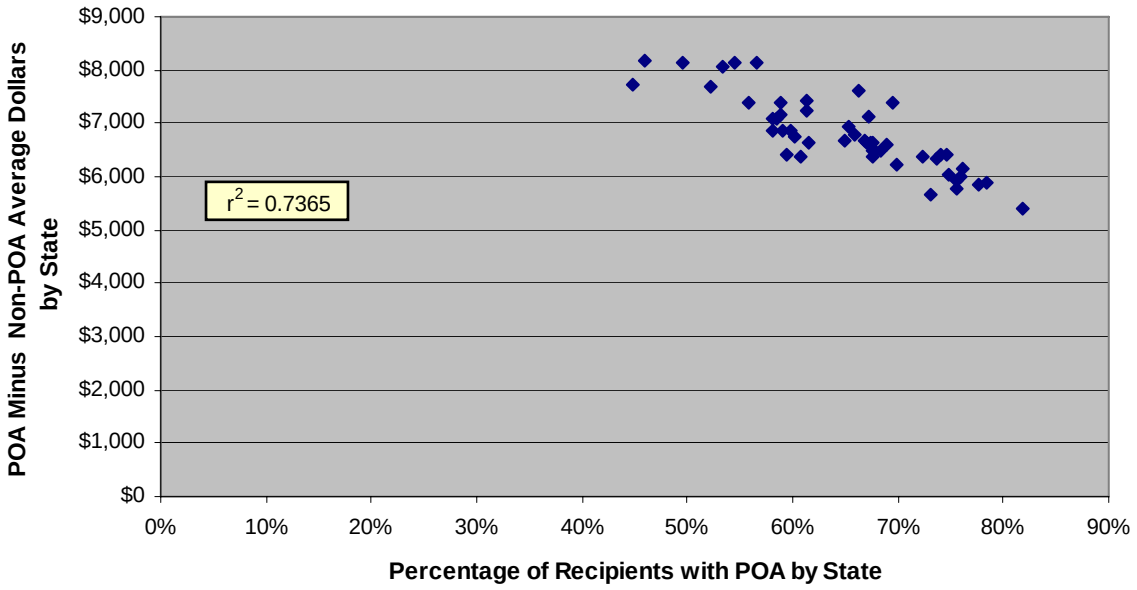

Figure C-12. POA Minus Non-POA Dollars versus Percentage of Recipients with POA

PERIOD OF SERVICE

To examine the impact of POS, we grouped every veteran into one of the following categories: World War II, Korea, Vietnam, Gulf War, and peacetime. Recipients with service during more than one period were placed in the period in which they incurred their primary disability. For the veteran population, we placed veterans serving in multiple periods into their earliest POS.

Average Dollars

Figure C-13 shows the differences in average dollars by POS nationwide. These data reveal clear differences between each group in the amount of compensation they

receive, with averages ranging from $6,506 for Gulf War veterans to $11,670 for Vietnam veterans.

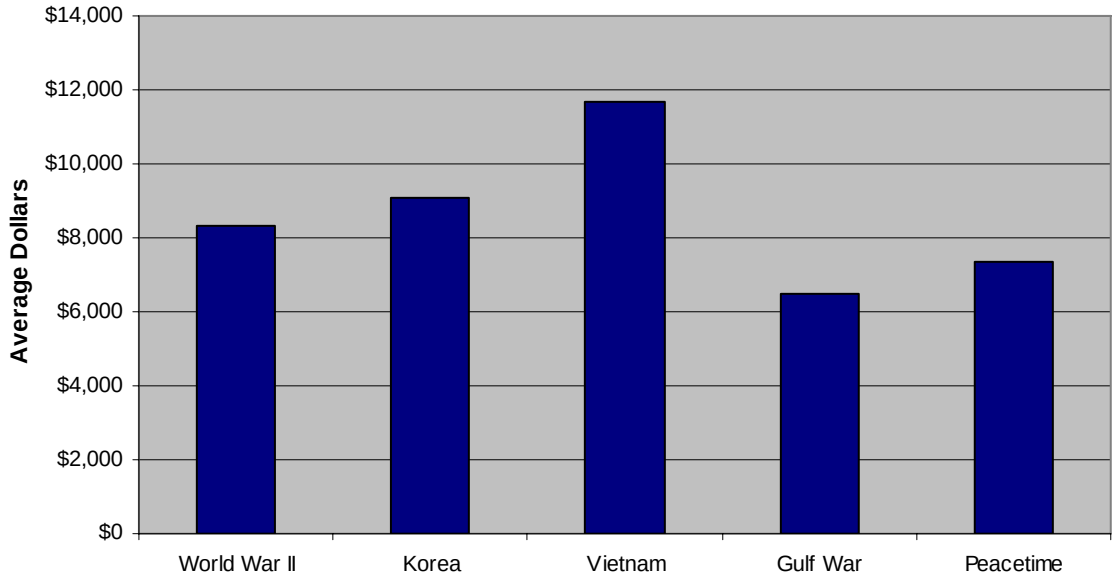

Figure C-13. Average Dollars for All Recipients by POS

Table C-24 gives the average, standard deviation, minimum, maximum, and CV for these groups. We also give the r^2 value for the correlation between overall state average dollars and average dollars for each group. Note that the r^2 value for all groups is rather high, particularly in the case of Vietnam veterans ($r^2 = 0.94$).

Table C-24. Statistics for Average Dollars across States by POS

POS	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV	r^2
World War II	356,190	$8,335	$1,694	$5,858	$14,035	0.20	0.78
Korea	161,512	$9,073	$1,514	$6,776	$13,555	0.17	0.79
Vietnam	916,220	$11,670	$1,445	$9,495	$15,671	0.12	0.94
Gulf War	611,729	$6,506	$681	$5,534	$8,401	0.10	0.75
Peacetime	591,328	$7,334	$868	$6,286	$9,775	0.12	0.87
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13	

Percentage Receiving Compensation

For the percentage of veterans receiving compensation, we saw in Volume 1 that POS explains 12.0% of the variation across states. Figure C-14 displays nationwide

differences in the percentage of veterans receiving compensation by POS. We see considerable variability from a low of 5.6% for Korean veterans to a high of 15.2% for Gulf War veterans.

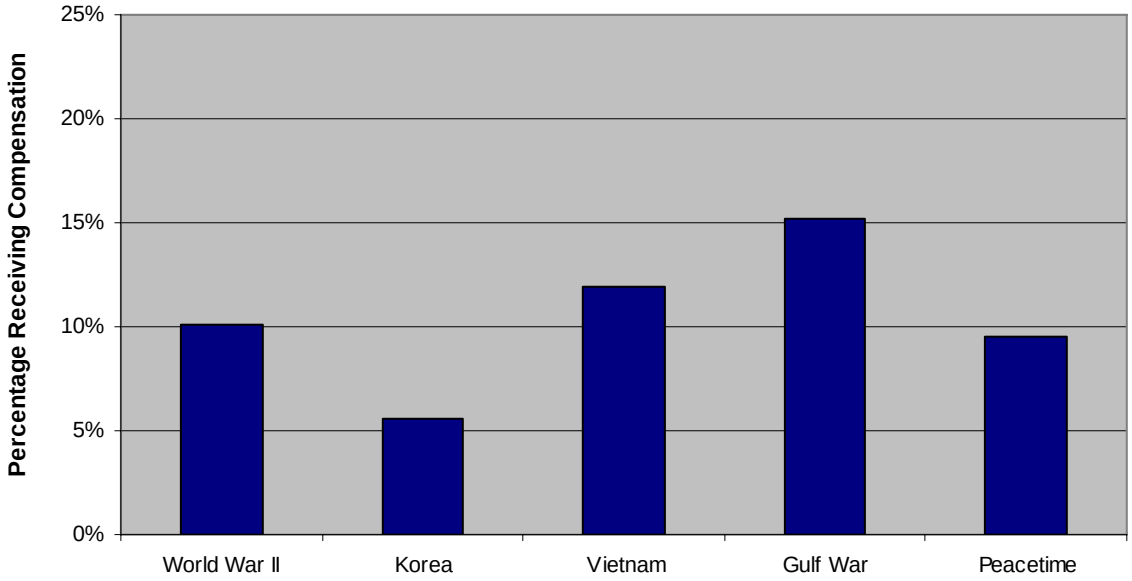

Figure C-14. Percentage of Veterans Receiving Compensation by POS

In Table C-25, we see the summary statistics across states for the percentage of veterans receiving compensation.

Table C-25. Statistics for Percentage Receiving Compensation across States by POS

POS	Number of Recipients	Percentage Receiving Compensation	Standard Deviation	Minimum	Maximum	CV	r^2
World War II	356,190	10.1%	1.9%	7.7%	16.6%	0.19	0.02
Korea	161,512	5.6%	1.3%	3.7%	10.1%	0.23	0.19
Vietnam	916,220	11.9%	2.4%	7.7%	17.9%	0.20	0.77
Gulf War	611,729	15.2%	4.0%	8.7%	26.5%	0.26	0.76
Peacetime	591,328	9.5%	2.6%	5.4%	17.9%	0.28	0.87
Total	2,636,979	10.8%	2.2%	7.0%	17.6%	0.20	

PERCENTAGE OF MILITARY RETIREES RECEIVING COMPENSATION

In Volume 1 we found military retiree status to be highly significant for the percentage of veterans receiving compensation. We see in Figure C-15 that retirees are over four times as likely to receive compensation as non-retirees.

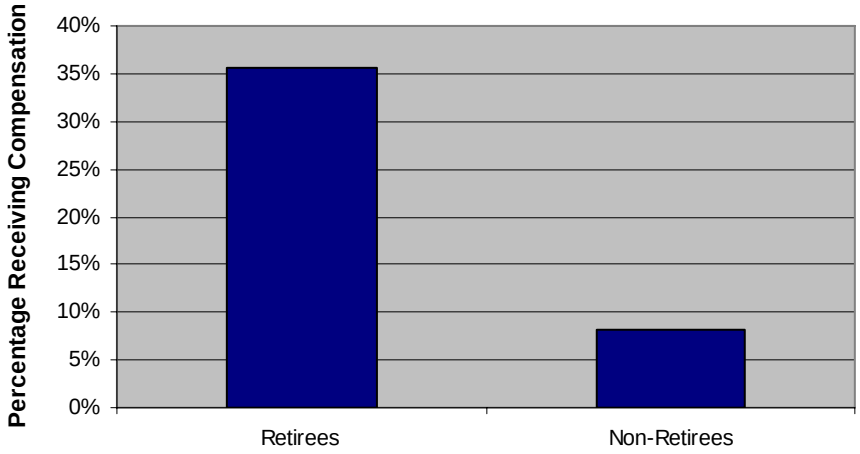

Figure C-15. Nationwide Percentage Receiving Compensation by Retirement Status

Table C-26 provides summary statistics across states on the variation in the percentage of retirees and non-retirees receiving compensation. Note that we eliminated 169,153 retirees with less than 15 years of service from our analysis since they are likely to be disability retirees.

Table C-26. Statistics for Percentage Receiving Compensation across States by Retirement Status

Retirement Status	Number of Recipients	Percentage Receiving Compensation	Standard Deviation	Minimum	Maximum	CV	r^2
Retirees	634,260	35.7%	7.2%	17.7%	56.9%	0.20	0.63
Non-Retirees	1,833,566	8.2%	1.4%	5.9%	11.4%	0.17	0.69
Total	2,636,979	10.8%	2.2%	7.0%	17.6%	0.20	

GRANT RATES

We encountered several issues with the data while attempting to examine the effects of grant rate on the percentage of veterans receiving compensation across states. For one, the Veterans Benefits Administration no longer tracks grant rates at VA regional offices (VAROs). Therefore, we had to create a proxy using data from the last 10 years. We examined the number of original compensation claims completed by a VARO and compared this to the number of veterans estimated to be new to the rolls as a result of an original claim to approximate the grant rate for that VARO. Table C-27 summarizes the results of this analysis.

Table C-27. Statistics for Estimated Grant Rates across VAROs

	National Average	Standard Deviation	Minimum	Maximum	CV
Received First Time Award (% of Veteran Population)	3.9%	1.4%	1.8%	8.5%	0.37
Initial Claims Completed (% of Veteran Population)	5.8%	2.4%	3.0%	14.3%	0.41
Estimated Grant Rates	67.3%	10.8%	37.0%	93.4%	0.16

Using a proxy for grant rate in this way has many limitations. For one, we could only examine the last 10 years. There were also many unknown initial awards codes in the CMPR, and the fact that veterans may come on and off the rolls is not accounted for. We were also not able to consider demographics when determining grant rates. Different rates may exist for veterans with a different POS or different types of injuries and we were unable to account for that. We tested the correlation between estimated grant rates and average awards and found a correlation $r^2 = 0.07$.

APPENDIX D:
DETAILS ON MINOR FACTORS

In Volume 1 of this paper, we identified the main factors that were associated with the observed variation across states. In this appendix, we show the results for factors that we examined that turned out not to be the primary drivers of the observed variation.

SPECIAL MONTHLY COMPENSATION

Some people have hypothesized that differences in special monthly compensation (SMC) awards could account for differences in average awards across states. We spoke with Rating Veterans Service Representatives at various VA regional offices (VAROs) who suggested that the schedule for SMC is complicated, but the actual decision for an award is objective and mechanical. When we looked at the data, we saw a relatively small percentage of compensation recipients receiving some form of SMC as shown in Figure D-1.

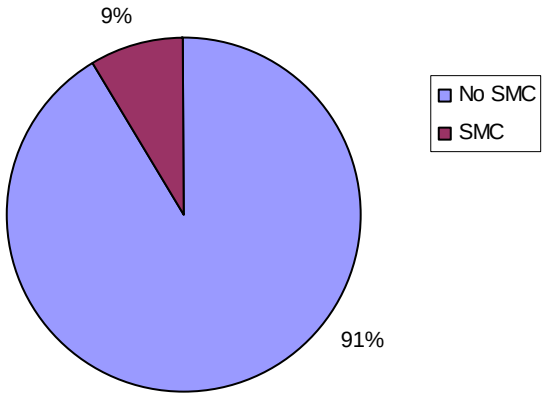

Figure D-1. Percentage of Recipients with SMC

Table D-1 shows the average awards to recipients in each combined degree of disability category and Individual Unemployability (IU). In every case except 0% combined degree of disability, veterans with SMC receive higher awards, as expected. Note that almost all recipients who are rated at 0% and receive payments are SMC

recipients. This is due to special disabilities that only have SMC payments and are not part of the normal rating schedule.

Table D-1. Recipients With and Without SMC by Combined Degree of Disability or IU Status

Combined Degree of Disability or IU	No SMC		SMC	
	Number of Recipients	Average Dollars	Number of Recipients	Average Dollars
0%	34	$8,149	14,716	$859
10%	768,367	$1,296	7,483	$2,192
20%	399,386	$2,519	9,279	$3,511
30%	315,153	$4,301	11,844	$5,244
40%	228,415	$6,193	18,523	$7,106
50%	138,621	$8,709	13,186	$9,621
60%	118,158	$11,023	17,390	$11,883
70%	60,666	$13,783	11,662	$14,671
80%	30,158	$16,097	9,062	$16,917
90%	9,950	$18,150	4,886	$18,982
100%	149,235	$28,695	79,129	$37,122
IU	188,123	$28,854	33,553	$29,983
Total	2,406,266	$7,686	230,713	$21,453

We attempted to quantify the additional payments due to SMC with an approximation. For each combined degree or IU category, we subtracted average payments to recipients without SMC from average payments to veterans in that same category with SMC. We assumed this additional amount was due to SMC. However, recipients rated at 0% with SMC are a special case and all of their compensation was assumed to be due to SMC. We aggregated these additional payments across all categories for different combined degree of disability or IU to get total additional payments for SMC, which is shown in Figure D-2.

We could not consider the percentage of recipients with SMC by state because SMC was highly collinear with a combined degree of 100%. If SMC was a significant factor influencing the observed variation in average dollars, then recipients would receive different average awards across states within the same combined degree or IU categories. When we considered the percentage of recipients across states rated at each level of combined degree of disability or as IU, we explained 99.8% of the observed variation across states in average awards. If we partition each combined degree or IU group according to its different SMC outcomes, we explained 99.9% of the observed variation. We found that adding SMC increases the percentage explained by only 0.1%.

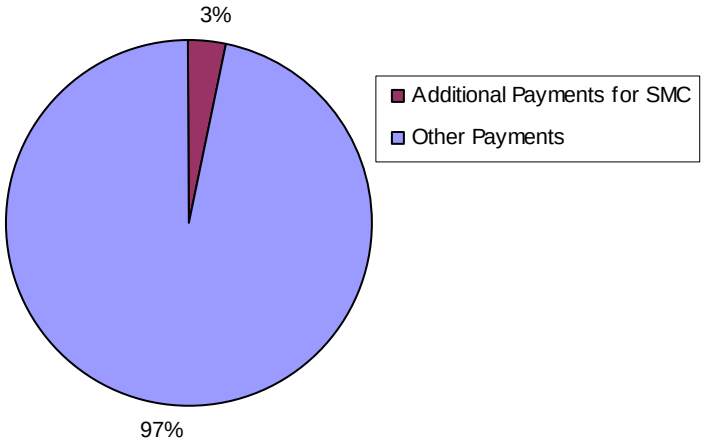

Figure D-2. Additional Payments for SMC and Other Payments

DEPENDENTS

We also heard the hypothesis that differences across states could be due to recipients having a different numbers of dependents across states. Figure D-3 shows the percentage of recipients with at least one dependent listed on their record. However, recipients receive additional payments for dependents only if their combined degree of disability is at least 30%. Thus, for most cases, the Compensation and Pension Master Record (CPMR) indicates the dependent status only for recipients rated at least 30% where this information is relevant to the payment amount.

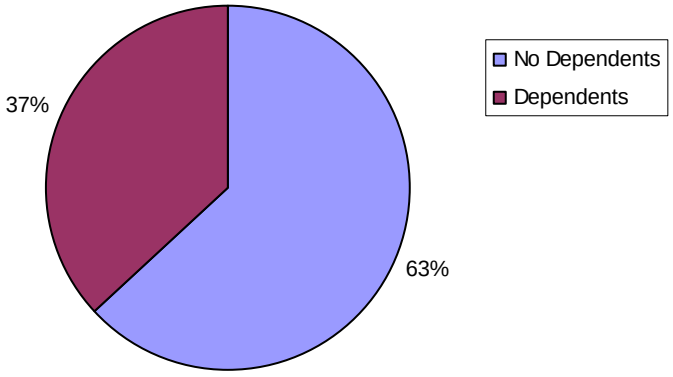

Figure D-3. Total Recipients With and Without Dependents

Table D-2 shows the differences between recipients with records showing dependents and otherwise for different categories by combined degree or IU. Clearly, we can see the effect of a selection bias in the record of dependent status, with most recipients with dependents being rated at 30% or higher. As expected, the average award for veterans with dependents is higher than those without in each category.

Table D-2. Recipients With and Without Dependents by Combined Degree of Disability or IU Status

Combined Degree of Disability or IU	No Dependents		Dependents	
	Number of Recipients	Average Dollars	Number of Recipients	Average Dollars
0%	14,704	$875	46	$1,349
10%	775,363	$1,304	487	$1,332
20%	408,373	$2,541	292	$2,788
30%	116,806	$3,926	210,191	$4,563
40%	78,673	$5,674	168,265	$6,536
50%	46,795	$8,054	105,012	$9,116
60%	37,563	$10,220	97,985	$11,483
70%	20,667	$12,844	51,661	$14,359
80%	9,798	$14,986	29,422	$16,720
90%	3,444	$16,922	11,392	$18,878
100%	85,081	$30,035	143,283	$32,553
IU	63,781	$27,667	157,895	$29,573
Total	1,661,048	$5,128	975,931	$15,293

To determine the amount of additional payment due to dependents, we subtracted the average payment for each category of combined degree of disability or IU without dependents from the corresponding category with dependents. We summed these differences weighted according to the number of recipients with dependents in each combined degree or IU category. Figure D-4 shows an estimated 6% of all compensation is due to additional payments for dependents.

We attempted to quantify variation across states in average compensation for the same category for combined degree or IU as a result of dependents. This accounts for the selection bias in recording dependent status for recipients rated at 30% or higher. Note that variation attributed to dependent status would be differences in average compensation across the same category for combined degree or disability or IU. We computed that 99.8% of the observed variation was explained by differences across states in the percentage of recipients in each combined degree category or having IU. This

indicates that there was not significant variation within these categories influencing the observed variation across states in average awards.

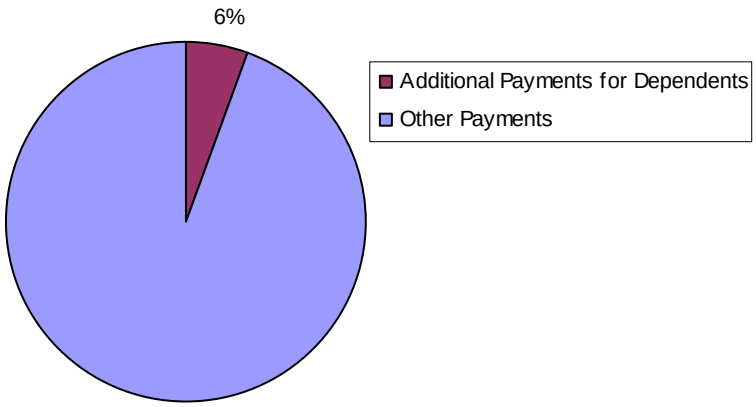

Figure D-4. Additional Payments for Dependents and Other Payments

We also considered the interactions of adding the different categories for dependent status, such as having a spouse or a school child, to the categories for each combined degree or IU. We found that 99.9% of the observed variation was explained by differences in the percentage of recipients falling within groups corresponding to combinations of dependent status and combined degree of disability or IU status. We accounted for only an additional 0.1% of the observed variation by adding dependent status.

ENLISTED VERSUS OFFICER

Whether a recipient was an officer or an enlisted soldier has been suggested as a possible contributing factor in variation in average dollars across states. Using data from the 2005 CPMR, we calculated average dollars, standard deviation, minimum, maximum, and coefficient of variation (CV) for each group. Table D-3 contains these data along with the number of recipients in each category. Note that 901,160 compensation recipients were excluded from our analysis because their officer or enlisted status was unknown.

Table D-3. Statistics for Average Dollars across States by Officer or Enlisted Status

	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
Officer	204,297	$7,391	$717	$6,212	$9,185	0.12
Enlisted	1,531,522	$9,201	$1,111	$7,648	$12,949	0.10
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

Officer or enlisted status accounts for 2.7% of the variation in average dollars across states.

For the percentages of veterans receiving compensation, only national estimates were available for the veteran population by officer or enlisted status. In the CPMR, there are 1,735,819 recipients with identified officer or enlisted status. There are 901,160 recipients with unknown status. We divided the recipients with a known officer or enlisted status by their respective estimated veteran populations. We found that officers were 6.6% of the estimated veteran population and 11.8% of compensation recipients for which we had officer/enlisted data.

NUMBER OF DISABILITY ISSUES

Using data from the 2005 CPMR, we were able to match each claim with the number of issues in that claim. For each number of issues, we then calculated the average dollars, standard deviation, minimum, maximum, and CV. Table D-4 shows the data.

Table D-4. Statistics for Average Dollars across States by Number of Issues

	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
0 Issues	64	$4,797	$5,088	$804	$14,124	1.06
1 Issue	838,366	$6,198	$1,059	$4,930	$10,076	0.17
2 Issues	538,328	$6,972	$970	$5,396	$9,903	0.14
3 Issues	365,900	$8,534	$1,264	$6,672	$12,168	0.15
4 Issues	258,301	$9,836	$1,389	$7,601	$13,529	0.14
5 Issues	186,146	$11,121	$1,676	$8,363	$15,605	0.15
6 Issues	168,485	$12,964	$1,967	$9,919	$17,779	0.15
7 Issues	83,163	$14,019	$2,010	$10,387	$18,062	0.14
8 Issues	60,800	$15,238	$2,233	$11,139	$20,872	0.15
9 or More Issues	137,426	$18,073	$1,831	$14,327	$22,419	0.10
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

Note that only 64 veterans in the whole country receive disability compensation with 0 issues, which is why all the data in that category are skewed.

We further parsed the data on average dollars by number of issues and state. Table D-5 gives the resulting data as of September 2005.

Using our methodology for variation explained, we find that 6.0% of the variation across states is due to the number of issues.

We also examined the correlation across states between average dollars and number of issues per recipient. Those numbers are graphed in Figure D-5.

Table D-5. Average Dollars by Number of Issues and State

State	Average Dollars in FY 2005								
	1 Issue	2 Issues	3 Issues	4 Issues	5 Issues	6 Issues	7 Issues	8 Issues	9 Issues
Alabama	$6,559	$7,052	$8,180	$9,559	$10,601	$11,642	$13,056	$14,293	$16,861
Alaska	$5,515	$5,894	$6,769	$7,772	$8,803	$10,011	$11,141	$11,139	$14,558
Arizona	$6,633	$7,242	$8,950	$9,919	$11,072	$12,613	$13,716	$14,921	$18,150
Arkansas	$8,132	$9,278	$10,971	$12,537	$14,378	$16,270	$16,980	$17,869	$21,126
California	$6,397	$6,643	$8,382	$9,512	$10,735	$12,244	$13,550	$15,029	$17,649
Colorado	$6,358	$6,348	$7,497	$8,059	$8,643	$11,018	$11,408	$12,707	$16,619
Connecticut	$5,371	$6,587	$8,465	$10,038	$12,399	$14,587	$15,954	$17,198	$20,092
Delaware	$5,353	$5,813	$7,251	$8,741	$9,961	$11,071	$13,182	$14,807	$18,110
Florida	$6,060	$6,904	$8,271	$9,538	$10,573	$12,374	$13,185	$13,933	$17,445
Georgia	$5,872	$6,314	$7,426	$8,628	$10,038	$12,032	$12,807	$14,539	$17,167
Hawaii	$7,034	$6,952	$8,521	$8,886	$10,909	$11,936	$13,582	$13,357	$17,729
Idaho	$6,597	$7,002	$8,775	$9,826	$10,959	$12,835	$13,753	$13,894	$17,318
Illinois	$5,407	$6,112	$7,581	$9,167	$10,879	$13,173	$14,201	$16,289	$18,617
Indiana	$5,203	$5,396	$7,660	$9,376	$10,978	$13,806	$15,044	$16,329	$18,746
Iowa	$5,620	$6,005	$8,577	$10,132	$12,230	$13,827	$15,234	$17,633	$19,796
Kansas	$5,894	$6,680	$7,371	$8,771	$9,954	$11,793	$13,045	$14,099	$17,121
Kentucky	$6,762	$7,430	$9,119	$10,589	$12,043	$13,833	$15,348	$16,250	$19,105
Louisiana	$6,865	$7,993	$9,122	$10,976	$12,619	$14,596	$15,538	$17,102	$19,107
Maine	$9,149	$9,606	$12,168	$13,093	$14,216	$15,557	$16,633	$17,482	$20,332
Maryland	$5,424	$5,964	$7,052	$8,332	$9,454	$11,254	$11,455	$13,476	$15,996
Massachusetts	$5,697	$7,916	$10,290	$11,962	$14,773	$16,899	$17,780	$18,585	$20,377
Michigan	$5,339	$6,565	$8,370	$10,813	$12,692	$15,188	$17,564	$18,634	$20,431
Minnesota	$5,736	$6,291	$9,076	$11,394	$13,332	$15,436	$17,248	$19,726	$21,844
Mississippi	$6,644	$7,580	$9,036	$10,488	$11,516	$13,998	$14,976	$15,468	$18,241
Missouri	$6,198	$6,611	$8,621	$10,105	$11,744	$13,421	$14,683	$15,758	$18,397
Montana	$6,775	$6,648	$8,924	$9,868	$11,654	$12,610	$14,691	$15,367	$19,732

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Table D-5—*Continued*

State	Average Dollars in FY 2005								
	1 Issue	2 Issues	3 Issues	4 Issues	5 Issues	6 Issues	7 Issues	8 Issues	9 Issues
Nebraska	$7,954	$6,874	$9,800	$11,170	$11,661	$13,621	$16,032	$15,737	$18,850
Nevada	$6,095	$6,568	$7,977	$9,123	$10,155	$11,585	$13,283	$16,217	$17,864
New Hampshire	$5,687	$6,820	$8,757	$10,204	$11,623	$14,548	$13,810	$14,092	$16,837
New Jersey	$4,930	$6,732	$8,986	$11,238	$13,030	$17,142	$18,062	$20,224	$21,842
New Mexico	$10,076	$9,903	$12,008	$12,947	$13,678	$16,095	$17,659	$18,383	$20,267
New York	$5,610	$7,170	$8,945	$10,956	$12,658	$15,319	$17,522	$18,534	$21,027
North Carolina	$6,786	$7,589	$8,621	$9,813	$11,056	$12,405	$13,286	$14,455	$16,895
North Dakota	$5,443	$5,912	$7,587	$9,505	$11,814	$12,913	$13,602	$14,277	$17,561
Ohio	$5,009	$6,302	$7,700	$9,501	$11,065	$13,606	$14,743	$15,857	$18,108
Oklahoma	$8,429	$8,746	$10,723	$11,948	$13,671	$15,639	$16,951	$17,852	$21,134
Oregon	$7,927	$8,124	$10,186	$11,663	$13,020	$15,689	$16,171	$17,803	$21,244
Pennsylvania	$5,517	$6,951	$8,889	$10,936	$12,605	$15,448	$16,461	$17,404	$19,356
Rhode Island	$6,532	$8,087	$10,442	$12,323	$13,489	$15,905	$16,572	$17,808	$20,307
South Carolina	$6,229	$7,133	$8,485	$9,537	$11,135	$12,719	$13,605	$15,267	$18,064
South Dakota	$6,096	$6,836	$8,804	$9,879	$11,293	$12,561	$14,061	$16,584	$18,733
Tennessee	$6,555	$7,178	$8,638	$9,683	$10,868	$12,552	$13,765	$14,730	$17,859
Texas	$6,311	$6,738	$8,249	$9,356	$10,456	$12,297	$13,879	$14,910	$18,191
Utah	$6,182	$6,775	$7,956	$9,082	$10,311	$11,917	$12,564	$12,637	$16,956
Vermont	$6,736	$8,006	$10,224	$11,686	$15,120	$17,779	$16,426	$19,085	$20,007
Virginia	$5,538	$6,049	$6,672	$7,601	$8,363	$9,919	$10,387	$11,547	$14,327
Washington	$7,045	$6,989	$7,930	$8,784	$9,771	$11,623	$12,068	$13,673	$17,585
West Virginia	$7,832	$8,767	$11,581	$13,529	$15,605	$17,270	$17,643	$20,872	$22,419
Wisconsin	$5,779	$7,013	$8,497	$10,631	$13,180	$14,441	$16,779	$18,592	$21,112
Wyoming	$5,987	$6,735	$7,745	$8,953	$9,839	$10,893	$11,440	$13,729	$16,778
Total	$6,198	$6,972	$8,534	$9,836	$11,121	$12,964	$14,019	$15,238	$18,073

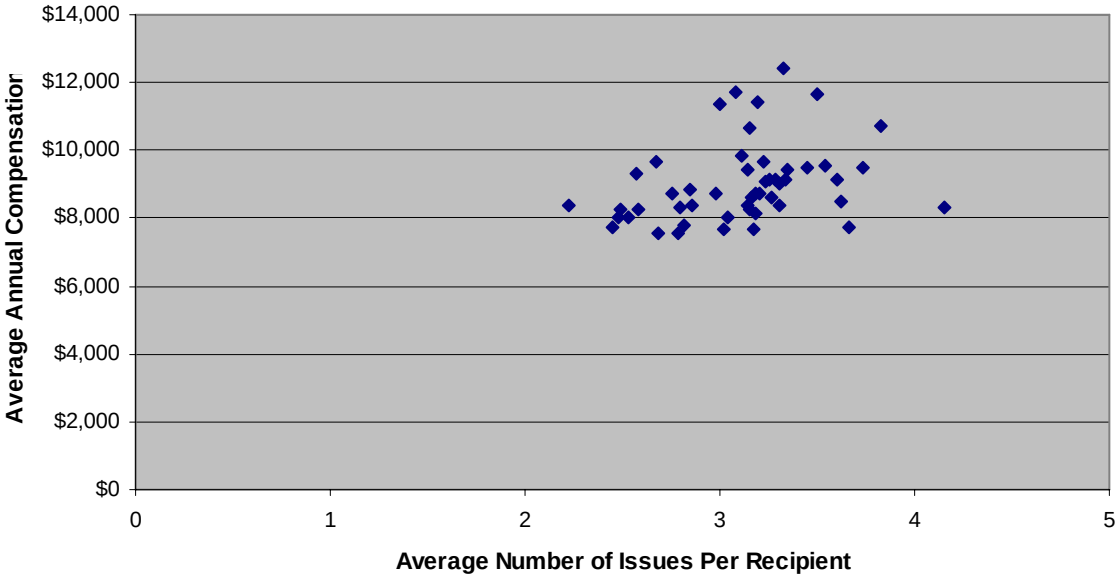

Figure D-5. Average Annual Compensation versus Average Number of Issues by State

We then get an r^2 value of 0.10, which indicates there is a small positive correlation among states between the number of issues per recipient and average annual compensation.

We investigated further by considering the r^2 value between the overall state dollars and average dollars for any particular number of issues. Note we omitted this analysis for recipients with 0 issues because only 64 veterans in the nation fell into this category. Table D-6 contains the results.

Table D-6. Correlation between State Average Awards and Awards by Number of Issues

1 Issue	2 Issues	3 Issues	4 Issues	5 Issues	6 Issues	7 Issues	8 Issues	9 or More Issues
0.92	0.78	0.73	0.50	0.31	0.20	0.19	0.13	0.21

Note that the r^2 value for one issue is 0.92, which indicates a strong correlation across states between average dollars for one issue and overall average dollars. This is true despite the fact that veterans with one issue represent only 30% of compensation recipients (838,366 of the 2,636,979 veterans). States with higher average dollar amounts show higher compensation for veterans with only one issue.

AGE

Age was mentioned in the VA Office of the Inspector General report as a factor that could contribute to variation in average dollars across states.[1] To study this, we grouped all compensation recipients into one of seven age groups. The data for each group is given in Table D-7.

Table D-7. Statistics for Average Dollars across States by Age

	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
Under 30	98,951	$4,958	$480	$4,293	$6,506	0.10
30s	243,930	$5,979	$771	$5,079	$8,849	0.13
40s	425,821	$7,539	$798	$6,703	$10,184	0.11
50s	779,901	$10,566	$1,433	$8,335	$14,796	0.14
60s	401,868	$9,956	$1,218	$8,326	$12,993	0.12
70s	337,029	$9,034	$1,421	$6,481	$12,745	0.16
80+	349,479	$8,580	$1,692	$5,964	$14,313	0.20
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

Age accounts for 5.6% of the variation in average dollars across states. Note that in the 2005 data, age was highly correlated with period of service (POS). Our analysis showed that POS explains more of the observed variation, so we used it instead of age in the majority of our analysis.

We also looked at the statistics across states by these age groups for the percentage of veterans receiving compensation. Table D-8 shows data on the percentage of veterans receiving compensation for each age group.

Overall, these age groups account for 4.6% of the variation in percentage of veterans receiving compensation across states.

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1 Department of Veterans Affairs, Office of the Inspector General, "Review of State Variances in VA Disability Compensation Payments," Report No. 05-00765-137, May 19, 2005.

Table D-8. Statistics for Percentage Receiving Compensation across States by Age

Age	Number of Recipients	Percentage Receiving Compensation	Standard Deviation	Minimum	Maximum	CV
Under 30	98,951	9.5%	1.9%	5.9%	13.7%	0.20
30s	243,930	10.9%	2.2%	7.6%	17.1%	0.20
40s	425,821	11.9%	3.3%	7.2%	23.1%	0.27
50s	779,901	14.1%	2.7%	9.5%	20.2%	0.19
60s	401,868	8.3%	2.2%	4.6%	13.2%	0.27
70s	337,029	7.5%	1.7%	3.9%	11.2%	0.23
80+	349,479	13.0%	2.1%	9.2%	19.9%	0.16
Total	2,636,979	10.8%	2.2%	7.0%	17.6%	0.20

BRANCH OF SERVICE

To study the effect of branch of service (BOS) on the variability in average dollars across states, we categorized all compensation recipients as having served in the Air Force, Army, Marine Corps, Navy, or other. Table D-9 gives the average dollars in FY 2005 for each group.

Table D-9. Average Dollars by BOS

Branch of Service	Average Dollars in FY 2005
Air Force	$7,730
Army	$9,370
Marine Corps	$9,861
Navy	$8,084
Other	$8,152
Total	$8,890

We further looked at the average dollars for each group in each state. Table D-10 contains these averages.

BOS does not account for any of the observed variation in average dollars across states. Unfortunately, we had only national veteran population estimates available by BOS, so we were unable to perform a state-by-state analysis on the percentage of veterans receiving compensation. From the national estimates, we were able to identify the effects shown in Table D-11.

Table D-10. Average Dollars by State for BOS in FY 2005

State	Air Force	Army	Marine Corps	Navy	Other
Alabama	$7,520	$9,073	$10,388	$7,993	$7,180
Alaska	$7,623	$8,889	$9,822	$7,471	$7,748
Arizona	$7,967	$10,146	$10,937	$9,031	$9,278
Arkansas	$9,983	$12,010	$12,338	$10,867	$10,861
California	$7,701	$9,828	$9,209	$7,635	$8,382
Colorado	$7,066	$9,110	$9,737	$8,172	$7,346
Connecticut	$7,702	$7,654	$9,486	$6,970	$7,407
Delaware	$6,628	$8,084	$9,728	$7,440	$6,686
Florida	$7,554	$9,346	$9,994	$7,588	$8,030
Georgia	$7,355	$8,347	$8,981	$7,766	$7,689
Hawaii	$6,784	$9,926	$10,617	$7,795	$8,034
Idaho	$7,905	$9,786	$9,802	$8,636	$7,335
Illinois	$6,610	$8,227	$8,497	$6,962	$7,926
Indiana	$6,580	$7,855	$8,144	$6,988	$6,432
Iowa	$7,743	$8,554	$8,920	$7,875	$6,648
Kansas	$6,962	$8,204	$9,346	$7,924	$7,913
Kentucky	$8,440	$9,971	$10,010	$8,976	$7,452
Louisiana	$8,664	$10,386	$10,633	$8,829	$7,471
Maine	$9,845	$12,785	$14,093	$10,129	$10,128
Maryland	$6,995	$7,884	$8,448	$7,094	$7,730
Massachusetts	$7,402	$8,466	$10,344	$7,526	$7,399
Michigan	$7,187	$8,189	$8,703	$7,384	$7,169
Minnesota	$7,892	$9,047	$9,482	$7,963	$7,334
Mississippi	$8,102	$10,066	$10,930	$8,461	$9,178
Missouri	$7,509	$9,072	$9,596	$8,085	$7,563
Montana	$7,993	$10,213	$10,490	$8,894	$8,560
Nebraska	$8,437	$12,277	$12,590	$10,779	$12,391
Nevada	$6,929	$9,515	$9,948	$8,420	$9,154
New Hampshire	$7,352	$8,681	$9,641	$7,814	$7,829
New Jersey	$7,081	$8,116	$9,792	$7,214	$6,545
New Mexico	$8,995	$13,990	$14,983	$11,813	$10,886
New York	$7,606	$8,272	$9,844	$7,681	$7,299
North Carolina	$8,200	$10,021	$9,686	$8,788	$8,905
North Dakota	$7,088	$8,718	$8,836	$8,262	$6,369
Ohio	$6,666	$7,808	$8,242	$7,099	$7,690
Oklahoma	$9,030	$12,544	$13,111	$11,054	$11,201
Oregon	$9,271	$11,269	$12,305	$9,647	$9,189
Pennsylvania	$7,385	$8,346	$9,636	$7,645	$7,670
Rhode Island	$7,932	$9,866	$11,319	$8,228	$7,534
South Carolina	$7,835	$9,885	$9,768	$7,918	$7,504
South Dakota	$7,619	$9,923	$10,120	$8,649	$8,314
Tennessee	$8,177	$9,385	$9,990	$8,363	$8,968
Texas	$8,185	$10,085	$10,374	$8,715	$9,323
Utah	$7,038	$8,950	$9,812	$8,351	$7,386
Vermont	$7,979	$10,133	$10,911	$9,113	$8,194
Virginia	$6,624	$8,134	$8,272	$7,421	$7,316
Washington	$7,842	$9,874	$10,937	$8,284	$7,877
West Virginia	$9,539	$11,841	$12,291	$10,312	$7,972
Wisconsin	$8,050	$9,143	$9,309	$8,168	$7,946
Wyoming	$7,138	$9,085	$9,630	$7,984	$6,069
Total	$7,730	$9,370	$9,861	$8,084	$8,152

Table D-11. Percentage of Veteran Population Receiving Compensation by BOS

Branch of Service	Percentage Receiving Compensation
Air Force	10.6%
Army	12.4%
Navy	8.3%
Marine Corps	11.3%
Total	10.8%

GENDER

We examined gender as a possible factor in contributing to variation in average dollars across states. Table D-12 gives the data for average compensation across states for males and females as of September 2005. Three recipients for which the gender field was blank were excluded from this analysis.

Table D-12. Statistics for Average Dollars across States by Gender

Gender	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
Male	2,495,255	$8,937	$1,198	$7,575	$12,543	0.13
Female	177,721	$8,248	$919	$7,097	$11,055	0.11
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

We note than on average, men receive $8,937, about $700 more than the average for women ($8,248). Both groups have a coefficient of variation that is similar to that of all recipients.

We found that 0.3% of the variation in average dollars across states is due to gender.

For the percentage of veterans receiving compensation, Table D-13 provides the statistics for males and females across states. The difference between the percentage receiving compensation for all males and all females is 0.4%.

Table D-13. Statistics for Percentage Receiving Compensation across States by Gender

Gender	Number of Recipients	Percentage Receiving Compensation	Standard Deviation	Minimum	Maximum	CV
Male	2,495,255	10.8%	2.2%	7.0%	17.5%	0.20
Female	177,721	10.4%	2.6%	6.3%	18.4%	0.25
Total	2,636,979	10.8%	2.2%	7.0%	17.6%	0.20

None of the observed variation in the percentage of veterans receiving compensation was explained by the ratio of males to females in the veteran population across states.

AVERAGE DOLLARS FOR MILITARY RETIREES

The Office of the Inspector General report identified military retirees as a demographic factor that helped explain the variances in state average annual disability compensation. In our discussions with VA personnel, several mentioned military retirees as a likely cause for the observed variance.

Table D-14 shows the data for retirees and non-retirees receiving compensation as of September 2005. Military retirees receive an average of $9,807, while non-retirees receive an average of $8,489. The hypothesis is that states with higher percentages of military retirees will have higher average compensation.

Table D-14. Veterans Receiving Compensation by Retirement Status

Retirement Status	Number of Veterans	Number of Recipients	Average Dollars
Retirees	1,944,111	803,413	$9,807
Non-Retirees	22,442,924	1,833,566	$8,489
Total	24,387,035	2,636,979	$8,890

We examined the retiree data in more detail to try to explain the reasons why retirees receive higher compensation awards on average. It turns out that when examining retiree data, it is important to consider years of service (YOS).

Table D-15 shows the number of recipients, average dollars, standard deviation, minimum, maximum, and CV for retirees considering YOS. We note that the high dollar awards for retiree are primarily for retirees with less than 15 YOS. These are most likely disability retirees.

Table D-15. Statistics for Average Dollars across States by Retirement Status and YOS

Retirement Status and YOS	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
Retiree: < 15 YOS	169,153	$16,771	$1,146	$13,391	$19,414	0.07
Retiree: 15–19 YOS	66,190	$9,911	$1,098	$7,467	$12,625	0.11
Retiree: >20 YOS	568,070	$7,721	$896	$6,356	$10,039	0.12
Non-retiree	1,833,566	$8,489	$1,348	$6,983	$13,218	0.16
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

Using our methodology for variation explained, we found that 0.1% of the variation in average dollars across states is due to the distribution of retirees. This demonstrates the variation that exists across states also exists if we remove retirees.

TIME ON ROLLS

We examined the impact of time on rolls on the variation across states in average compensation. To examine this, we used 2005 CPMR data and split all compensation recipients into groups by how long they had been on the rolls. Table D-16 gives the number of recipients, average dollars, standard deviation, minimum, maximum, and CV for these groups.

Table D-16. Statistics for Average Dollars across States for Time on Rolls

Time on Rolls	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
< 5 Years	688,570	$8,558	$1,163	$6,568	$13,122	0.14
5–10 Years	374,971	$8,707	$1,348	$6,880	$12,810	0.15
10–15 Years	312,217	$8,288	$1,144	$6,724	$12,209	0.14
15–20 Years	191,859	$9,531	$1,184	$7,953	$13,012	0.12
> 20 Years	1,069,362	$9,229	$1,534	$6,962	$14,477	0.17
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

Using our percentage of variation explained metric, we find that 0% of the variation in average dollars across states is due to time on rolls.

YEARS OF SERVICE

To examine the effect of YOS on the variation in average dollars across states, veterans were grouped as having either 0–2, 3–9, 10–19 or 20+ YOS. Table D-17 gives the number of recipients, average dollars, standard deviation, minimum, maximum, and CV for each group.

Table D-17. Statistics for Average Dollars across States by YOS

Years of Service	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
0–2 Years	956,900	$9,956	$1,511	$8,118	$15,429	0.15
3–9 Years	906,766	$8,336	$1,199	$6,934	$12,111	0.14
10–19 Years	202,513	$9,572	$1,086	$7,777	$12,172	0.11
20+ Years	570,800	$7,727	$895	$6,372	$10,048	0.12
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

YOS accounts for 0.0% of the variation in average dollars across states.

YEAR RELEASED FROM ACTIVE DUTY

In conjunction with our POS analysis, we looked at the effect of the date a veteran was released for active duty as a possible cause of variation in average dollars across states. We categorized veterans by the decade they were released from active duty. Table D-18 contains the data for these groups. Fourteen veterans with an unknown release date were excluded from this analysis.

Table D-18. Statistics for Average Dollars across States by Year Released from Active Duty

Year Released	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
Before 1950	361,906	$8,285	$1,678	$5,818	$13,961	0.20
1950–1959	200,750	$8,641	$1,412	$6,572	$12,717	0.16
1960–1969	398,818	$11,758	$1,519	$9,552	$16,435	0.13
1970–1979	611,422	$10,731	$1,337	$8,736	$14,501	0.12
1980–1989	333,359	$8,108	$930	$6,821	$10,417	0.11
1990–1999	453,751	$6,569	$765	$5,434	$8,678	0.12
2000+	276,959	$6,413	$624	$5,471	$7,937	0.10
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

The date a veteran was released from active duty accounts for 4.9% of the variation in average dollars across states.

DISAGREEMENT RATES

Veterans may appeal any adjudication result. They begin this process by filing what is called a Notice of Disagreement (NOD). To examine the effect of disagreement rate on variation in average dollars across states, we first looked at the disagreement rates across VAROs. Table D-19 gives these data.

We then calculated the national average, standard deviation, minimum, maximum, and CV variation for disagreement rate across VAROs. Table D-20 shows the data.

We examined the relationship between disagreement rate and average dollars across VAROs. Figure D-6 graphs these values.

The r^2 value for this correlation was 0.03, indicating there is only a slight positive correlation between disagreement rates and average dollars among VAROs.

Table D-19. Overall NOD Rates by VARO, FY 2001–2005

VARO	Rate
Albuquerque, NM	14.9%
Anchorage, AK	17.4%
Atlanta, GA	12.9%
Baltimore, MD	11.0%
Boise, ID	15.6%
Boston, MA	18.2%
Buffalo, NY	13.7%
Chicago, IL	14.4%
Cleveland, OH	15.2%
Columbia, SC	18.5%
Denver, CO	13.8%
Des Moines, IA	14.9%
Detroit, MI	16.6%
Fargo, ND	13.4%
Fort Harrison, MT	14.0%
Hartford, CT	19.3%
Honolulu, HI	12.0%
Houston, TX	15.3%
Huntington, WV	17.1%
Indianapolis, IN	18.4%
Jackson, MS	20.0%
Lincoln, NE	18.1%
Little Rock, AR	19.3%
Los Angeles, CA	15.4%
Louisville, KY	14.6%
Manchester, NH	18.3%
Milwaukee, WI	14.6%
Montgomery, AL	23.6%
Muskogee, OK	13.6%
Nashville, TN	15.4%
New Orleans, LA	16.4%
New York, NY	10.4%
Newark, NJ	17.7%
Oakland, CA	9.1%
Philadelphia, PA	12.6%
Phoenix, AZ	10.3%
Pittsburgh, PA	18.4%
Portland, OR	20.8%
Providence, RI	17.7%
Reno, NV	15.4%
Roanoke, VA	10.0%
Salt Lake City, UT	11.5%
San Diego, CA	9.3%
Seattle, WA	11.0%
Sioux Falls, SD	11.7%
St. Louis, MO	18.0%
St. Paul, MN	17.0%
St. Petersburg, FL	12.0%
Togus, ME	11.6%
Waco, TX	16.2%
White River Junction, VT	12.6%
Wichita, KS	14.1%
Wilmington, DE	11.8%
Winston-Salem, NC	10.4%
Total	14.6%

Table D-20. Statistics for Average Disagreement Rate

National Average	Standard Deviation	Minimum	Maximum	CV
14.6%	3.9%	9.0%	28.7%	0.27

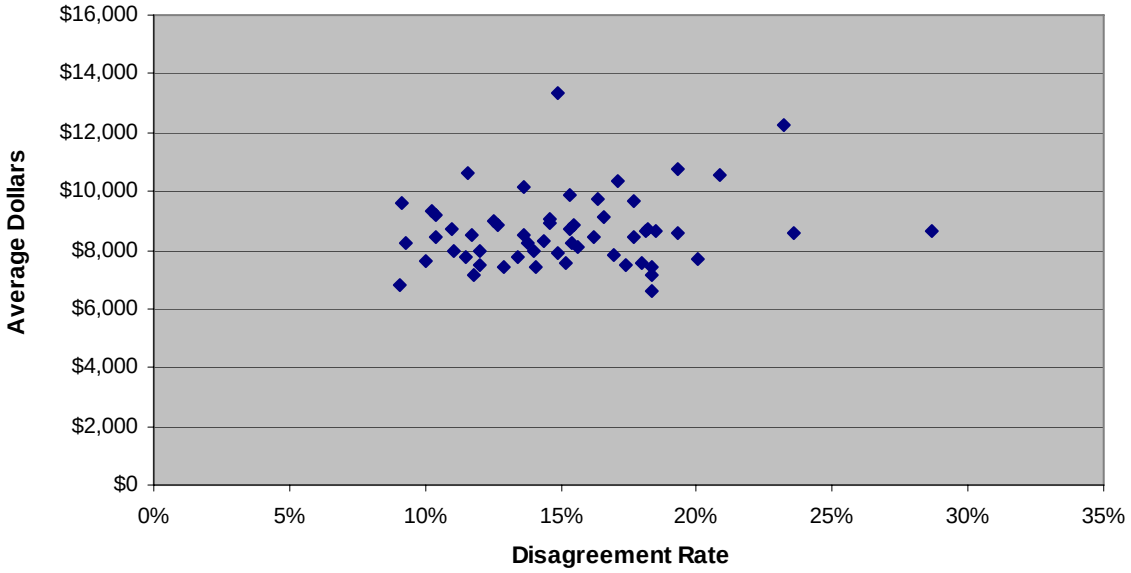

Figure D-6. Average Dollars versus Disagreement Rates by VARO, FY 2001–2005

STAR DATA

VA uses a process called Systematic Technical Accuracy Review (STAR) in place to aid consistency by reviewing completed claims for errors. Errors are classified as benefit entitlement, decision documentation, or administrative. Errors most relevant to accuracy in rating decisions are classified as C1 (grant/denial of all issues is correct) or C2 (combined degree of disability is correct). We reviewed data from the STAR system and looked in particular at the number of completed claims that were reviewed and how many errors were found. Table D-21 gives the resulting data by VARO. Note that any given claim could have multiple errors.

Of the 628,585 claims that were completed in FY 2005, only 6,947 were reviewed. Of those claims, 2,002 errors were found of which only 226 were of type C1 or C2.

Table D-21. STAR Data Errors by VARO for FY 2005

Regional Office	Number of Cases Completed in FY 2005	Number of Cases Reviewed	Number of C1 Errors	Number of C2 Errors	Other Errors	Total Number of Errors
Boston	5,526	171	3	2	55	60
Providence	3,223	112	1	1	19	21
New York	11,736	112	1	0	36	37
Buffalo	8,310	104	1	2	48	51
Hartford	3,651	116	1	5	29	35
Newark	5,303	194	4	3	81	88
Philadelphia	14,546	119	1	0	33	34
Pittsburgh	7,041	106	3	1	33	37
Baltimore	8,062	93	2	1	28	31
Roanoke	19,772	100	1	1	21	23
Huntington	6,389	150	2	2	38	42
Atlanta	21,320	184	3	8	83	94
St. Petersburg	39,830	211	3	3	40	46
Winston-Salem	27,421	231	4	4	61	69
Columbia	14,846	116	0	2	20	22
Nashville	17,880	115	0	0	9	9
New Orleans	10,851	96	0	3	17	20
Montgomery	14,681	117	2	6	37	45
Jackson	8,422	118	2	1	26	29
Cleveland	15,241	93	1	1	23	25
Indianapolis	11,097	101	2	1	26	29
Louisville	12,348	84	3	5	19	27
Chicago	13,516	122	1	2	46	49
Detroit	13,604	125	5	6	37	48
Milwaukee	11,389	118	0	2	7	9
St. Louis	14,309	110	3	3	30	36
Des Moines	5,015	89	0	0	16	16
Lincoln	7,467	114	1	1	20	22
St. Paul	12,338	116	1	1	22	24
Denver	12,449	130	4	2	30	36
Albuquerque	6,744	111	2	5	39	46
Salt Lake City	5,292	102	1	2	11	14
Oakland	21,522	114	0	4	30	34
Los Angeles	15,733	101	0	2	26	28
Phoenix	14,017	113	4	0	25	29
Seattle	18,270	108	1	3	26	30
Boise	4,047	117	0	1	23	24
Portland	9,900	78	1	0	16	17
Waco	35,969	226	6	3	55	64
Little Rock	9,492	108	0	1	32	33
Muskogee	16,736	113	1	4	33	38
Reno	5,334	90	1	2	20	23
San Juan	5,521	111	2	0	21	23
Manila	6,104	95	1	0	17	18
Houston	27,205	162	1	4	47	52
WRO	1,573	194	5	5	72	82
Manchester	2,158	152	0	3	34	37
San Diego	14,822	186	2	4	58	64
Togus	4,474	101	0	3	23	26
White River Junction	1,520	114	1	2	27	30
Fort Harrison	3,776	102	1	1	12	14
Fargo	3,439	116	4	0	27	31
Sioux Falls	3,132	113	1	0	22	23
Wichita	6,155	84	5	0	18	23
Honolulu	4,534	89	1	5	23	29
Wilmington	1,677	98	2	3	35	40
Anchorage	1,856	82	2	0	14	16
Total	628,585	6,947	100	126	1,776	2,002

We heard the hypothesis that VAROs with a lower percentage of STAR errors had average compensation closer to the national average. To test this hypothesis, we computed the correlation between absolute deviation of average compensation by VARO from the national average and the total errors divided by the total claims reviewed by VARO. We found a weak positive correlation (r^2 = 0.07). Similarly, we tested the correlation between error rate and the absolute deviation in the percentage of veterans receiving compensation by VARO from the national average. We found an even weaker positive correlation (r^2 = 0.01).

VARO SIZE

Some people suggested that size of the VARO could be a factor in the observed variation. We used the number of recipients from a VARO to measure its size. In our analysis, we considered only the VAROs within the 50 states. Figure D-7 shows the average compensation by VARO minus the average compensation for all veterans plotted against the number of recipients at each office. Similarly, Figure D-8 displays the percentage of veterans receiving compensation by VARO minus the percentage of all veterans receiving compensation as a function of the number of recipients at each VARO.

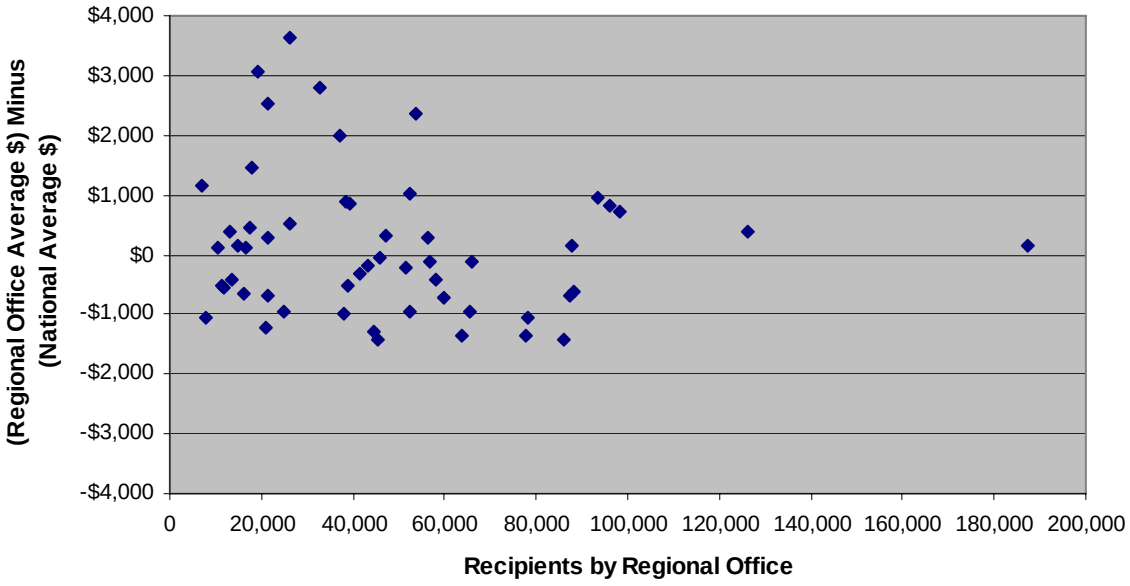

Figure D-7. VARO Deviations in Average Dollars from National Average Compared to VARO Size

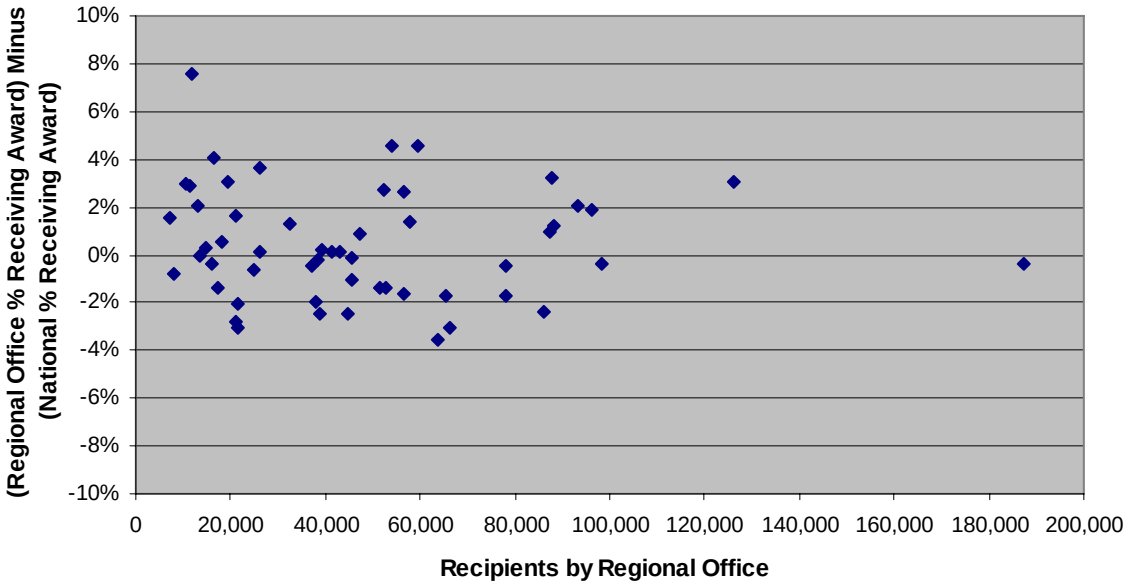

Figure D-8. VARO Deviations in Percentage Receiving Awards from National Level Compared to VARO Size

We computed the absolute deviation to determine if each of these factors deviated from the national average according to VARO size. The number of recipients by VARO had a weak negative correlation with the absolute deviation of both average compensation (r^2 = 0.03) and the percentage of veterans receiving compensation (r^2 = 0.01).

COMBAT STATUS

Many people suggested that area differences in combat veterans could have an impact of the observed variation. However, we found this hypothesis hard to quantify, especially for the veteran population. We were able to find some data on recipients relating to this issue. These data are recipients with a combat status code in the CPMR, a Purple Heart as recorded in the Beneficiary Information Record Locator System (BIRLS), and prisoner of war (POW) status as recorded in BIRLS. We did not have information on the accuracy or completeness of these data sources.

Combat Status in the CPMR

We used the combat disability indicator code to classify veterans as either having a combat-related injury or not. Recipients with codes 2 (compensable combat status), 3 (non-compensable combat status), and 4 (both compensable and non-compensable combat status) were assumed to be veterans with combat status. Table D-22 displays the

summary statistics for average awards to veterans with or without combat status according to the CPMR indicator code. Recipients with combat status receive higher awards, but are a small proportion of all recipients.

Table D-22. Statistics for Average Awards across States by CPMR Combat Status

Status	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV	r^2
Combat Status	185,697	$11,394	$2,406	$7,821	$16,871	0.21	0.72
Other Recipients	2,451,282	$8,701	$1,107	$7,358	$12,121	0.13	0.99
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13	

For average awards across states, the percentage of recipients with combat status in the CPMR does not explain any of the observed variation.

Purple Heart Indicator

We also matched scrambled Social Security numbers from the September 2005 snapshot of the CPMR to the April 2006 snapshot of BIRLS. We partitioned recipients in the CPMR into a group of recipients with a Purple Heart code Y (for "yes") in BIRLS and a group of other recipients. Purple Heart status was unknown for many veterans in the database. Table D-23 shows the summary statistics for average dollars for recipients with the code in BIRLS indicating the recipient has a Purple Heart. Recipients known to have a Purple Heart receive significantly higher awards, but only a small proportion of the recipients have a Purple Heart indicator in BIRLS.

Table D-23. Statistics for Average Dollars across States for Recipients Known To Have a Purple Heart

Status	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV	r^2
Purple Heart	40,882	$14,892	$2,020	$10,976	$19,892	0.14	0.64
Other Recipients	2,596,097	$8,796	$1,154	$7,405	$12,291	0.13	1.00
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13	

Due to the relatively small proportion of recipients, the percentage of recipients in a state known to have a Purple Heart explains 1.2% of the observed variation in average awards across states.

POW Status

BIRLS also has a field indicating the number of days as a POW. We matched the September 2005 CPMR to the April 2006 snapshot of BIRLS. If a recipient's field for POW days was not blank or 0, we assumed the recipient was a POW. Table D-24 shows the summary data for POWs. Although only a small proportion of the recipients, those recorded as having been POWs receive high average compensation.

Table D-24. Statistics for Average Dollars across States for Recipients with Known POW Status

Status	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV	r^2
POW Status	19,096	$24,034	$2,750	$17,528	$31,034	0.11	0.35
Other Recipients	2,617,883	$8,780	$1,170	$7,392	$12,250	0.13	1.00
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13	

As expected from such a small number of recipients, POW status explains none of the observed variation in average awards across states.

HOMELESSNESS

On our VARO visits, we heard about special outreach to homeless veterans. From matching the September 2005 snapshot of the CPMR to the April 2006 snapshot of BIRLS, we were able to analyze a subset of recipients with a homeless code Y (for "yes") in BIRLS. Less than 6,000 of the recipients in the CPMR have this code, as shown in Table D-25. However, they do receive higher awards on average than other recipients. As we would expect, none of the observed variation is explained by the proportion of these recipients due to the small number of recipients.

Table D-25. Statistics for Average Dollars across States for Homeless Recipients

Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV	r^2
5,509	$16,456	$2,481	$11,623	$24,160	0.15	0.27

We also looked at the percentage of the veteran population in each state that was homeless and receiving compensation. This small percentage of the veteran population varies across state with a CV of 0.47.

DISTANCE TO VAROS, VA MEDICAL CENTERS, AND BASES

We heard several hypotheses regarding influences of the distance between veterans and VA or military facilities. We tried to measure the proximity of recipients to their VARO, nearest VA medical center (VAMC), and nearest military base.

We estimated the distance from a recipient to the location of interest by considering longitudes and latitudes from the zipcodes.com database. These longitudes and latitudes were selected for the ZIP code of the recipient in the CPMR and the ZIP code for location of interest.

We note that travel time is not necessarily proportional to distance. However, we used this simple approximation to determine categories for distance such as within 40 miles or over 40 miles. For VAROs and VAMC, the recipient's assigned facility was not necessarily the closest. Nevertheless, our computations make the simplifying assumption that a recipient is assigned to the nearest location of interest.

We were able to perform this analysis only for average compensation. Data on the location of the veteran population was not sufficient to do this analysis for the percentage of veterans receiving compensation.

Distance to VARO

The task order for this study conjectures that ease of access to VAROs is a possible factor related to the variation across states. One could reasonably hypothesize in favor of either a direct or an inverse correlation between the distance to a VARO and average dollars. We tested the data to determine the relationship.

We divided recipients up into two groups according to their estimated distance to the nearest VARO: within 40 miles or at least 40 miles. 36,816 recipients were excluded from this analysis due to unavailable data. Table D-26 shows the statistics for average awards across states and the correlation of each group to the overall average awards by state. We see that recipients closer to the VARO receive lower compensation on average.

Table D-26. Statistics for Average Dollars across States by Distance to Nearest VARO

Distance to VARO	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV	r^2
Less than 40 Miles	971,475	$8,496	$1,297	$6,847	$12,769	0.15	0.87
At Least 40 Miles	1,628,688	$9,147	$1,274	$7,131	$12,472	0.14	0.82
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13	

This partitioning of recipients according to estimated distance to the nearest VARO accounts for 5.5% of the observed variation in average awards across states.

Distance to VAMC

As was the case with distance to VAROs, hypotheses could be made for both a direct and an inverse relationship between the distance to a VAMC and average dollars. We partitioned recipients into three groups according to the distance to their nearest VAMC. These groups were less than 10 miles, 10 up to 30 miles, and at least 30 miles from the nearest VAMC. Due to unavailable data, 38,511 recipients were excluded from this analysis. Table D-27 displays summary statistics for the average awards for these groups across states. Observe that the group residing a moderate distance from a VAMC receives the lowest average award among the three groups.

Table D-27. Statistics for Average Dollars across States by Distance to Nearest VAMC

Distance to VAMC	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV	r^2
Less than 10 Miles	1,148,375	$9,286	$1,313	$7,574	$12,682	0.14	0.82
10–30 Miles	837,716	$8,362	$1,245	$6,855	$12,150	0.15	0.87
At Least 30 Miles	612,377	$8,926	$1,150	$7,528	$13,039	0.13	0.83
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13	

We found that 8.3% of the observed variation in average awards across states is explained by the proportion of recipients in groups corresponding to their estimated distance to the nearest VAMC.

Distance to Major Military Base

The presence of military bases has been hypothesized to have an influence on the observed variation. We heard that veterans living close to a military base would have higher average compensation than those living further from a base. We considered the distance to the nearest of 212 major military bases listed in military.com (http://benefits.military.com/misc/installations/Browse_Location.jsp). Recipients were partitioned according to their estimated distance to the nearest military base into groups of less than 40 miles and at least 40 miles. Due to unavailable data, 36,609 recipients were excluded from this analysis. Table D-28 shows summary statistics for average awards across states. Contrary to expectations, Table D-28 indicates that recipients in the group estimated to be within 40 miles of a base receive less compensation than other recipients on average.

Table D-28. Statistics for Average Dollars across States by Distance to Nearest Military Base

Distance to Nearest Military Base	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV	r^2
Less than 40 Miles	1,483,073	$8,559	$1,186	$5,522	$11,701	0.14	0.44
At Least 40 Miles	1,117,297	$9,361	$1,358	$7,564	$13,898	0.15	0.74
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13	

The proportion of recipients in groups according to their distance to the nearest military base accounts for 6.5% of the variation across states.

TIME ON ROLLS VERSUS PERIOD OF SERVICE

The task order for this study suggests that the timing of when a veteran files a claim relative to their discharge date could influence the observed variation. From the data we had available, we decided the most reliable proxy for this effect was the interaction between time on the rolls and POS. We further divided each of the time-on-rolls categories (0–5 years, 5–10 years, etc) by the POS of the recipient's primary disability. Table D-29 gives the number of recipients, average dollars, standard deviation, minimum, maximum, and CV for each group.

Using our metric for percentage of variation explained, we found that 15.1% of the variation in average dollars across states is due to the interaction between POS and time on rolls.

Table D-29. Statistics for Average Dollars across States by Time on Rolls and POS

Time on Rolls (Years)	POS	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
0–5	Gulf War	295,878	$6,561	$657	$5,586	$8,212	0.10
5–10	Gulf War	27,679	$6,569	$796	$5,264	$8,466	0.12
10–15	Gulf War	89,567	$6,232	$802	$5,186	$8,762	0.13
15–20	Gulf War	232,056	$8,939	$3,841	$1,296	$20,315	0.43
20+	Gulf War	43,390	$9,338	$3,498	$1,296	$23,032	0.37
0-5	Korea	121,007	$8,523	$2,010	$4,430	$15,370	0.24
5–10	Korea	5,102	$12,214	$2,381	$6,922	$17,875	0.19
10–15	Korea	106,628	$11,534	$2,435	$5,225	$16,769	0.21
15–20	Korea	72,449	$10,842	$2,819	$2,998	$18,291	0.26
20+	Korea	7,031	$8,794	$1,625	$6,116	$15,277	0.18
0–5	Peacetime	680	$6,440	$844	$4,403	$9,070	0.13
5–10	Peacetime	3,631	$6,758	$1,101	$5,375	$10,307	0.16
10–15	Peacetime	113,347	$6,998	$903	$5,769	$9,590	0.13
15–20	Peacetime	67,706	$7,640	$949	$6,564	$10,428	0.12
20+	Peacetime	6,495	$7,993	$1,195	$6,369	$12,520	0.15
0–5	Vietnam	1,066	$11,617	$1,700	$8,091	$17,464	0.15
5–10	Vietnam	116,004	$15,267	$1,864	$11,380	$19,754	0.12
10–15	Vietnam	196,918	$13,008	$1,816	$9,496	$18,851	0.14
15–20	Vietnam	469,504	$12,348	$1,593	$9,656	$16,967	0.13
20+	Vietnam	285,870	$10,822	$1,542	$8,895	$14,640	0.14
0–5	World War II	193,098	$10,198	$1,958	$5,030	$16,431	0.19
5–10	World War II	9,096	$13,019	$2,333	$9,193	$19,416	0.18
10–15	World War II	84,868	$12,240	$2,447	$7,847	$21,457	0.20
15–20	World War II	74,505	$12,496	$2,384	$8,692	$21,856	0.19
20+	World War II	13,404	$7,642	$1,735	$5,447	$15,368	0.23
Total	Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

DEVIATIONS IN STATE VETERAN POPULATION ESTIMATES

Analysis of the percentage of veterans receiving compensation depends on an accurate portrayal of the size and location of the veteran population. As previously stated, our analysis relies on VetPop 2004 for estimates of the state veteran populations.

The decennial U.S. Census measured state veteran populations every 10 years going back to 1960. The VA has estimated state veteran populations for the intermediate years. VetPop 2004 is the latest version of the VA estimates. We wanted to analyze the potential influence of errors in the VetPop 2004 veteran population estimates.

As a proxy, we considered the deviation between an older version of VetPop (VetPop 2001) and the U.S Census 2000. VetPop 2001 was based on the 1990 U.S.

Census. To obtain an April 1, 2000, estimate of the veteran population from VetPop 2001, we averaged the estimates for September 30, 1999, and September 30, 2000.

Utah was the state with the largest discrepancy in the veteran population estimate in April 2000. Census 2000 estimated 161,351 veterans in Utah while VetPop 2001 estimated 136,887 veterans, a difference of 15.2%. The estimate of the percentage of veterans in Utah receiving compensation also varied depending on the source. The estimate was 7.9% from Census 2000 and 9.3% from VetPop 2001.

Across all states, variation in the percentage of veterans receiving compensation that may be due to discrepancies in estimating veteran population is 9.4% of the overall variation in the percentage of veterans receiving compensation.

DEVIATIONS IN COUNTY VETERAN POPULATION ESTIMATES

In analyzing the percentage of veterans receiving compensation, we grouped county veteran population estimates according to general population demographic factors. Errors in these county veteran population estimates could be a confounding factor in our analysis.[2] County estimates for FY 2005 were derived by scaling VetPop 2001—Adjusted county estimates to VetPop 2004 state estimates. However, the U.S. Census is used as a baseline for VA's county veteran population estimates. Therefore, we repeated any FY 2005 analyses that utilized county veteran population estimates for the March/April 2000 baseline.

Both recipients and the veteran population changed between 2000 and 2005, so we modified our data sources for 2000 as appropriate. We excluded recipients from Puerto Rico or foreign territories or with unknown county codes in our median family income analysis (58,236 recipients) and analysis for other county factors (47,514 recipients). We also use median family income from the Department of Housing and Urban Development for FY 2000. We divided the Census 2000 county veteran population estimates by the county general population estimates to derive veteran density.

Table D-30 compares 2005 data to 2000 data for the percentage of veterans receiving compensation in categories classified by general population factors. The data show a lower percentage of veterans receiving compensation in 2000, but the same general patterns exist for these county general population factors in both 2000 and 2005.

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[2] David E. Hunter, Kristen M. Beal, Brian Q. Rieksts, David M. Tate, and Molly J. Whipple, "Independent Verification and Validation of the Veterans Actuarial Model: Final Report," Institute for Defense Analyses, Document D-3129, Draft Final, June 2005.

We also determined the percentage of the observed variation in the percentage of veterans receiving compensation across states associated with general population factors in 2000. Table D-31 reports these estimates. There are different patterns in the percentages of the observed variation associated with these factors in 2000 and 2005.

Table D-30. Percentage of Veterans Receiving Compensation in March/April 2000 and FY 2005 by Categories for County General Population Factors

	2000			2005		
County Factor	Low Category	Medium Category	High Category	Low Category	Medium Category	High Category
Median Family Income	9.8%	8.4%	7.6%	12.6%	11.0%	9.7%
Veteran Density	7.7%	—	9.4%	9.5%	—	13.4%
Population Density	8.4%	8.9%	8.3%	11.1%	11.5%	9.9%
Mental Disability Rate	7.6%	8.2%	9.3%	9.2%	10.1%	11.9%
Physical Disability Rate	7.5%	8.6%	9.5%	9.0%	10.8%	12.3%

Table D-31. Percentage of Variation across State in the Percentage of Veterans Receiving Compensation Associated with County General Population Factors in March/April 2000 and FY 2005

County Factor	Percentage of Variation Associated with Factor in 2000	Percentage of Variation Associated with Factor in 2005
Median Family Income	12.5%	8.9%
Veteran Density	11.2%	27.3%
Population Density	0.1%	9.1%
Mental Disability Rate	9.9%	3.6%
Physical Disability Rate	9.0%	3.6%

MIGRATION

Another hypothesis we heard on visits to VAROs was that veteran migration to different states could influence differences in average awards. To test this theory, we compared the September 2005 CPMR to the September 1995 CPMR. We computed the average compensation for September 2005 as if veterans who moved to another state still lived in their state from 1995. That is, we calculated the average for the September 2005 CPMR except we mapped veterans on the rolls in both 1995 and 2005 to their 1995 state. This average compensation without migration has a slightly lower coefficient of variation, 0.127 compared to 0.132 for the actual September 2005 CPMR. The sum of the squared differences across states between the averages with and without migration is 0.6% of the sum of the squared differences between actual state averages and the national

average. That is, variation in average dollars due to migration is 0.6% of the variation in average dollars across states. We note that veterans receiving compensation can receive direct deposit so their current residence in the CPMR may be inaccurate.

VETERAN HEALTHCARE ADMINISTRATION ENROLLMENT

Another hypothesis was that enrollment in the Veterans Health Administration (VHA) is correlated to the observed variation. To test this theory, we compared the percentage of the veteran population enrolled in the VHA according to FY 2004 data to both average compensation and the percentage of veterans receiving compensation. For both cases, a positive correlation exists, with average compensation having a stronger correlation ($r^2 = 0.23$) than the percentage of veterans receiving compensation ($r^2 = 0.06$).

APPENDIX E:
GENERAL POPULATION FACTORS

In addition to analysis of veterans and compensation recipients themselves, we analyzed the relationship between several general population demographic characteristics and the observed variation. In Volume 1, we described some correlations between general population factors and average awards or the percentage of veterans receiving compensation. In this appendix, we expand on those findings as well as explore other factors with less significance.

MEDIAN FAMILY INCOME

We categorized each county by the median family income as follows: counties were in the low group if they had a median income between $15,000 and $50,000, they were in the medium group if they had a median family income between $50,000 and $60,000, and they were in the high group if they had a median family income between $60,000 and $110,000. All counties in the 50 states fit into one of these three groups; however, 48,924 recipients from Puerto Rico or foreign territories or with unknown county codes were excluded from this analysis.

Table E-1 contains summary statistics for average dollars across states by high, medium, and low groups of median family income. We can see that average dollars were inversely correlated with median family income. As we mentioned in Volume 1, median family income is associated with 30.1% of the variation in average dollars across states. In particular, we found an inverse correlation at the national level between median family income group and the percentage of recipients in that group with Individual Unemployability (IU). The national percentages of recipients with IU were 6.6% for the high median family income group, 8.3% for the medium group, and 11.3% for the low group. Similarly, there was an inverse relationship between median family income groups and the percentage of recipients with power of attorney (POA) representation. The national levels of POA representation were 72.4% for low, 65.9% for medium, and 59.6% for high median family income groups. An inverse correlation also existed with the percentage of recipients with Post-Traumatic Stress Disorder (PTSD). The national percentages of recipients with PTSD were 10.0% for low, 7.6% for medium, and 7.1%

for high median family income groups. Thus, many of the factors we considered were highly collinear.

Table E-1. Summary Data for Average Dollars by Median Family Income

Median Family Income	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
Low	640,703	$10,116	$1,305	$7,378	$13,093	0.13
Medium	911,762	$8,831	$1,226	$7,373	$12,452	0.14
High	1,035,590	$8,127	$1,146	$6,100	$13,504	0.14
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

We also examined the effect of median family income on the percentage of veterans receiving compensation. Table E-2 shows the summary statistics across states for the percentage of veterans receiving compensation. Median family income groups were more closely associated with the observed variation in average dollars across states than the percentage of veterans receiving compensation, as explained in Volume 1.

Table E-2. Summary Data for Percentage Receiving Compensation by Median Family Income

Median Family Income	Number of Recipients	Percentage Receiving Compensation	Standard Deviation	Minimum	Maximum	CV
Low	640,730	12.6%	2.5%	6.7%	19.4%	0.20
Medium	911,762	11.0%	2.6%	6.2%	18.8%	0.24
High	1,035,590	9.7%	2.6%	6.7%	18.5%	0.27
Total	2,636,979	10.8%	2.2%	7.0%	17.6%	0.20

POPULATION DENSITY

To examine the effect of population density on average compensation, we assigned each county to one of three groups according to the number of people per square mile of land area. The low group contained 0 to 100 people; the medium group, 100 to 500 people; and the high group, 500 to 7,000 people. We excluded the 48,924 recipients from Puerto Rico or foreign territories or with unknown county codes.

In Volume 1 we showed that population density is associated with 18.1% of the variation in average dollars. Table E-3 shows the summary data for average compensation by different population density groups across states. Veterans from highly populated areas had a tendency to receive lower compensation. Similar to median family

income, population density was inversely correlated with the percentage of recipients with IU, a POA representative, and PTSD.

Table E-3. Summary Data for Average Dollars by Population Density

Population Density	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
Low	634,682	$10,012	$1,327	$7,661	$12,844	0.13
Medium	937,240	$8,807	$1,215	$7,336	$12,025	0.14
High	1,016,133	$8,208	$905	$5,051	$10,267	0.11
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

We found in Volume 1 that the percentage of veterans receiving compensation by population density group is associated with 9.1% of the observed variation across states. Table E-4 contains the summary statistics across states for the percentage of veterans receiving compensation by population density group.

Table E-4. Summary Data for Percentage Receiving Compensation by Population Density

Population Density	Number of Recipients	Percentage Receiving Compensation	Standard Deviation	Minimum	Maximum	CV
Low	634,682	11.1%	1.9%	7.9%	14.9%	0.17
Medium	937,240	11.5%	3.0%	7.2%	21.0%	0.26
High	1,016,133	9.9%	2.1%	6.0%	15.0%	0.21
Total	2,636,979	10.8%	2.2%	7.0%	17.6%	0.20

VETERAN DENSITY

To examine the effect of veteran density, all veterans were categorized by the veteran density of the county in which they lived. Low counties have veterans accounting for 0–10% of the population and high counties have veterans accounting for 10–30% of the population. All counties fit into one of these two categories, and the 48,924 recipients from Puerto Rico or foreign territories or with unknown county codes were excluded from this analysis.

Table E-5 shows summary statistics for average dollars across states by veteran density group. The group with higher veteran densities averages more compensation. Overall, veteran density is associated with 6.3% of the variation in average dollars across states.

Table E-5. Summary Statistics for Average Compensation by Veteran Density

Veteran Density	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
Low (0%–10%)	1,573,385	$8,688	$1,278	$7,090	$12,624	0.15
High (10%–30%)	1,014,670	$9,146	$1,362	$7,003	$13,188	0.15
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

As we mentioned in Volume 1, veteran density was the most significant general population factor related to the percentage of veterans receiving compensation. It was associated with 27.3% of the observed variation. Table E-6 displays summary statistics across states for the percentages of veterans receiving compensation by veteran density group. Veteran density appeared to be collinear with military retirement status. If we excluded military retirees with less than 15 years of service from the group of disability retirees, 17% of the recipients in the low veteran density group were military retirees. Conversely, 35% of recipients in the high veteran density group were military retirees. We showed in Volume 1 that military retirees were nearly four times as likely to receive compensation as non-retirees. Given this effect and the relationship between military retiree status and veteran density, we would expect the group with high veteran density to have a high percentage of veterans receiving compensation.

Table E-6. Summary Statistics for Percentage Receiving Compensation by Veteran Density

Veteran Density	Number of Recipients	Percentage Receiving Compensation	Standard Deviation	Minimum	Maximum	CV
Low	1,573,385	9.5%	1.7%	6.7%	13.9%	0.18
High	1,014,670	13.4%	2.9%	7.7%	20.2%	0.22
Total	2,636,979	10.8%	2.2%	7.0%	17.6%	0.20

PERCENTAGE OF POPULATION WITH ANY DISABILITY

One population health statistic we examined was the percentage of the population with any disability. We examined its effect on the percentage of veterans receiving compensation. Here we categorized veterans by the county in which they lived. Low counties have between 0 and 20% of the population with a disability and high counties have between 20 and 45% of the population with a disability. All counties fall into one of these two groups. We excluded from this analysis the 48,924 veterans from Puerto Rico or foreign territories or with an unknown county code.

Table E-7 provides data on the percentage of veterans receiving compensation across states by groups for the rate of any disability for the general population. The percentage of the population with any disability is associated with 1.6% of the variation in the percentage receiving compensation across states.

Table E-7. Percentage of Veterans Receiving Compensation by Rate of Any Disability

Rate of Disability	Number of Recipients	Percentage Receiving Compensation	Standard Deviation	Minimum	Maximum	CV
Low (0%–20%)	1,601,828	10.1%	2.3%	6.9%	17.9%	0.23
High (20%–45%)	986,277	11.9%	2.4%	6.9%	20.3%	0.20
Total	2,636,979	10.8%	2.2%	7.0%	17.6%	0.20

We also analyzed the average dollars to these groups of recipients. We found that recipients in the high group received $8,408 on average, while recipients in the low group had an average award of $9,613. These groups are associated with 12.1% of the variation in average dollars across states.

PERCENTAGE OF POPULATION WITH A PHYSICAL OR MENTAL DISABILITY

Two general population disability statistics we studied by county were the percentage of the general population with a mental disability and the percentage of the general population with a physical disability.

General Population Mental Disability Rate

We categorized each county into low, medium, or high mental disability rate groups. Counties were put in the low group if between 0% and 3% of the population was mentally disabled, in the medium group if between 3% and 4% of the population was mentally disabled, and in the high group if between 4% and 20% of the population was mentally disabled.

In Volume 1 we showed that the percentage of the general population with a mental disability was associated with average dollars across states. We found that 28.4% of the variation across states in average dollars is associated with the proportion of recipients in these percentage groups. Table E-8 shows summary data on average dollars across states by the three groups of recipients corresponding to their county's mental disability rate. Nationwide, the proportion of recipients with a primary mental disability (either PTSD or other mental disabilities) was directly correlated with the general population mental

disability groups. The percentage of recipients with a primary mental disability was 17% for the high group, 15% for the medium group, and 14% for the low group.

Table E-8. Summary Data for Average Dollars by General Mental Disability Rate

Mental Disability Rate	Number of Recipient	Average Dollars	Standard Deviation	Minimum	Maximum	CV
Low	484,379	$7,856	$1,125	$6,270	$13,262	0.14
Medium	981,586	$8,502	$1,109	$7,135	$13,322	0.13
High	1,122,090	$9,623	$1,240	$7,857	$13,293	0.13
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

We also examined the effect of the percentage of the population with a mental disability on the percentage of veterans receiving compensation. Table E-9 contains summary data on the percentage of veterans receiving compensation across states.

Table E-9. Summary Data for Percentage Receiving Compensation by Mental Disability Rate

Mental Disability Rate	Number of Recipients	Percentage Receiving Compensation	Standard Deviation	Minimum	Maximum	CV
Low	484,379	9.2%	2.4%	6.2%	17.0%	0.26
Medium	981,586	10.1%	2.7%	6.6%	20.3%	0.26
High	1,122,090	11.9%	2.6%	8.2%	20.4%	0.22
Total	2,636,979	10.8%	2.2%	7.0%	17.6%	0.20

General Population Physical Disability Rate

To examine the effect of the percentage of each county with physical disabilities, we again categorized the counties into three groups. Counties were classified low if between 0% and 5% of the population was physically disabled, classified medium if between 5% and 7.5% of the population was physically disabled, and classified high if between 7.5% and 30% of the population was physically disabled. The partition of recipients for general physical disabilities was collinear with the partition for mental disabilities. Table E-10 gives the results of our analysis on these three groups across states for average dollars.

Table E-10. Summary Data for Average Dollars by General Physical Disability Rate

Physical Disability Rate	Number of Recipient	Average Dollars	Standard Deviation	Minimum	Maximum	CV
Low	533,452	$7,903	$792	$6,456	$10,523	0.10
Medium	1,268,881	$8,632	$1,153	$7,359	$12,842	0.13
High	785,722	$9,902	$1,270	$7,638	$12,778	0.13
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

We also examined the effect of the percentage of the population with a physical disability on the percentage of veterans receiving compensation. Table E-11 contains the summary data for the percentage of veterans receiving compensation associated with the three physical disability rate groupings. Volume 1 indicated that both the mental and physical disability rates of the general population are associated with 3.6% of the observed variation individually.

Table E-11. Summary Data for Percentage Receiving Compensation by Physical Disability Rate

Physical Disability Rate	Number of Recipients	Percentage Receiving Compensation	Standard Deviation	Minimum	Maximum	CV
Low	533,452	9.0%	2.8%	6.2%	20.9%	0.31
Medium	1,268,881	10.8%	2.5%	7.1%	18.8%	0.23
High	785,722	12.3%	2.1%	8.2%	17.5%	0.17
Total	2,636,979	10.8%	2.2%	7.0%	17.6%	0.20

EMPLOYMENT DISABILITY

Another population health statistic we looked at was employment disability. This value was measured by county and represented the percentage of people in that county with a disability impeding their ability to work. To measure the effect of employment disability on variation in average dollars across states, we classified each veteran by the county in which he or she lives into one of two groups. The low group consisted of veterans who lived in a county where between 0% and 12% of the population was employment disabled while the high group consisted of veterans who lived in a county where between 12% and 40% of the population was employment disabled. Note that (1) all counties fit into one of these two groups and (2) 48,924 veterans from Puerto Rico or foreign territories or with unknown county codes were excluded from this analysis. Table E-12 shows data for these

two groups for average dollars across states. We found that employment disability is associated with 5.3% of the variation in average dollars across states.

Table E-12. Average Dollars by Employment Disability Rate

	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
Low (0%–12%)	1,337,440	$8,399	$1,082	$7,184	$12,338	0.13
High (12%–40%)	1,250,615	$9,368	$1,424	$6,070	$12,754	0.15
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

In addition to average dollars, we analyzed the percentage of veterans that receive compensation in these groups. At the national level, we found 10.1% of veterans received compensation in the low group and 11.5% received compensation in the high group. Furthermore, we found that these groups were not significantly associated with the observed variation across states in the percentage of veterans receiving compensation.

UNEMPLOYMENT FOR PEOPLE WITH AN EMPLOYMENT DISABILITY

Another population health statistic we measured was the percentage of employment disabled people who were unemployed by county. We classified all veterans by the percentage of employment disabled unemployed in the county in which they lived into low (0-35%), medium (35-40%), and high (40-90%) groups. The 48,924 veterans from Puerto Rico or foreign territories or with unknown county codes were also excluded from this analysis. Table E-13 shows summary statistics for average dollars across states by the unemployment rate for the employment disabled population. The unemployment rate for the employment disabled population is associated with 17.4% of the variation in average dollars across states.

Table E-13. Average Dollars by Unemployment Rate for Employment Disabled

Unemployment Rate	Number of Recipients	Average Dollars	Standard Deviation	Minimum	Maximum	CV
Low (0%–35%)	1,084,632	$8,352	$1,022	$6,633	$12,090	0.12
Medium (35%–40%)	817,953	$8,783	$1,153	$7,229	$12,884	0.13
High (40%–90%)	685,470	$9,783	$1,322	$8,024	$13,348	0.14
Total	2,636,979	$8,890	$1,169	$7,556	$12,395	0.13

At the national level, we found 10.1% of veterans received compensation in the low group, 11.2% of veterans received compensation in the medium group, and 11.4% of veterans received compensation in the high group. We found that these groups were

associated with 3.4% of the observed variation across states in the percentage of veterans receiving compensation.

VOTER PARTICIPATION

Some people we interviewed hypothesized that political activity or participation of the population in voting might be correlated with the observed variation across states. To examine this theory, we used the percentage of the population participating in the 2004 election by state from the U.S. Census Bureau, Current Population Survey in November 2004 (http://www.census.gov/prod/2006pubs/p20-556.pdf). The percentage of the population voting in the 2004 election had a weak positive correlation with average dollars across states ($r^2 = 0.01$). For percentage of the veteran population receiving compensation, the relationship was a weak negative correlation ($r^2 = 0.01$).

FEDERAL EXPENDITURES PER DOLLAR OF FEDERAL TAXES

We heard the hypothesis that some states have regularly received a higher net flow of federal dollars than other states. We considered the federal expenditures per dollar of federal taxes by state for FY 2004 (http://www.taxfoundation.org/files/sr139.pdf). Expenditures per dollar of taxes by state were positively correlated with both average compensation ($r^2 = 0.21$) and the percentage of veterans receiving compensation ($r^2 = 0.41$).

EDUCATION

We computed correlations between education levels for the general population and the observed variation. For education, we used two different metrics: the percentage with a high school diploma or more and the percentage with a bachelor's degree. We used the U.S. Census Bureau's Census 2000 as the data source for both of these metrics for state populations of 25 or over. For the percentage with a high school diploma or more, a weak negative correlation existed with average compensation ($r^2 = 0.07$) across states. No significant correlation existed with the percentage of veterans receiving compensation ($r^2 < 0.01$). The percentage of the population with a bachelor's degree had slightly higher, although still weak, negative correlations with average compensation ($r^2 = 0.15$) and the percentage of veterans receiving compensation ($r^2 = 0.01$).

BLUE- AND WHITE-COLLAR WORKFORCES

We investigated the job types across states to determine if there was a correlation to the observed variation. From the Occupational Employment Statistics Survey by the

Bureau of Labor Statistics (http://www.bls.gov/oes/), we partitioned jobs into two types of jobs: blue collar and white collar. The percentage of workers with blue-collar jobs by state in 2005 had a slightly positive correlation with average compensation ($r^2 = 0.04$). However, job type was not significantly correlated with the percentage of veterans receiving compensation ($r^2 < 0.01$).

UNEMPLOYMENT RATE

Unemployment rate was another economic factor given as a possible reason for the observed variation. We used the seasonally adjusted unemployment rate for September 2005 by state from the Bureau of Labor Statistics (http://www.bls.gov/news.release/archives/laus_11222005.pdf). We found that average compensation was weakly positively correlated to the unemployment rate across states ($r^2 = 0.03$). For the percentage of veterans receiving compensation, the relationship was even weaker and had a negative correlation ($r^2 = 0.01$).

POVERTY RATE

As another economic factor, we considered the percentage of the general population below the poverty level. This percentage was highly correlated with median family income, the results of which we explained in Volume 1 and other sections of this appendix. We obtained a measure of the percentage of individuals below the poverty level from the U.S. Census Bureau.[1] We found poverty level to be positively correlated with average compensation across states ($r^2 = 0.35$). For the percentage of veterans receiving compensation, we observed a weaker positive correlation ($r^2 = 0.07$).

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1 Peter Fronczek, "Income, Earnings, and Poverty from the 2004 American Community Survey," U.S. Census Bureau, August 2005.

APPENDIX F:
OUTREACH

One popular hypothesis we investigated was that variation in disability compensation is caused by varying levels of outreach effort put forth in each state. Each state is responsible for determining every facet of its own outreach execution within the state. Since potential exists for states' outreach effort to widely vary, we thought it particularly important to examine a variety of outreach measures. To analyze the effect of outreach on average compensation dollars and the percentage of veterans receiving compensation, we constructed survey questionnaires, collected and verified the responses, normalized the data, conducted our analysis, and inferred conclusions. The following sections provide details.

DATA COLLECTION

State and Territory Survey

Each state and territory is individually responsible for determining every aspect of outreach effort, including such items as the amount of money allocated to veteran outreach, the number of service officers it employs, and the general management structure within the state. The IDA survey consisted of 11 detailed outreach questions spanning a variety of topics and was developed with the help of IDA consultant Ray Boland, former Secretary of the Wisconsin Department of Veterans Affairs. The Executive Committee of State Directors also vetted the survey content and wording. The questions considered the following topics: the 10 most recent years of budget and service officer data, accreditation authority status, training hours required, performance metrics employed, reporting structure, service officer deployment strategy, description of the state's claim process, and veteran population data. The survey's content is reproduced in this appendix in the section "Survey to State Directors" beginning on page F-18.

To conduct the most thorough analysis possible, we wanted to receive complete responses from as many states and territories as possible. We attempted to capture state operations in each of the 50 states, District of Columbia, Puerto Rico, Virgin Islands,

Guam, American Samoa, and Northern Mariana Islands. IDA sent surveys to the director of each state and territory and received complete or partial responses from all states except West Virginia and no responses from the District of Columbia, Puerto Rico, Virgin Islands, Guam, American Samoa, and Northern Mariana Islands.

Our intent was to analyze the data to determine the effect of the state actions on the average compensation dollars and percentage of veterans receiving compensation in the state. The survey data we received allowed us to thoroughly analyze the following three areas: budget information, quantity of service officer data, and a qualitative metric of the state's oversight of service officers. Unfortunately, other survey question responses did not yield data usable for scientific research.

National Veterans Service Organization Survey

IDA created a second survey designed to obtain information from the main Veterans Service Organizations (VSOs), which play a major role in outreach effort. The survey's main questions related to the following topics: the 10 most recent years of budget information at the national and state levels, the 5 most recent years of service officer quantity in each state, macro-level changes over time, the accreditation program, performance metrics, and service officer deployment strategy. The survey's content is reproduced in this appendix in the section "Survey to Veterans Service Organizations" beginning on page F-23.

We surveyed the following VSOs: Disabled American Veterans (DAV), The American Legion, Paralyzed Veterans of America (PVA), Vietnam Veterans of America, Veterans of Foreign Wars (VFW) of the United States, Military Order of the Purple Heart (MOPH), and American Veterans (AMVETS). We received complete or partial responses from only four, DAV, MOPH, PVA, and VFW.

Our intent was to conduct quantitative analysis with the VSO data to determine the effect, if any, of VSOs on the average compensation dollars or percentage of veterans receiving compensation in each state. The analysis was to be based on items such as money spent by VSO in each state and the number of service officers deployed to each state by VSO. However, the response data were not complete enough for such analysis, so we were limited in how we could use the received data. The following section provides more detail on how we used the VSO survey data.

DATA VERIFICATION AND NORMALIZATION

Before analysis, we verified and validated the survey data received from the responding states. In the survey directions, we used phrasing and examples that would help the respondents understand our exact requests. However, different people in each state looking at the same survey may have inevitably interpreted some questions differently. We attempted to follow up with states that provided seemingly odd responses so that we would have the best data possible for our analysis.

Data Preparation and Verification

State Budget Dollars

The amount of money spent in each state was the first of three areas we concentrated on for our outreach effort analysis. The survey questions specifically asked respondents for the yearly expenditures within the state, not to include budget funds allotted for cemeteries, veteran homes or other specialty programs, which would render the numbers incomparable from state to state. With the appropriate budget data from each state, we intended to test if more money spent in a state translated to higher average compensation or a higher percentage of compensation recipients. In reviewing the budget responses, we identified a few states that had seemingly large or small expenditures relative to the state's veteran population. We were able to contact each state's representative to disentangle exactly what was included or excluded.

Quantity of Service Officers

Service officers, who act as veteran advocates and are employed by the state, county, or VSO, are the people who conduct outreach activities. It is the service officer's responsibility to seek out benefits-eligible veterans and assist them in applying for Federal benefits. Not all states have state or county service officers. We requested the number of service officers in each state in the four following categories: county veteran service officers, VSOs, state claims officers and other service officers, with specific definitions of each category. The hypothesis we tested was that the higher the concentration of service officers in a state, the higher the average compensation dollars and/or recipient percentage.

We found a few strange replies while reviewing the responses. To clarify responses and verify data in these cases, we first checked the VSO survey responses we received. If

a state seemed to have too many service officers given its veteran population or size, we were often able to support the state's response or find further reason for suspicion after examining the combined responses of the VSOs for that particular state. We resolved remaining discrepancies through e-mail and phone calls to state representatives.

State Oversight of Service Officers

The state is responsible for the mechanism by which service officers are deployed, managed, and evaluated within the state. Some states exercise more oversight and control over service officers than others. We gleaned information from several survey questions to make an overall estimate of the level of control (high, medium, low) each responding state has over its service officers. Admittedly, this process had the potential to be subjective in nature, but we judged each state by a fixed set of rules. If the state had most or all of its service officers reporting directly to the state and required that service officers submit reports on their productivity (e.g., number of claims filed, number of veteran interviews conducted, etc.), we considered it to have a higher level of oversight/control. Conversely, if the state relied heavily on county veteran service officers that do not report to the state or did not employ performance metrics, we judged that state as having lower oversight. We did not directly ask the states to rate themselves regarding state oversight.

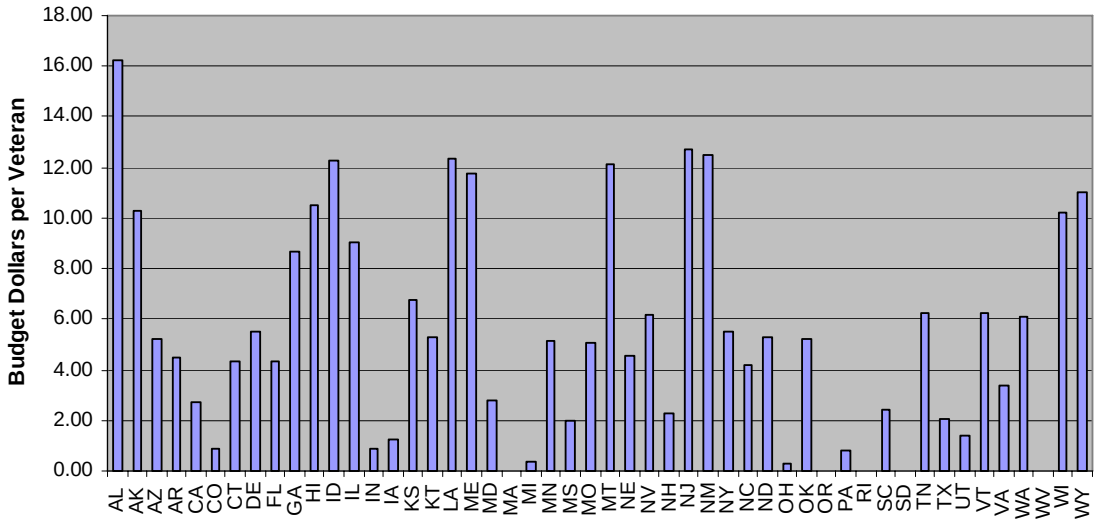
Data Normalization

We could not compare the total budget of, say, California to the total budget of Vermont without first adjusting the data. We used veteran population to normalize the budget data in each state. We divided each state's budget data by its veteran population as stated in the VetPop 2004 model to normalize the data. Consequently, budget dollars per veteran in California were directly comparable to budget dollars per veteran in Vermont.

To normalize service officer data, we first used the veteran population, similar to the budget data process. Then we used the square mileage of each state. We suspected that two states with about the same number of service officers but different land areas would have varying levels of outreach service to the veteran. Normalizing against land area gives a rough estimate of the number of service officers per mile and a rudimentary metric of accessibility to service officers in a state. We realize this is by no means an accurate measure of accessibility, since neither service officers nor veterans are evenly stationed throughout the state. The hypothesis is that the greater the number of service

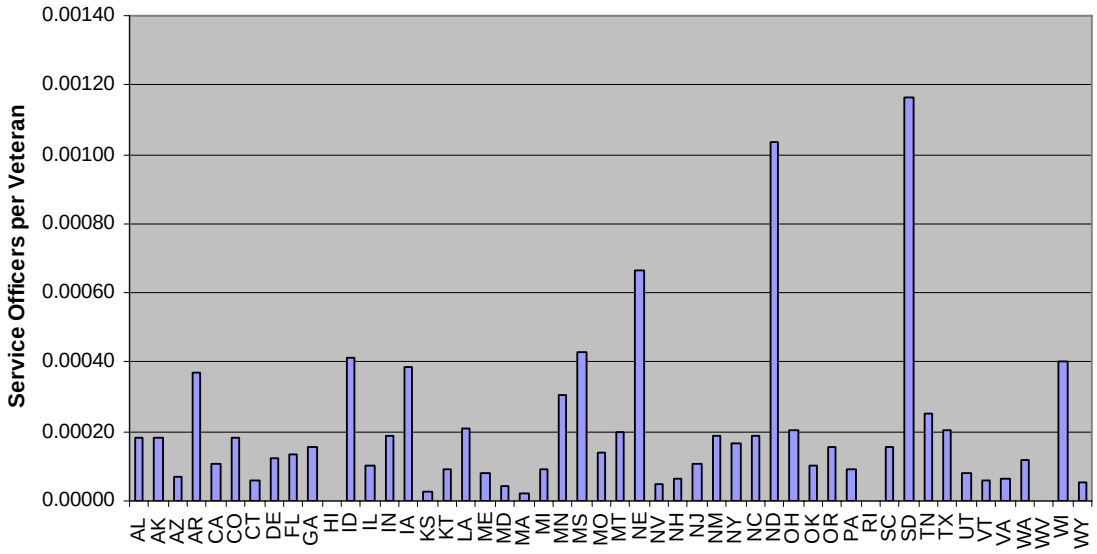
officers per square mile, the higher the average dollars of compensation or percentage of recipients.

The following three charts show the normalized values for each state regarding budget data (Figure F-1), population normalized service officer data (Figure F-2), and state square mileage normalized service officer data (Figure F-3).



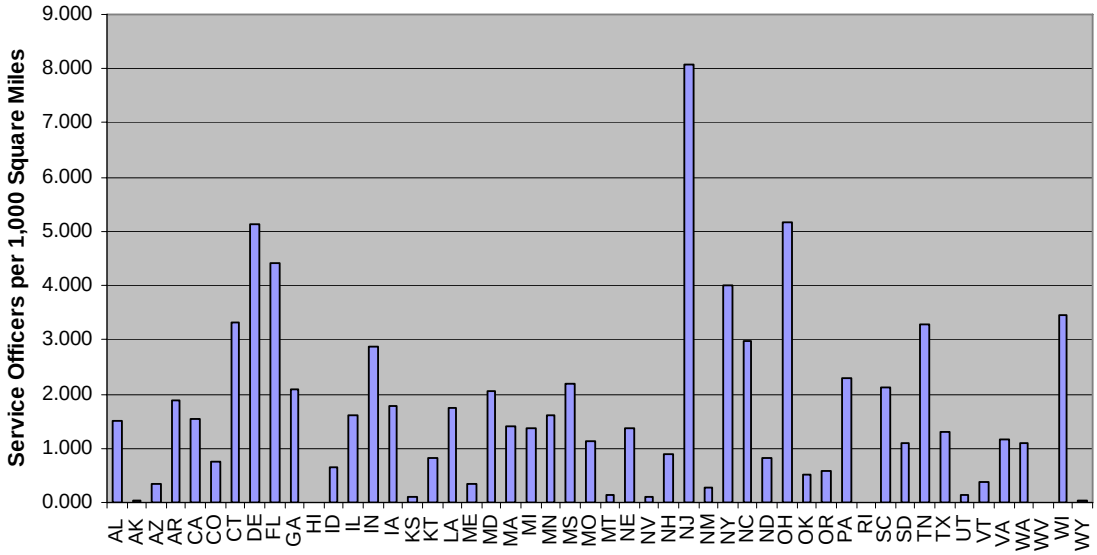
Note: No data were available for Massachusetts, Oregon, South Dakota, Rhode Island, or West Virginia.

Figure F-1. Budget Data Normalized by Veteran Population by State



Note: No data were available for Hawaii, Rhode Island, or West Virginia.

Figure F-2. Service Officer Data Normalized by Veteran Population



Note: No data were available for Hawaii, Rhode Island, or West Virginia.

Figure F-3. Service Officer Data Normalized by Square Mileage

Once we normalized all numerical data, we were ready to begin the analysis, as detailed in the following section.

ANALYSIS

Effect of Outreach on Average Dollars

The first hypotheses we tested related to factors contributing to higher average disability compensation. We used linear regression analysis to test the effect of budget dollars and service officers on average dollars. We analyzed state oversight against average dollars using one-way Analysis of Variance (ANOVA) with multiple comparisons. We calculated average state disability compensation, which served as the dependent variable in the regression analyses, from the 2005 Compensation and Pension Master Record (CPMR). For each of the analyses, we eliminated states with missing outreach data entries.

State Budget Dollars

The first outreach hypothesis we tested was that the more dollars budgeted in a state, the higher the average disability compensation. Figure F-4 shows the average compensation dollars from high to low and budget dollars in each state for which data

were available. The relationship between budget dollars and the associated average disability compensation in a state is significant at the 90% level and $r^2 = 0.08$.

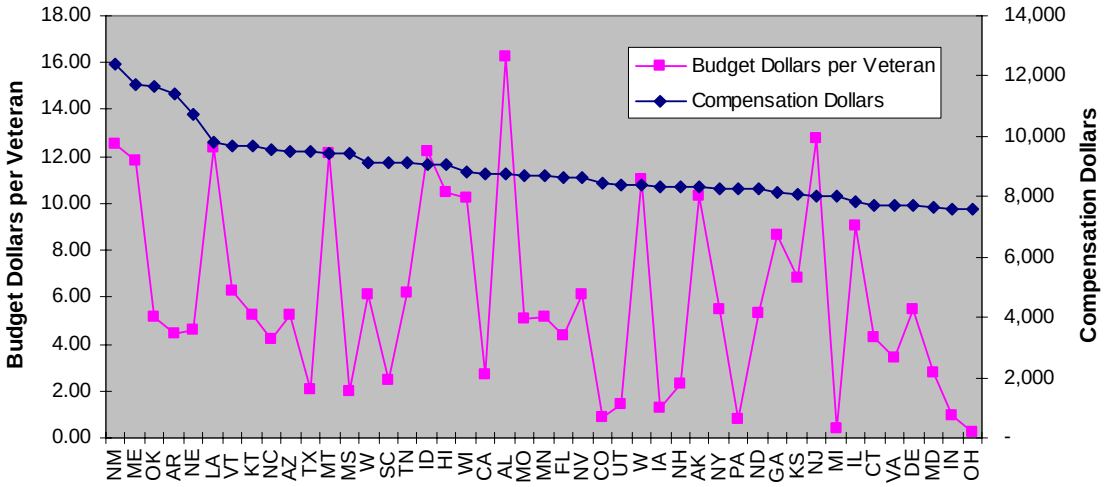


Figure F-4. Normalized Budget Data and Average Compensation Dollars by State

Quantity of Service Officers

The second hypothesis we tested was that the average dollars of compensation increases as the number of service officers in a state increases. Figure F-5 shows the average compensation dollars and number of total service officers in each state for which data were available. The regression analysis detected no significant relationship between quantity of service officers and average disability compensation in a state.

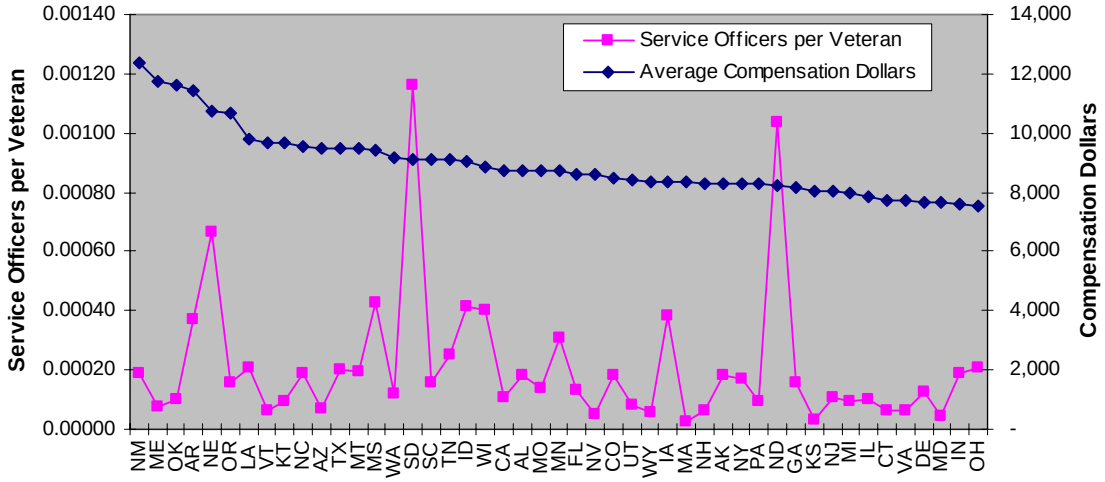


Figure F-5. Number of Service Officers Normalized by Veteran Population and Average Compensation Dollars

In addition to examining the quantity of service officers per veteran in a state, we also tested average compensation against the service officer data normalized by land area within the state. Figure F-6 shows the average dollars paired with the quantity of service officers per 1,000 square miles. The relationship between average compensation and service officers per square mile is negative and is significant at the 99% level with $r^2 = 0.14$.

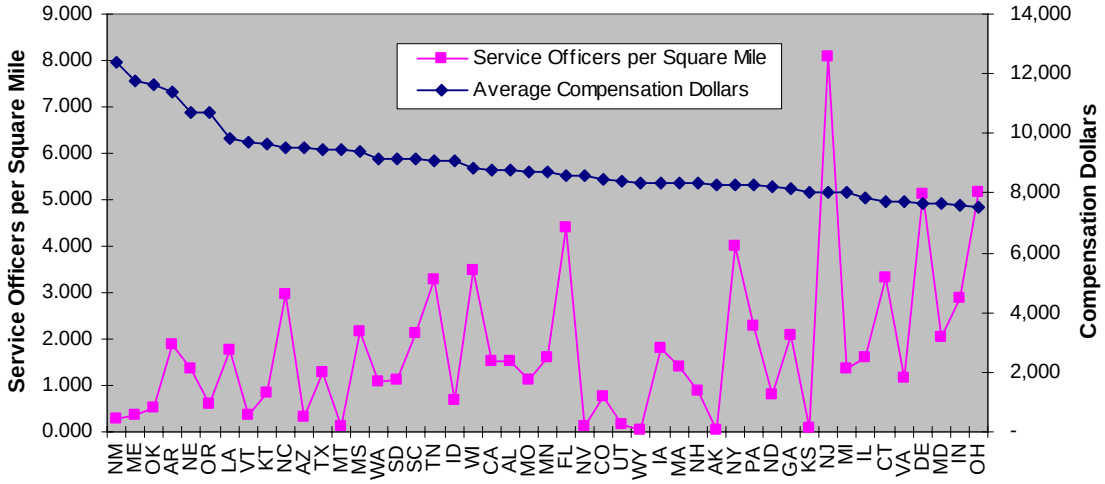


Figure F-6. Number of Service Officers Normalized by State Square Mileage and Average Compensation Dollars

State Oversight of Service Officers

The third hypothesis we tested was that the average dollars of compensation increases as the state increases the level of oversight over its service officers. Figure F-7 shows the confidence intervals for the average dollars of compensation for each of the three groups of state oversight using all entries in the CPMR. None of these three groups was significantly different from another but a trend becomes apparent as the level of oversight increases. Additionally, we compared the state control data to the single most recent year of adjudicated claims from the CPMR instead of the entire population within it. Figure F-8 shows these confidence intervals. We reached the same conclusions for this subset of data as for the previous subset: the three groups are not statistically different, but show a slight positive trend.

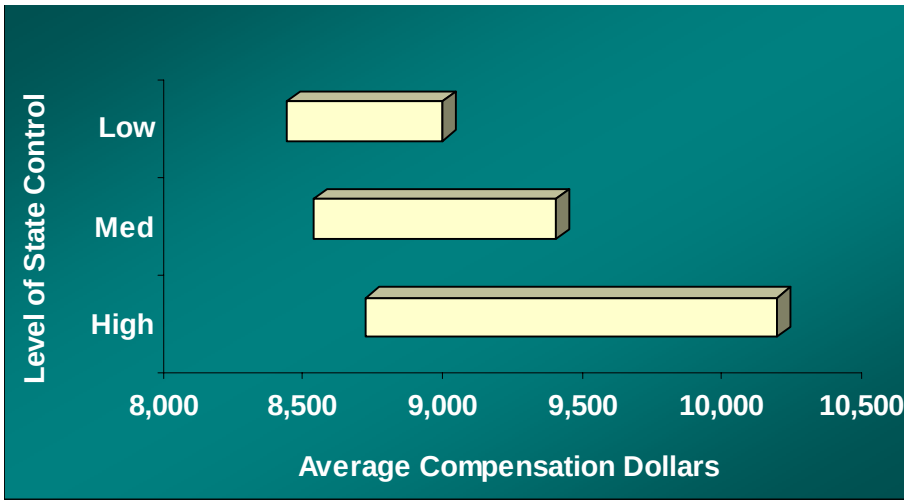


Figure F-7. State Oversight Confidence Intervals for Average Dollars of Compensation (All Recipients)

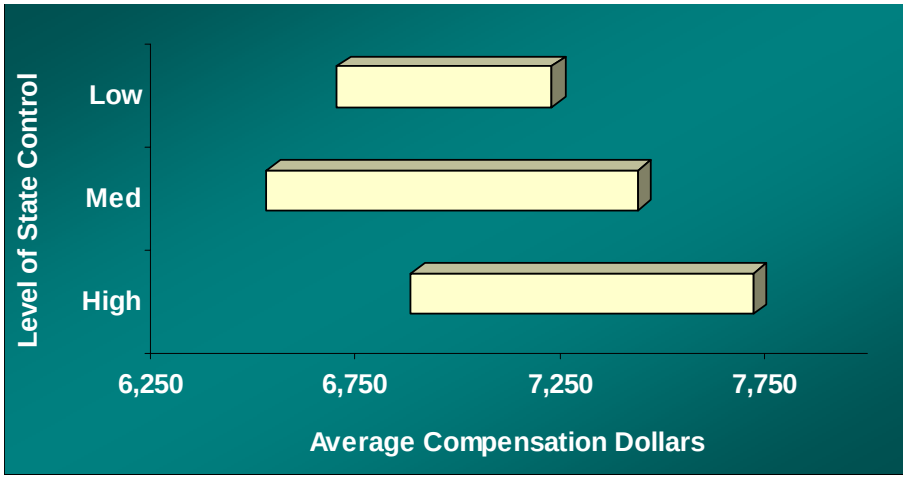


Figure F-8. State Oversight Confidence Intervals for Average Dollars of Compensation (Recipients Adjudicated in FY 2005)

Effect of Outreach on Percentage of Veterans Receiving Compensation

The methods of analyzing the percentage of veterans receiving compensation were the same as in the average compensation analyses. We calculated the percentage of veterans receiving compensation using the 2005 CPMR and VetPop 2004. For each of the analyses, we eliminated states with missing outreach data.

State Budget Dollars

The next hypothesis we investigated was that as dollars budgeted in a state increase, the percentage of veterans receiving compensation in that state increases. Figure F-9 shows the percentage of veterans receiving compensation and corresponding budget dollars in each state. The relationship between budget dollars and average disability compensation in a state is positive and statistically significant at the 99% level with an $r^2 = 0.14$.

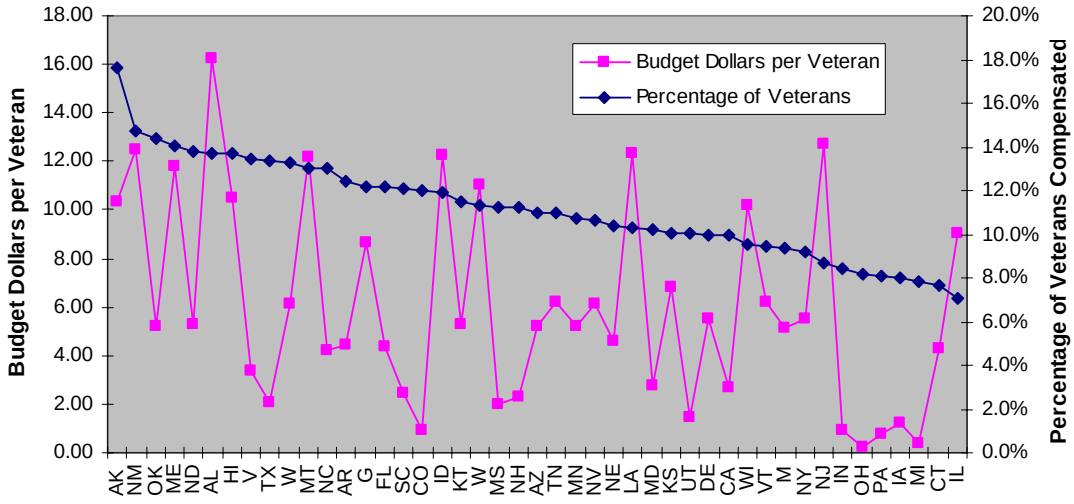


Figure F-9. Normalized Budget Dollars per Veteran and Percentage of Veterans Receiving Compensation

Quantity of Service Officers

Similar to the average compensation analysis, we next investigated the effect that service officers have on the percentage of veterans receiving compensation. Figure F-10 shows the percentage of compensated veterans and the number of service officers in each state per veteran. The regression analysis detected no significant relationship between quantity of service officers and the percentage of veterans that receive compensation.

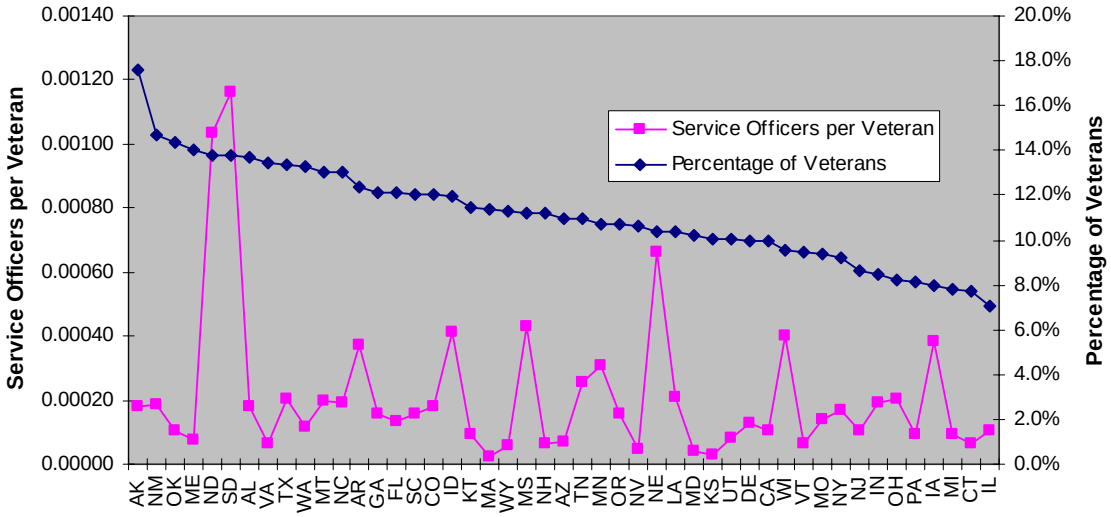


Figure F-10. Number of Service Officers Normalized by Veteran Population and Percentage of Veterans Receiving Compensation

In our examination of the quantity of service officers per square mile in a state, we found a weak relationship. Figure F-11 shows the percentage of compensated veterans and the quantity of service officers per 1,000 square miles. We found that there was a statistically significant (at the 99% level) inverse relationship between percentage of veterans receiving compensation and service officers per square mile with a correlation of $r^2 = 0.18$.

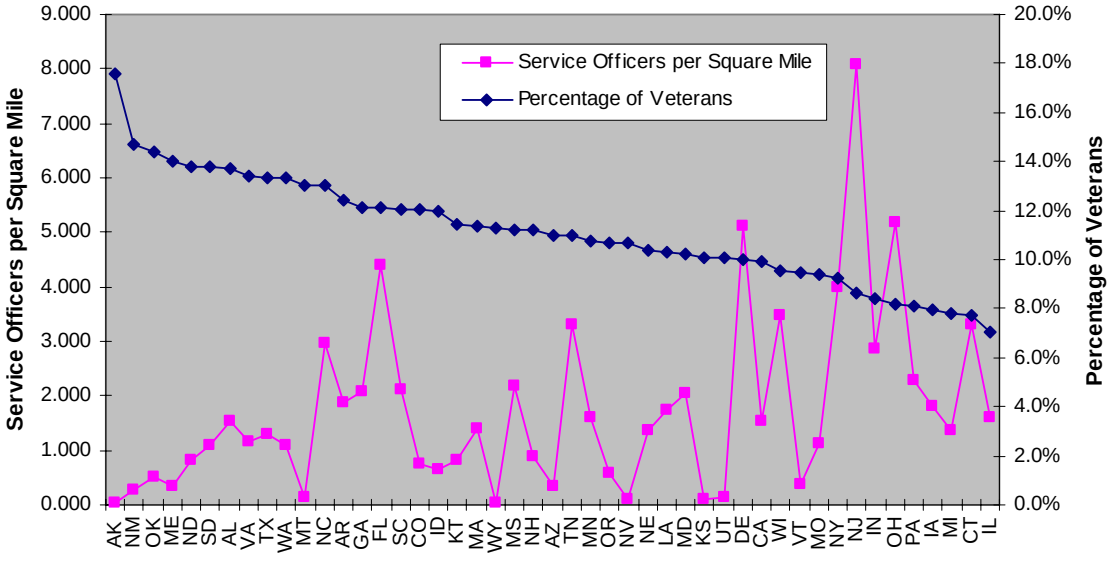


Figure F-11. Number of Service Officers Normalized by State Square Mileage and Percentage of Veterans Receiving Compensation

State Oversight of Service Officers

The final hypothesis tested against percentage of veterans receiving compensation was that as the state exercises more control over its service officers, a higher proportion of veterans would receive compensation. Figure F-12 shows the confidence intervals for the percentage of veterans receiving compensation for each of the three groups of state oversight. While it seems there is a clear difference between states with a high degree of oversight and those with a low degree, none of the three groups was statistically different from another. Additionally, we compared the state oversight data to the single most recent year of adjudicated claims from the CPMR. These confidence intervals are shown in Figure F-13. We reached the same conclusions for this subset of data: none of the three groups are statistically different.

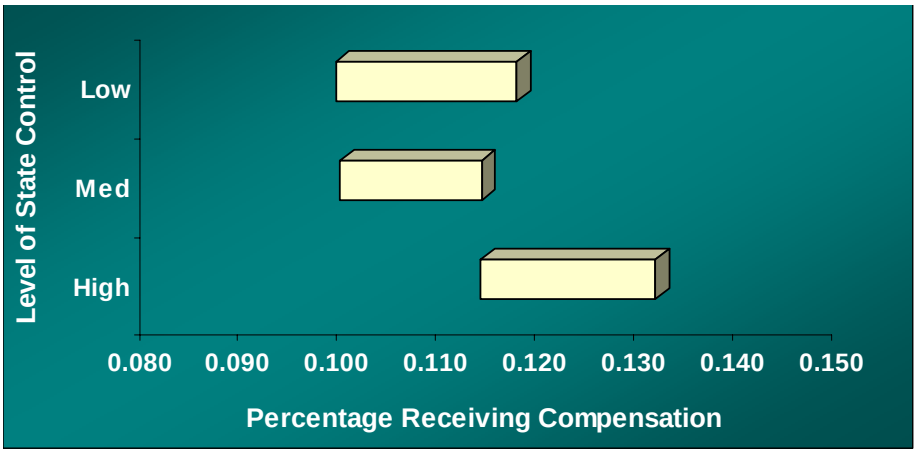


Figure F-12. State Oversight Confidence Intervals for Percentage Receiving Compensation (All Recipients)

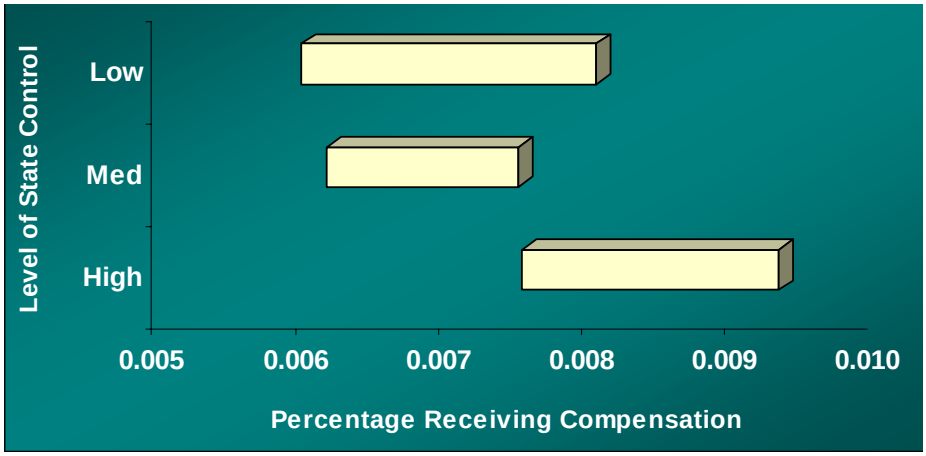


Figure F-13. State Oversight Confidence Intervals for Percentage Receiving Compensation (Recipients Adjudicated in FY 2005 Only)

Effect of Outreach on Claims Received

In addition to testing the effect of outreach on average dollars and percentage of veterans receiving compensation, we tested the effect on the number of claims received by the regional offices. The method of analysis we used to test the effect of budget dollars and service officers on received claims was linear regression. We again analyzed state oversight against received claims using one-way ANOVA with multiple comparisons. We applied the same four outreach independent variables to the received claims data as we did to the average compensation and percentage of veterans receiving compensation analyses: budget per veteran, service officers per veteran, service officers per square mile, and degree of state oversight.

The received claims data we collected for the analysis was from FY 2005's Distribution of Operational Resources (DOOR) reports, which separated received claims by regional office. Since regional office data do not directly correspond to state-level data, we needed to manipulate the data. First, for single states with multiple regional offices that do not share jurisdiction with any other states, we aggregated the received claims data so that it was directly comparable to the state outreach data. Second, if two states are served by the same regional office, it was necessary to aggregate the outreach data (adding budget data, service officer data, etc.) for those two states so that the sum was directly comparable to the received claims data.

State Budget Dollars

Figure F-14 shows the plotted data used for testing the impact of state budget dollars per veteran on the number of claims received per 1,000 veterans. The regression analysis did not illustrate evidence of a relationship between the two variables.

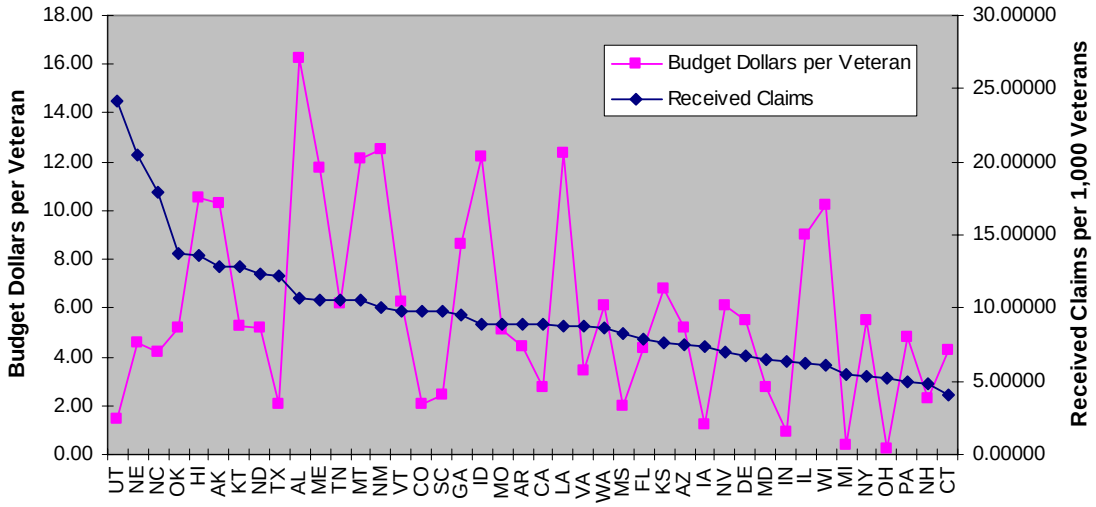


Figure F-14. Normalized Budget Dollars per Veteran and Claims Received by State

Quantity of Service Officers

We tested the hypothesis that as the number of service officers per veteran increases in a state, the number of claims received will also increase. Figure F-15 shows the data for received claims and service officers per veteran. There was a relationship, significant at the 90% level, with a correlation of $r^2 = 0.08$.

When testing the effect of service officers per square mile, the regression results showed a statistically significant inverse relationship. The hypothesis tested was that as the number of service officers per square mile increases in a state, the number of claims received also increases. Figure F-16 shows the data on received claims and service officers per square mile. The inverse relationship is significant at the 95% level, with a correlation of $r^2 = 0.12$.

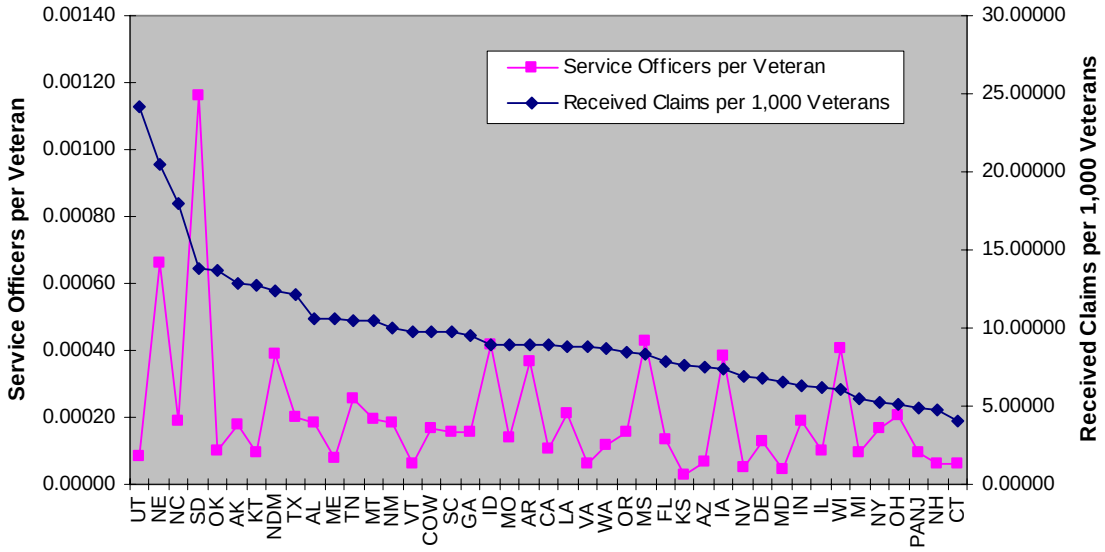


Figure F-15. Service Officers Normalized by Veteran Population and Claims Received by State

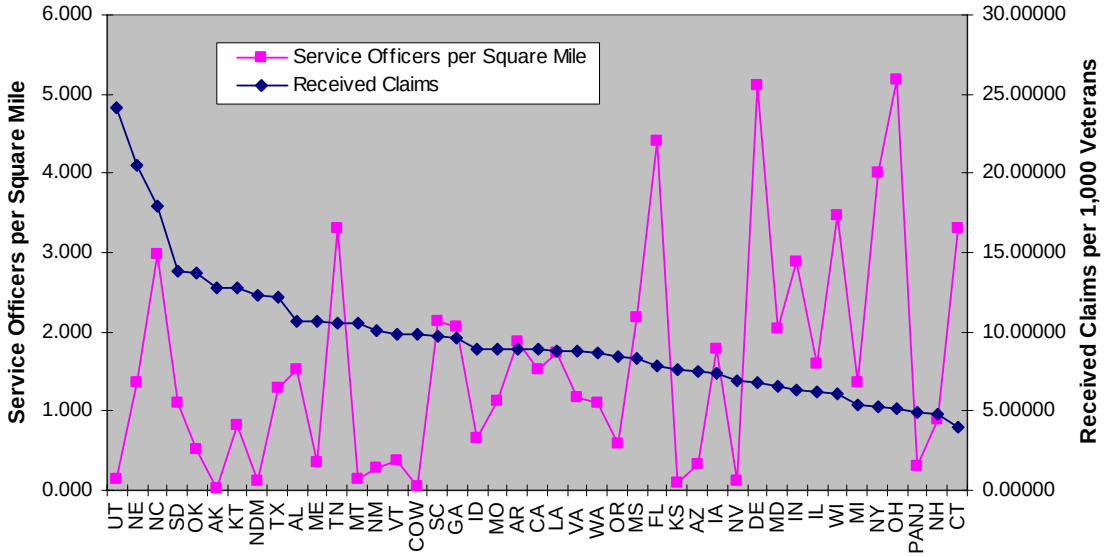


Figure F-16. Service Officers Normalized by Square Miles and Claims Received by State

State Oversight of Service Officers

The final hypothesis related to the number of received claims was that the number of claims submitted by veterans increases with the level of state oversight in each state. Figure F-17 shows the confidence intervals of the number of claims received per 1,000

veterans in FY 2005 for the three groups. The differences among the groups are not statistically significant.

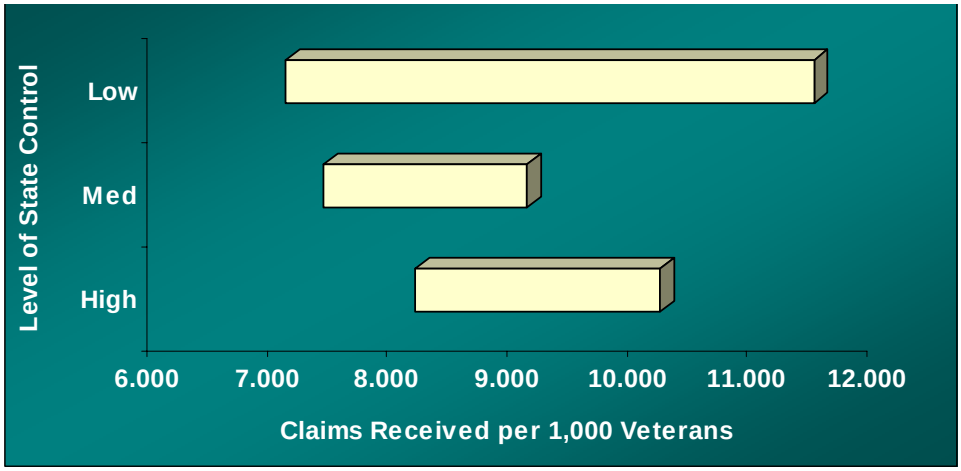


Figure F-17. State Oversight Confidence Intervals for Claims Received per 1,000 Veterans (FY 2005)

CONCLUSIONS

We examined the outreach data to determine the impact of outreach on the observed variation across states. We found that the effect of outreach, if any, was small for most of the metrics for outreach we tested. The budget dollars metric had a small effect on the average dollars and percentage of veterans receiving compensation but almost no effect on the number of received claims. The number of service officers per veteran showed no relationship against average dollars and percentage of veterans receiving compensation, and it demonstrated only a small effect on the number of claims received. The strongest relationship observed was the number of service officers per square mile; however, the relationship was negative in all cases. We do not believe that service officers have an adverse effect on the compensation dollars or percentage of veterans receiving compensation; service officers per square mile is likely correlated with some other factor that affects the variation, such as population density.

None of the relationships showed strong correlations; the strongest positive relationship yielded an r^2 value of 0.14 (budget dollars influencing percentage of veterans receiving compensation). Certainly outreach is an important component of the disability compensation system. From our research, it is also clear that states vary widely in levels of money spent, service officers employed, and level of oversight executed over service officers. However, the state survey data we collected do not show that outreach is a

significant factor contributing to the variation in average compensation and the percentage of veterans receiving claims across states.

SURVEY TO STATE DIRECTORS

This section contains the content of the survey distributed to state directors.

State: _____

Study Description:

The Institute for Defense Analyses (IDA) is conducting a study for the Department of Veterans Affairs to determine the major influences for differences among States and among Regional Offices in:

- Average disability compensation per recipient.
- Percentage of veterans receiving disability compensation.

As a part of this study, we ask you complete the following questionnaire and return it to us by December 15, 2005.

Budget Data

Please fill in the table with the following data for your State:

- Yearly budget for the Department of Veterans Affairs *(exclude budget for veterans' homes, cemeteries, and specialty programs)*
- Yearly budget for service officers
- Expenditures on programs to influence the number of applicants for disability compensation (outreach). Please consider programs like
  - web page management and development
  - benefits "supermarkets"
  - informational brochures/publications
  - public affairs staff time to inform veterans of benefits
  - advertising of benefits
  - CVSO/VSO grants

If you are unable to provide 10 years of data, please fill in as many years as possible.

Fiscal Year	*State Budget for Department of Veterans Affairs**	*Budget for Service Officers*	*Additional Expenditures for Outreach*
1996			
1997			
1998			
1999			
2000			
2001			
2002			
2003			
2004			
2005			

* Exclude from the yearly budget money for veterans' homes, cemeteries, and specialty programs

Additional Comments:

Service Officers Data

1. Please fill in the following table with the number of Full Time Equivalents (FTEs) for each type of service officer in your state. Definitions for each type of service officer are provided below the table.

   Please include only people who are being paid. Their salaries may be paid by another organization. Do not include volunteers. If you are not able to provide ten years of data, please fill in as many years as possible.

Fiscal Year	*CVSOs*	*VSOs*	*State Claims Officers*	*Other Service Officers*
1996				
1997				
1998				
1999				
2000				
2001				
2002				
2003				
2004				
2005				

CVSOs

The number of County Veteran Service Officers who actively assist veterans with USDVA claims. Include any assistants who may also assist with other than normal clerical or records retrieval duties, i.e., counseling, claims development, form preparation. Please indicate where salary may be shared between county and state or other sources.

VSOs

The number of Veterans Service Organization Service Officers who actively assist veterans with USDVA claims. Do not include Service Officers who provide only information, include only those who prepare forms or develop claims.

State Claims Officers

The number of state Service Officers who are State employees who actively assist veterans with USDVA Claims. Include any assistants who may also assist with other than normal clerical or records retrieval duties, e.g., counseling, claims development, form preparation.

Other Service Officers

The number of other Service Officers, not listed above who actively assist veterans with USDVA claims (i.e. municipal officers). Include any assistants who may also assist with other than normal clerical or records retrieval duties, i.e. counseling, claims development, form preparation.

Additional Comments:

2. Does your state have accreditation authority delegated to it by VA? If no, how do service officers receive accreditation in your state?

3. For each service officer type, please fill in the following table with
    - A current estimate of the number who are VA accredited
    - An estimate of the minimum number of training hours required for VA accreditation

Service Officer Type	*Number with VA Accreditation*	*Number of Training Hours Required for VA Accreditation*
CVSO		
VSO		
State Claims Officers		
Other Service Officers		

Additional Comments:

4. Does your state have any programs that measure the performance and productivity of the service officers?

   Example: A program that tracks the number of claims a specific service officer files which result in an award for the veteran.

5. If possible, please provide a brief description of the management structure for service officers in your state. For instance, do county service officers report to the State Director?

6. Please provide a brief description of how service officers are stationed across your state. For example, are they collocated at regional offices or do they travel to different counties each week?

Veterans Data

1. Please fill in the following table with your state's veteran population. If you are not able to provide ten years of data, please fill in as many years as possible.

Fiscal Year	*State Veteran Population*
1996	
1997	
1998	
1999	
2000	
2001	
2002	
2003	
2004	
2005	

Additional Comments:

2. What data source(s) do you use for the number of veterans living in your state? (e.g., Vetpop 2001, Census)

3. What data source(s) do you use for the number of veterans living in each county of your state?

Claims Application Process

Please provide a brief description of how veterans are assisted with the claims application process in your state.

Example: In Wisconsin, the Wisconsin Department of Veterans Affairs (WDVA) operates a claims office at the VARO in Milwaukee. The WDVA employees in this office are primarily responsible for initiating claims for walk-ins in Milwaukee County and developing claims submitted by CVSOs and some VSOs. Veterans may file claims at any of the 72 county offices with their CVSO. They may also file claims through VSO Claims Officers located at the Milwaukee Regional Office. WDVA recently hired Mobile State Officers who are able to augment CVSOs in heavily populated areas.

Contact Information

Thank you for taking the time to fill out this questionnaire. We would appreciate if you could provide contact information for possible follow-up questions.

Name: _____

Position: _____

Phone Number: _____

Email: _____

SURVEY TO VETERANS SERVICE ORGANIZATIONS

This section contains the content of the survey distributed to service organizations.

Service Organization:_____

Study Description:

The Institute for Defense Analyses (IDA) is conducting a study for the Department of Veterans Affairs to determine the major influences for differences among States and among Regional Offices in:

- Average disability compensation per recipient.
- Percentage of veterans receiving disability compensation.

As a part of this study, we ask you complete the following questionnaire and return it to us by December 31, 2005.

Budget Data

1. Please fill in the table with the following data for your organization:
    - Yearly budget for your national service program
    - Yearly budget for service officers
    - Expenditures on programs to influence the number of applicants for disability compensation (outreach). Please consider programs like
        - web page management and development
        - informational brochures/publications
        - public affairs staff time to inform veterans of benefits
        - advertising of benefits

   If you are unable to provide 10 years of data, please fill in as many years as possible.

Fiscal Year	*Budget for National Service Program*	*Budget for Service Officers*	*Additional Expenditures for outreach*
1996			
1997			
1998			
1999			
2000			
2001			
2002			
2003			
2004			
2005			

Additional Comments:

2. Please fill in the following table with your current budget for claims services by category in each state:

State	*National Headquarters*	*State Department*	*State Government*	*Other*
Alabama				
Alaska				
Arizona				
Arkansas				
California				
Colorado				
Connecticut				
Delaware				
Florida				
Georgia				
Hawaii				
Idaho				
Illinois				
Indiana				
Iowa				
Kansas				
Kentucky				
Louisiana				
Maine				
Maryland				
Massachusetts				

Michigan				
Minnesota				
Mississippi				
Missouri				
Montana				
Nebraska				
Nevada				
New Hampshire				
New Jersey				
New Mexico				
New York				
North Carolina				
North Dakota				
Ohio				
Oklahoma				
Oregon				
Pennsylvania				
Rhode Island				
South Carolina				
South Dakota				
Tennessee				
Texas				
Utah				
Vermont				
Virginia				
Washington DC				
Washington				
West Virginia				
Wisconsin				
Wyoming				
Total (50 States +DC)				

Additional Comments:

Service Officers Data

1. Please fill in the following tables with the number of service officers for your organization by state and by territory. Report numbers as Full Time Equivalents (FTEs).

   If you are not able to provide five years of data, fill in as many years as possible. Please use the following guidelines when filling out the table:

In this study, service officers are defined as those who actively assist veterans with USDVA claims. Do not include service officers who provide only information, only those who prepare forms or develop claims.

Include only people who are being paid. Do not include volunteers.

Table 1: Number of Service Officers by State

State	*2001*	*2002*	*2003*	*2004*	*2005*
Alabama					
Alaska					
Arizona					
Arkansas					
California					
Colorado					
Connecticut					
Delaware					
Florida					
Georgia					
Hawaii					
Idaho					
Illinois					
Indiana					
Iowa					
Kansas					
Kentucky					
Louisiana					
Maine					
Maryland					
Massachusetts					
Michigan					
Minnesota					
Mississippi					
Missouri					
Montana					
Nebraska					
Nevada					
New Hampshire					
New Jersey					
New Mexico					
New York					
North Carolina					
North Dakota					

Ohio					
Oklahoma					
Oregon					
Pennsylvania					
Rhode Island					
South Carolina					
South Dakota					
Tennessee					
Texas					
Utah					
Vermont					
Virginia					
Washington DC					
Washington					
West Virginia					
Wisconsin					
Wyoming					
Total (50 States +DC)					

Additional Comments:

Table 2: Number of Service Officers by Territory

Territory	*2001*	*2002*	*2003*	*2004*	*2005*
American Samoa					
Guam					
Northern Mariana Islands					
Puerto Rico					
Virgin Islands					
Other					
Total					

Additional Comments:

2. Are you aware of any major change in the number of service officers in your organization over the past twenty years?

   Example: You do not have data from the late 1980s, but you know the number of service officers in New York has increased drastically.

3. Describe the service officer accreditation program in your organization. In your response, please include the number of training hours required for accreditation.

4. Does your organization have any programs that measure the performance and productivity of the service officers?

   Example: A program that tracks the number of claims a specific service officer files which result in an award for the veteran.

5. Please provide a brief description of how service officers in your organization are stationed across states. For example, are they collocated at regional offices or are they assigned to specific counties in each state?

Additional Questions

1. Does your organization have any hypotheses or thoughts as to the reasons for the observed variations in disability compensation?

2. Please provide any specific examples you may have of states or areas where you think there is a significant trend of positive impact in claims activity as a result of post level or chapter effort. Include the reasons for success among the examples cited such as training, certification, etc.

3. If you are willing to share any analysis completed by your organization concerning this topic, please attach it with your completed survey.

Contact Information

Thank you for taking the time to fill out this questionnaire. If you would like an electronic version of the questionnaire, please contact Molly Whipple (mwhipple@ida.org).

We would appreciate if you could provide contact information for possible follow-up questions.

Name: _____

Position: _____

Phone Number: _____

Email: _____

APPENDIX G:
VA REGIONAL OFFICE VISITS

To gain a full understanding of the procedures and processes involved with rating claims, we visited several VA regional offices (VAROs) across the nation. These visits gave us the opportunity to speak with a variety of VA personnel, who offered their expertise in the disability compensation claim system and their hypotheses regarding the variance in compensation levels and percentages across states. During each visit we noted our own observations on actions or processes within VAROs that either hindered or promoted consistency within a VARO or across the nation.

We wanted to include VAROs from a breadth of office sizes and types. We ultimately visited eleven VAROs, ranging in size, location, average compensation, and percentage of veterans receiving compensation. The chosen offices included one Benefits Delivery at Discharge (BDD) site and one regional service center. The following is a list of VAROs visited by at least three members of the IDA study team:

- Seattle, Washington
- Indianapolis, Indiana
- New York, New York
- Chicago, Illinois
- Muskogee, Oklahoma
- Salt Lake City, Utah
- Albuquerque, New Mexico
- Phoenix, Arizona
- St. Petersburg, Florida
- Cleveland, Ohio
- Baltimore, Maryland

Before each visit, we informed the VARO about our study objectives, our intended agenda for the visit, and topics for discussion. Our visits varied slightly, but in general we spoke with VARO management, several Rating Veterans Service Representatives (RVSRs), Decision Review Officers, a quality review officer, a trainer and a veteran service representative. A typical visit began with a management meeting, followed by

some combination of a trainer, at least three RVSRs, a quality review officer, and the Veterans Service Organization (VSO) representative(s).

Management we spoke to on each visit usually included VARO Directors, Service Center Managers, Assistant Service Center Managers and trainers. In these meetings we discussed unique characteristics of the state's veteran population, processes and procedures within the VARO, changes over time, the culture or philosophy within the VARO, metrics tracked within the office, and veteran benefits unique to the state. The VARO management also gave us their hypotheses on causes of the variation among states.

We met with at least three RVSRs (also called "rating specialists" or "raters") in each VARO. We specifically asked for RVSRs varying in years of service. We usually met with RVSRs individually and explained that anything they said would not be reported in conjunction with their names or offices. In speaking with RVSRs, we asked questions regarding the process of rating claims, their training, subjectivity of rating claims, quality of medical examinations, Individual Unemployability determination, differences among power of attorney (POA) and non-POA claims, the STAR review process, the local quality review process, changes in their office over time, and hypotheses for the causes of variation. We found that the discussions with RVSRs were particularly useful sources of insight.

In discussions with trainers, we learned about the basics of the initial training program for new RVSRs as well as the periodic refresher training for all RVSRs. Most of the VAROs use material developed by the VA. However, we found that many VAROs supplemented the national training program with additional materials developed in house. It was our impression that initial training programs varied in length and overall rigor across VAROs. We also noted that frequency and depth of refresher training varied across VAROs. The trainers also offered their hypotheses regarding potential causes of variation in disability compensation across states.

We met with quality review officers (known in some offices as "local STAR reviewers" or "coaches") during several visits. The quality reviewers explained the selection procedure for reviewed claims within their offices. They also conveyed that the local quality reviews did not concentrate on calling errors on the rating determination. They mentioned that especially for the more subjective claims, it was rare to call errors. However, if a determination was blatantly wrong, they would call the error and point out a more appropriate rating to the errant RVSR. We asked the reviewers about their hypotheses regarding potential causes of variation among the states.

The final meeting for most visits was with one or more VSO representative. In several VAROs we were able to meet with representatives from most of the major organizations serving veterans of that VARO. We discussed the responsibilities of the VSO representatives in their state and their initial training procedures. We spoke about the advantages and disadvantages of a veteran being represented by a power of attorney, as well as the particular differences in the claims. We also queried the VSO representatives regarding the outreach efforts that go on within the state. Finally, we asked them what hypotheses they had regarding potential causes of variation.

Overall, we found the visits to be particularly valuable in our understanding the claims rating process. Without first-hand experience with the VAROs and numerous discussions, we would not have had as clear a picture of the process, which was beneficial to the team while analyzing the data. Additionally, we uncovered several hypotheses that we may not have heard or tested without the VARO visits. We greatly appreciate the assistance and candor of the VA personnel that we met with at each VARO.

APPENDIX H:
VA REGIONAL OFFICES IN PUERTO RICO, THE DISTRICT OF COLUMBIA, AND THE PHILIPPINES

For much of our analysis, we considered variation across the 50 states. For this analysis, we excluded compensation recipients from the VA regional offices (VAROs) in Puerto Rico, the District of Columbia (DC), and the Philippines. We chose instead to handle these VAROs as special cases.

We would expect each of these regions to have unique characteristics. Furthermore, some of the data sources for general population demographics were not available for Puerto Rico and the Philippines. We show here the analysis we performed for the VAROs in Puerto Rico, DC, and the Philippines.

THE COMMONWEALTH OF PUERTO RICO

With an average compensation of $12,580, Puerto Rico has a higher average than each of the 50 states and DC. Of the 128,322 veterans living in Puerto Rico, 19,762 or 15.4% of veterans receive compensation. If we look at the distribution of the outcome groups, we see that a higher proportion of veterans in Puerto Rico receive 100% awards than the average for all recipients. Figure H-1 displays the percentage of veterans in Puerto Rico by combined degree of disability and Individual Unemployability (IU). Recipients in Puerto Rico receive 10% awards at a lower rate than all recipients.

Data show that Puerto Rico has a high proportion of recipients with mental disabilities other than Post-Traumatic Stress Disorder (PTSD). From Figure H-2, we see that 26% of recipients have a mental disability other than PTSD in Puerto Rico compared to 8% of all recipients.

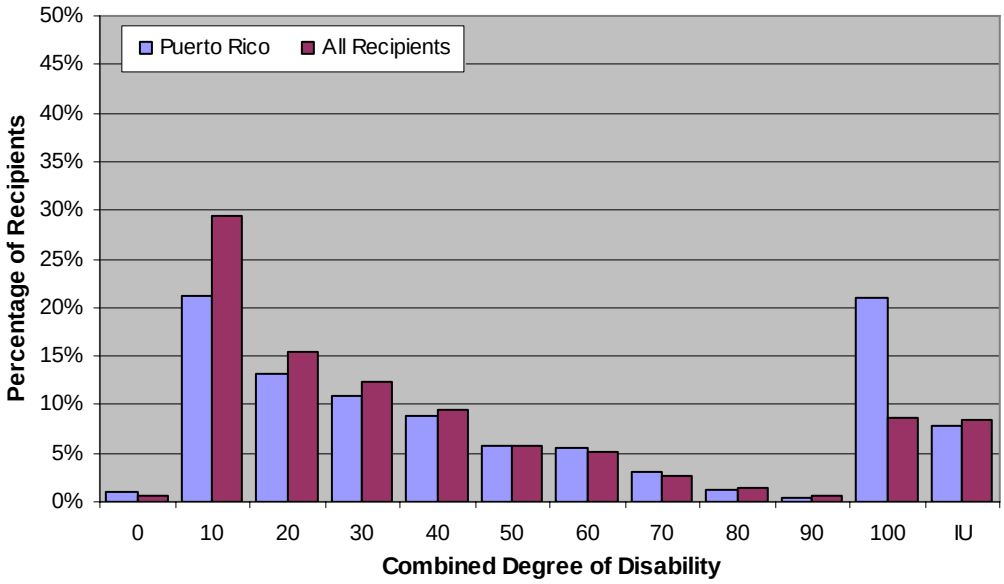


Figure H-1. Distribution of Combined Degree of Disability and IU in Puerto Rico

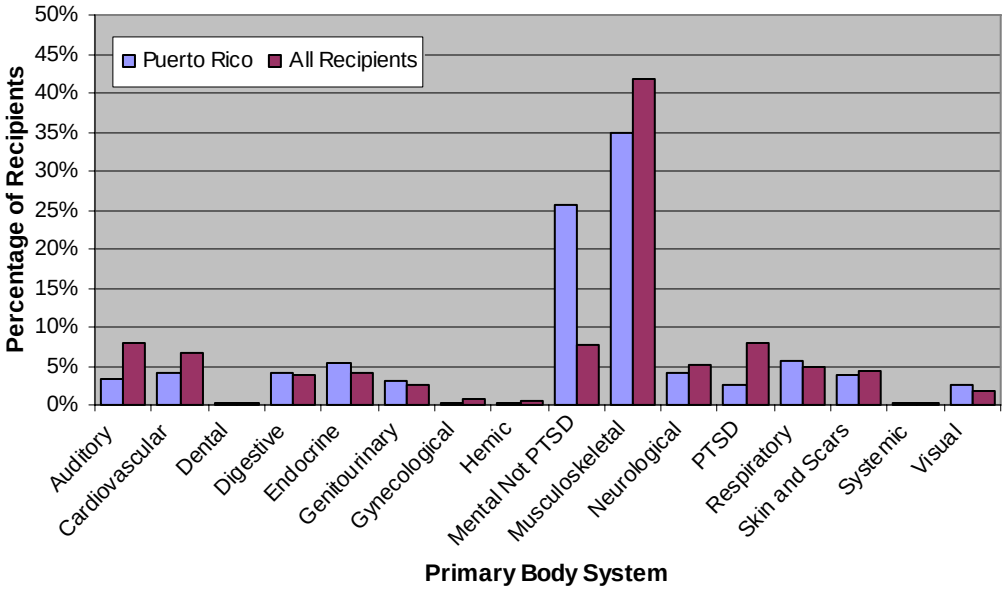


Figure H-2. Distribution of Recipients in Puerto Rico by Primary Body System

Similarly, Figure H-3 illustrates that recipients with a mental disability other than PTSD as their primary body system average $23,224 in Puerto Rico, in contrast to the average compensation of $16,015 received by all recipients for this group. Thus, Puerto Rico has both a higher proportion of recipients with a primary mental disability other than PTSD and higher average awards for this group.

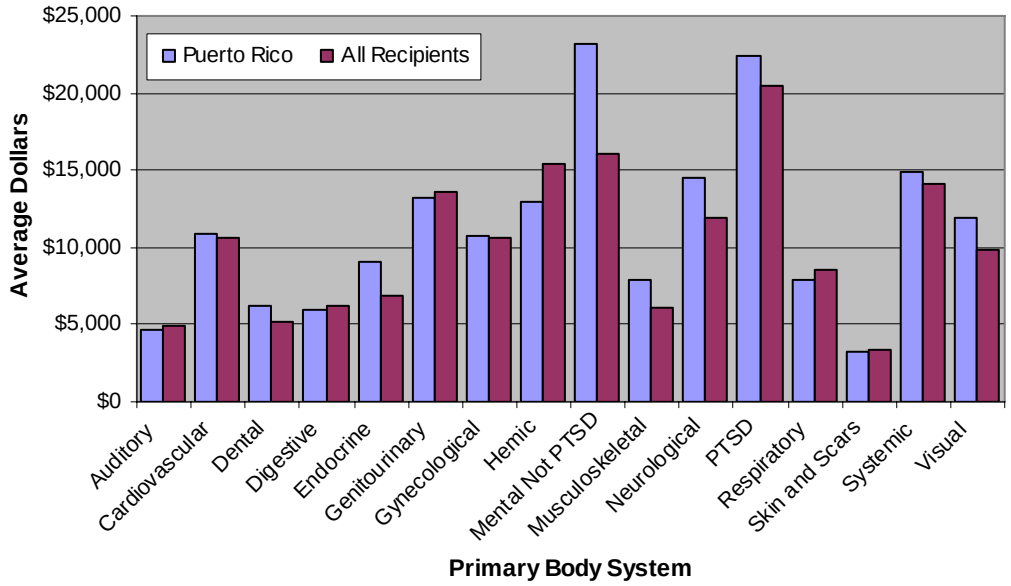


Figure H-3. Average Award in Puerto Rico by Primary Body System

Fifty-five percent of recipients in Puerto Rico have power of attorney (POA) representation compared to 65% for all recipients. Both veterans with and without POA representation have a higher average compensation compared to these groups for all recipients, as Figure H-4 shows.

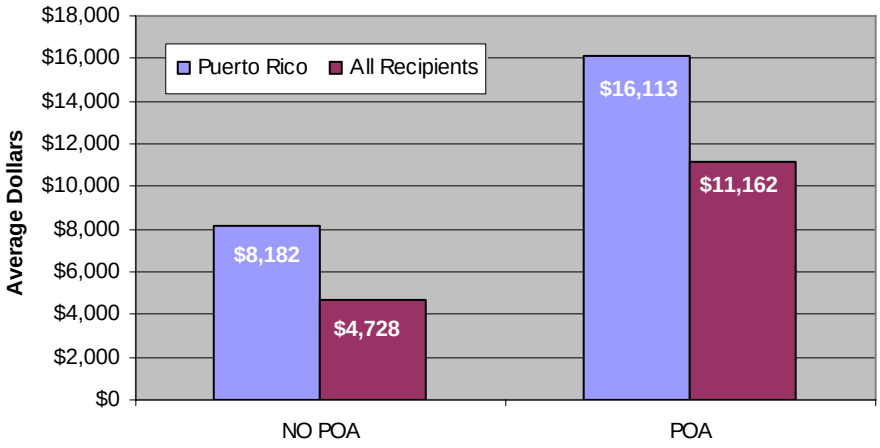


Figure H-4. Average Award in Puerto Rico for Recipients with and without POA Representation

For period of service (POS), Puerto Rico has a higher proportion of recipients from the Korean conflict and the Vietnam era as Figure H-5 illustrates. Puerto Rico also has a

lower proportion of recipients from World War II. However, across all periods of service, Puerto Rico has a higher average annual compensation, as Figure H-6 depicts.

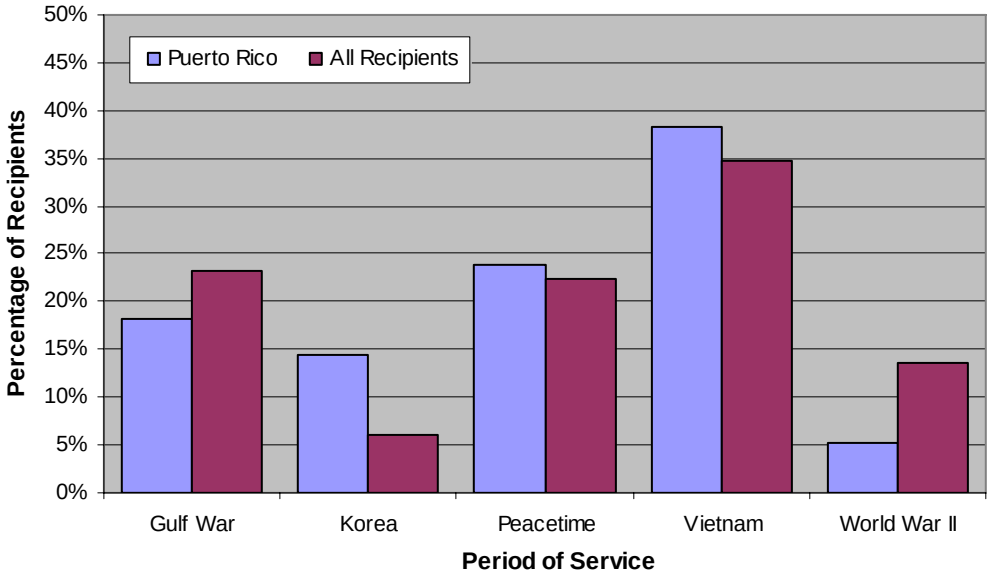


Figure H-5. Distribution of Recipients in Puerto Rico by POS

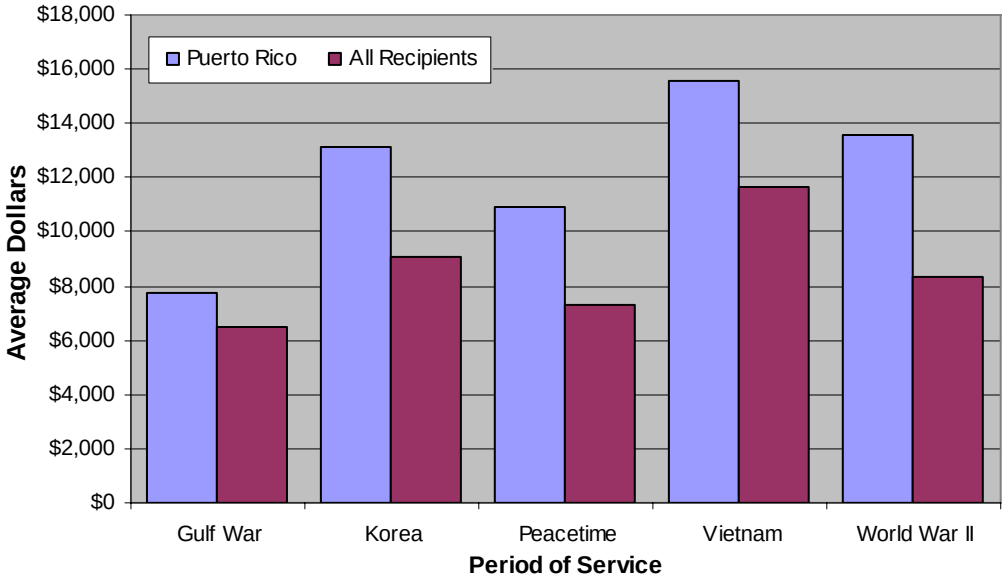


Figure H-6. Average Award in Puerto Rico by POS

DISTRICT OF COLUMBIA

In Washington, DC, 4,262 veterans receive compensation or 11.8% of the veteran population (36,056). These recipients average $8,082. The percentage of recipients with POA representation in DC (52%) is lower than the rate for all recipients (65%). It is interesting to note that the average dollars for each of these groups is close to the average for all recipients, as Figure H-7 shows.

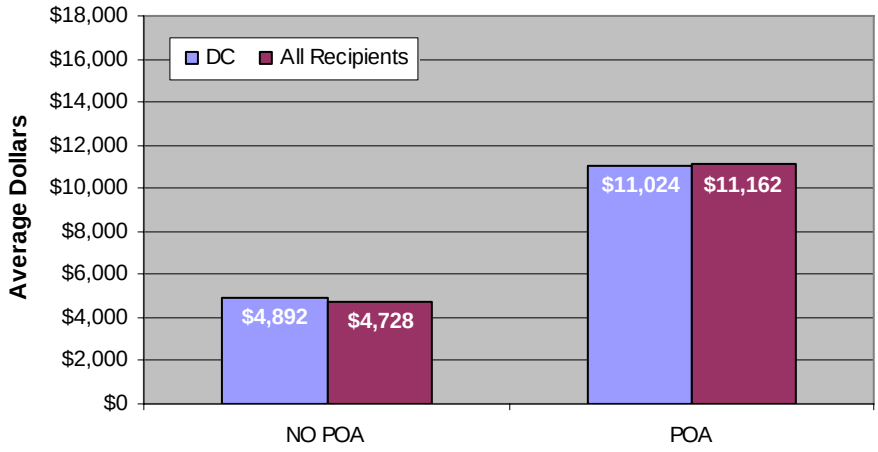


Figure H-7. Average Award in DC for Recipients with and without POA Representation

In terms of outcomes, DC has a slightly higher rate of recipients with 100% awards than the distribution for all recipients, but a lower proportion of recipients with IU.

For the distribution of different primary body systems, the pattern in DC is similar to that for all recipients. Figure H-9 compares the distribution of recipients by primary body system in DC to the trend for all recipients, and Figure H-10 displays the average award by primary body system in DC.

For POS, DC has a higher proportion of peacetime recipients and a lower proportion of Gulf War recipients than do all recipients. Figure H-11 illustrates these differences. For average award by each POS, DC is consistently lower than the trend for all recipients, as Figure H-12 demonstrates.

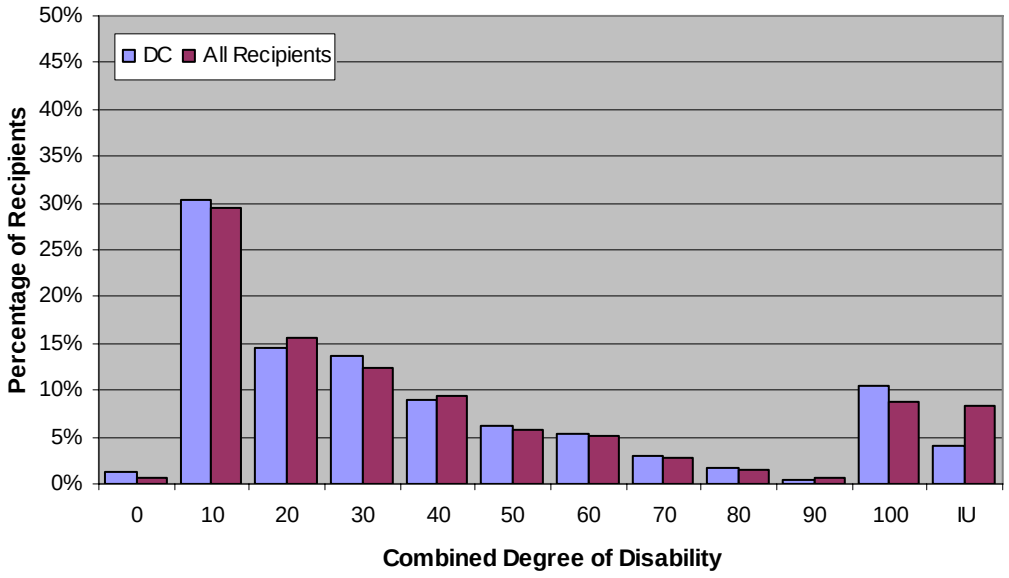


Figure H-8. Distribution of Combined Degree of Disability and IU in DC

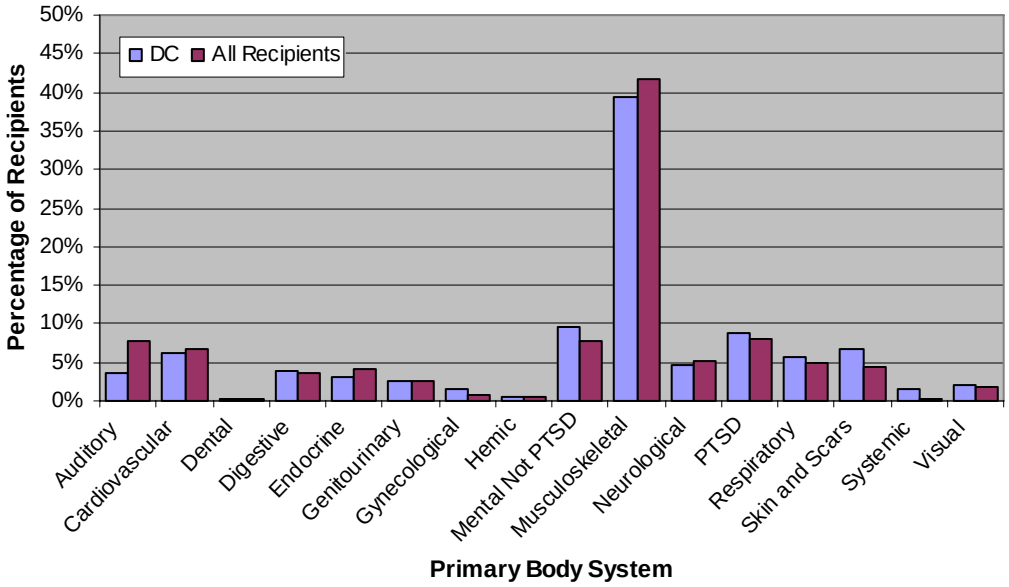


Figure H-9. Distribution of Recipients in DC by Primary Body System

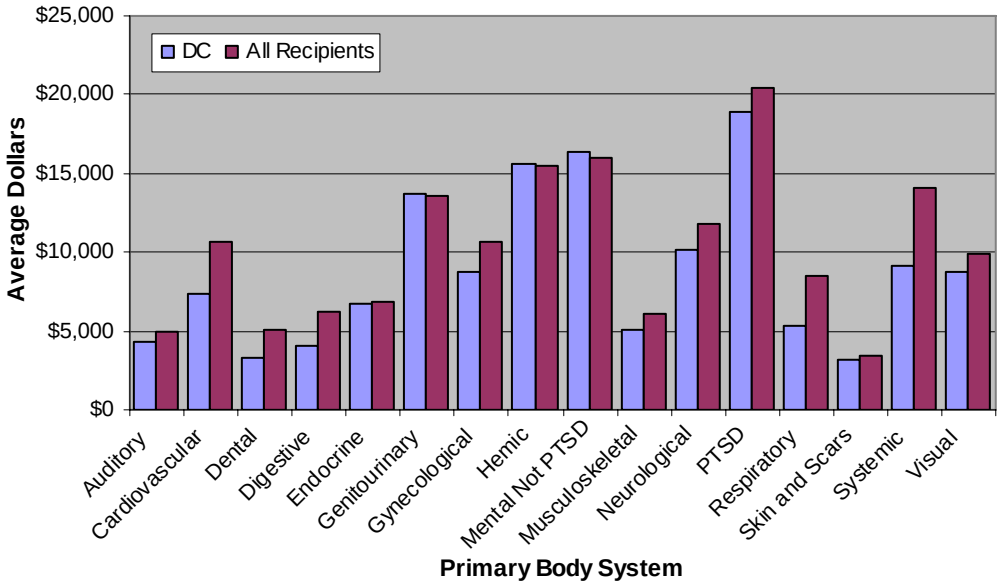


Figure H-10. Average Award in DC by Primary Body System

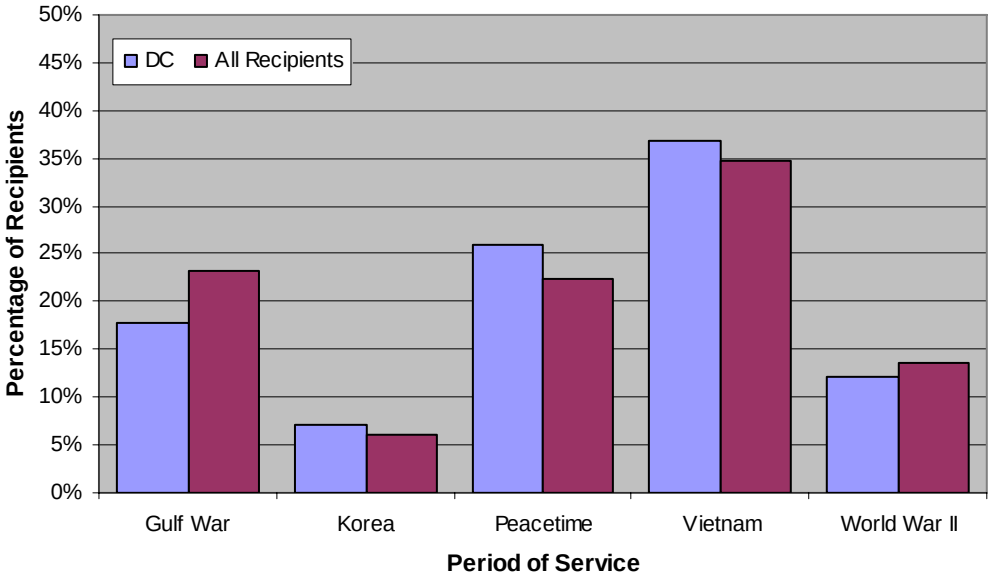


Figure H-11. Distribution of Recipients in DC by POS

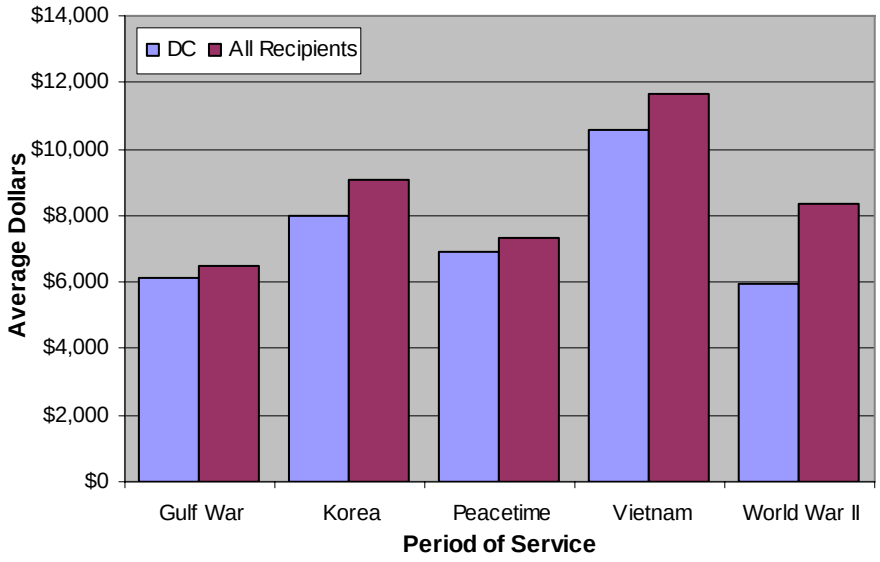


Figure H-12. Average Awards in DC by POS

THE REPUBLIC OF THE PHILIPPINES

For the Philippines, we found that 5,111 recipients average $11,446 for disability compensation. Since we did not have an estimate of the veteran population in this area, we could not determine the percentage of veterans receiving compensation. If we look at the distribution by POS, the Philippines are unique in that they have 3,131 veterans with entitlement code 91. This code indicates veterans from the Philippines serving in World War II such as Special Philippine Scouts or Commonwealth Army Veterans. These veterans get paid in the peso equivalent of $0.5 for every dollar they are awarded. Figure H-13 displays the proportions of recipients for the Philippines by POS. We can clearly see that the Philippine pesos POS (entitlement code 91) consists of the majority of the recipients in the Philippines. In most of our analysis, Philippine peso recipients are combined with World War II veterans, but in this section we separate the two groups.

In Figure H-14, we see that 30% of recipients in the Philippines have an IU award and 45% of recipients are receiving a maximum award. This is a significantly higher fraction than any of the 50 states, DC, or Puerto Rico. However, the average payment is only $11,446 due to many of these veterans receiving $0.5 on the dollar. If we consider what Philippine peso recipients would have gotten if they were paid at the same rate as other recipients, the average payment in the Philippines would be $16,394.

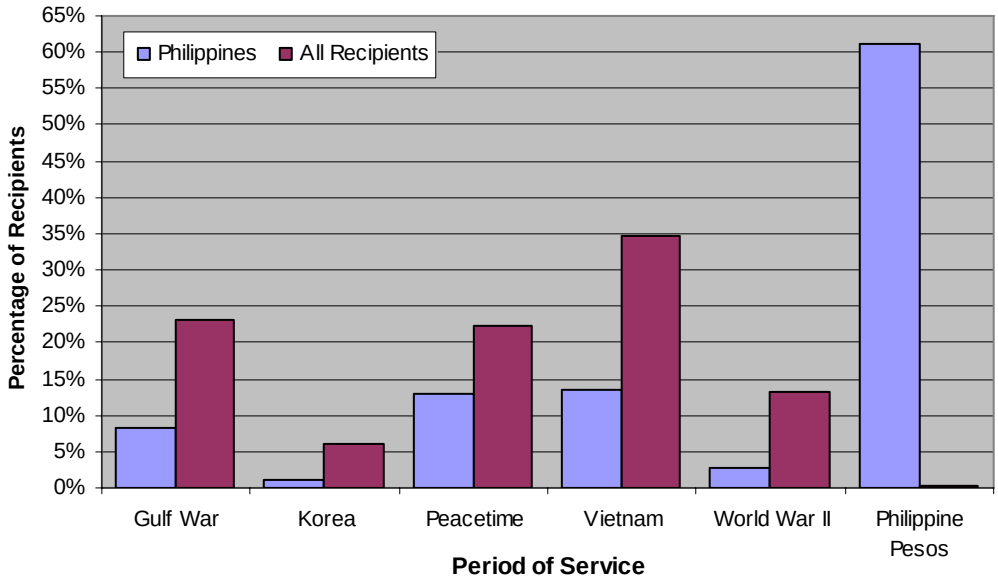


Figure H-13. Distribution of Recipients in the Philippines by POS

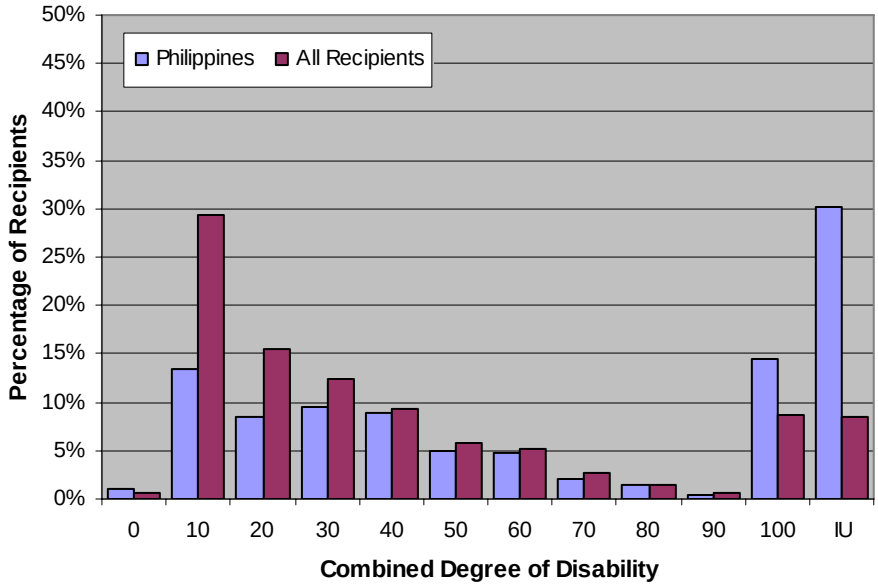


Figure H-14. Distribution of Combined Degree of Disability and IU in the Philippines

Figure H-15 shows the distribution of payments by POS in the Philippines. We see that recipients in every POS except Philippine pesos receive significantly higher payments. Payments for the Philippine pesos POS are only 50% of their award level.

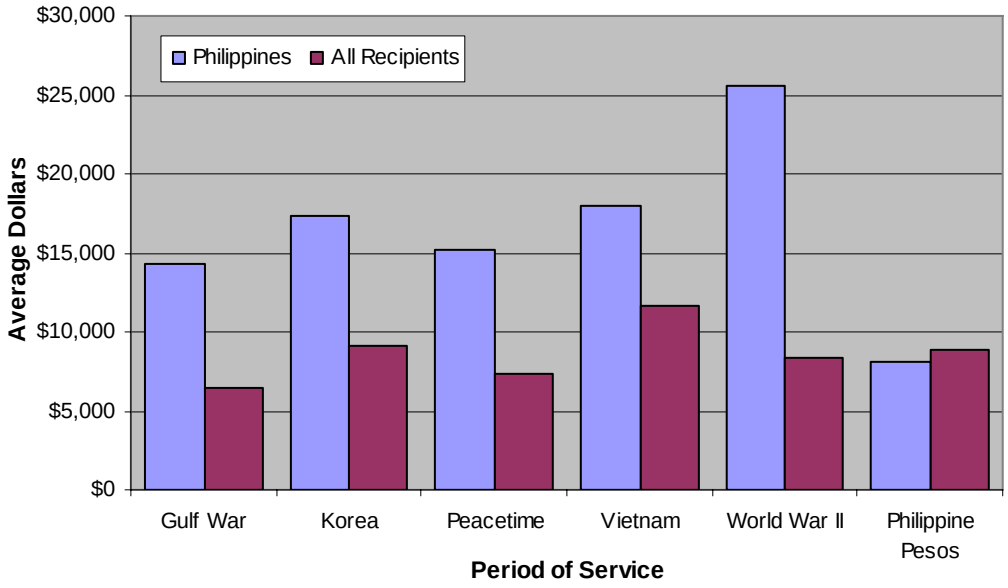


Figure H-15. Average Payment in the Philippines by POS

Figure H-16 compares the distribution of recipients by primary body systems for the Philippines and all recipients. A higher proportion of recipients in the Philippines have cardiovascular as their primary body system (32%) compared to the prevalence of that disability for all recipients (7%). The average payment to a recipient in the Philippines with a cardiovascular primary body system is $14,600. However, if we were to account for what recipients with entitlement code 91 would receive if paid at the full rate, then the average compensation for cardiovascular as the primary body system would be $24,015 in the Philippines. Furthermore, 68% of recipients with IU in the Philippines have cardiovascular as their primary body system. Of all recipients in the Philippines, 20% have IU with cardiovascular as their primary body system.

In the Philippines, only 32% of recipients have POA representation. In Figure H-17, we can see that both veterans with and without POA representation receive higher average compensation than these groups for all recipients.

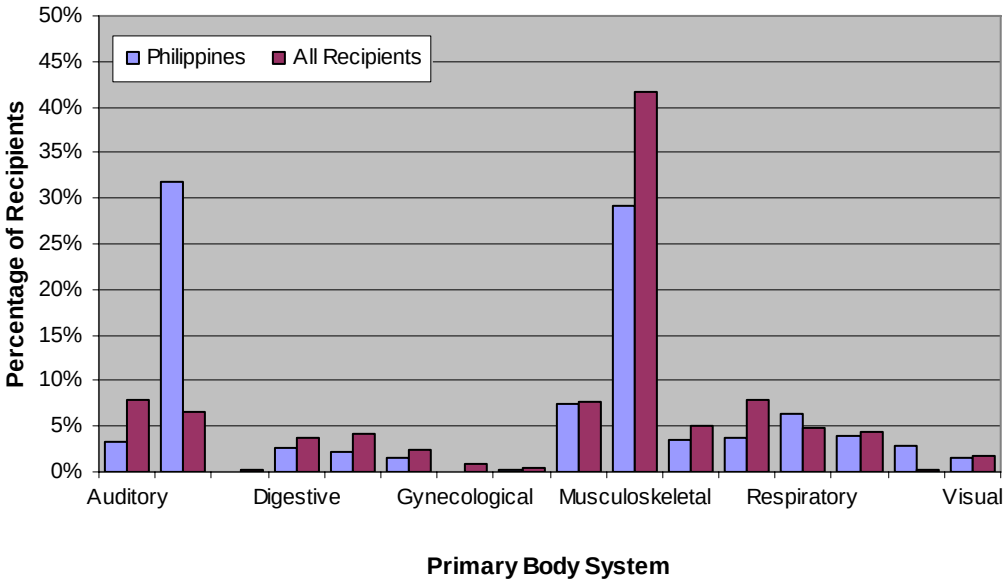


Figure H-16. Distribution of Recipients in the Philippines by Primary Body System

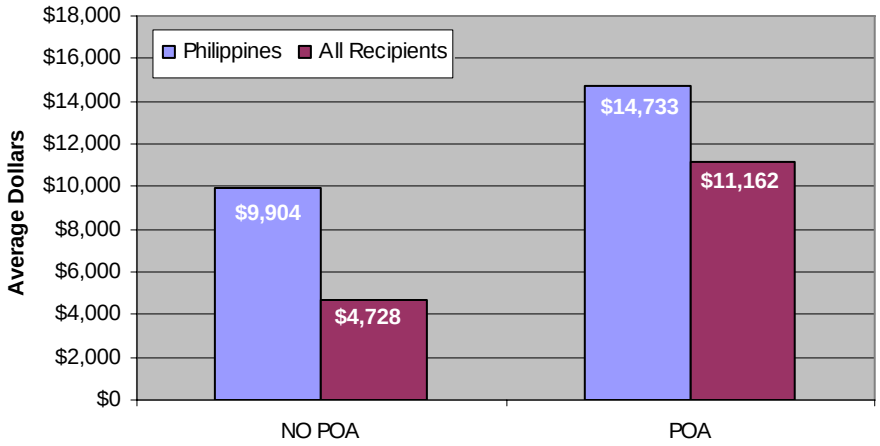


Figure H-17. Average Award in the Philippines for Recipients with and without POA Representation

APPENDIX I:
SUMMARY TABLES OF FACTORS ASSOCIATED WITH OBSERVED VARATION ACROSS STATES

We classified the factors associated with the observed variation across states in average dollars into the following three major categories:

- Adjudication Outcome Factors:
  - Individual Unemployability (IU) Awards
  - 100% Awards
  - IU, 100%, and 0–90% Awards
  - Number of Service-Connected Disabilities per Recipient
- Veteran or Claim Factors:
  - Post-Traumatic Stress Disorder (PTSD)
  - Power of Attorney (POA)
  - Period of Service (POS)
  - PTSD, POA, and POS
  - Diagnostic Codes
  - Age
  - Date Released from Active Duty
  - Officer or Enlisted
  - Gender
  - Military Retirees
  - Branch of Service
  - Years of Service
  - Compensation and Pension Master Record (CPMR) Combat Status
  - Purple Heart Indicator
  - Prisoner of War (POW) Status
  - Time on Rolls
  - Time on Rolls and POA
  - Time on Rolls and POS
- General Population or Regional Factors:
  - County Median Family Income
  - County Population Density
  - County Veteran Density
  - Percentage of County Population with a Mental Disability

- Percentage of County Population with a Physical Disability
- Percentage of County Population with Any Disability
- Percentage of County Population with an Employment Disability
- Unemployment for County Population with an Employment Disability
- Distance to VA Regional Office (VARO)
- Distance to VA Medical Center (VAMC)
- Distance to Major Military Base
- PTSD, POA, POS, County Median Family Income, Percentage of County Population with a Mental Disability, and County Population Density
- Analysis of Covariance Model with:
  - Continuous Factors—Years of Service, Age, Date Released from Active Duty, County Veteran Density, County Population Density, County Median Family Income, Percentage of County Population with an Employment Disability, Unemployment for County Population with an Employment Disability, Percentage of County Population with a Mental Disability, and Percentage of County Population with a Physical Disability
  - Categorical Factors—POA, POS, Time on Rolls, Primary Body System, and Retirees by Years of Service

Table I-1 summarizes the percentages of the observed variation across states in average dollars we found to be associated with these factors. We expected high correlations for the first category, adjudication outcomes, since it is directly associated with payments. Because many of these factors are mutually correlated, the combined effect from multiple factors cannot be determined by adding the percentages; however, the table shows the effect of multiple factors for some combinations.

These factors are not necessarily the underlying mechanism for causing differences in the observed variation in average dollars across states. For example, differences in the percentage of recipients with PTSD in a state could be due to differences in adjudication of PTSD claims, differences in application rates for PTSD, differences in the prevalence of PTSD among veterans in that state, or a combination of the three.

In Table I-2, we show factors associated with the percentage of veterans receiving compensation across states. Again, we classified factors into three categories. The two direct factors influencing the percentage of veterans receiving compensation are application rates and grant rates. We identified application rates as the key driver. We classified other factors as veteran-specific factors or general population factors.

Again, the combined effect from multiple factors cannot be determined by adding the percentages. Due to limitations on data for veteran populations and denied claims, we were unable to analyze the combined effect of multiple factors.

Table I-1. Percentage of Observed Variation in Average Dollars across States Associated with Different Factors or Groups of Factors

Category	Factor	Percentage of Observed Variation
Adjudication Outcomes	IU Awards	73.9%
	100% Awards	40.0%
	IU, 100%, and 0-90% Awards	93.7%
	Number of Service Connected Disabilities per Recipient	6.0%
Veteran or Claim	PTSD	39.8%
	POA	15.5%
	POS	8.2%
	PTSD, POA, and POS	50.0%
	Diagnostic Codes	53.9%
	Age	5.6%
	Date Released from Active Duty	4.9%
	Officer or Enlisted	2.7%
	Purple Heart Indicator	1.2%
	Gender	0.3%
	Military Retirees	0.1%
	Branch of Service	0.0%
	Years of Service	0.0%
	Compensation and Pension Master Record Combat Status	0.0%
	POW Status	0.0%
	Time on Rolls	0.0%
	Time on Rolls and POA	20.1%
	Time on Rolls and POS	15.1%

(Continued on the next page.)

Table I-1—*Continued*

Category	Factor	Percentage of Observed Variation
General Population or Regional	County Median Family Income	30.1%
	County Population Density	18.1%
	County Veteran Density	6.3%
	Percentage of County Population with a Mental Disability	28.4%
	Percentage of County Population with a Physical Disability	20.6%
	Percentage of County Population with Any Disability	12.1%
	Percentage of County Population with an Employment Disability	5.3%
	Unemployment for County Population with an Employment Disability	17.4%
	Distance to VA Regional Office	5.5%
	Distance to VA Medical Center	8.3%
	Distance to Major Military Base	6.5%
	PTSD, POA, POS, County Median Family Income, Percentage of County Population with a Mental Disability, County Population Density	61.1%
	Analysis of Covariance Model with Continuous and Categorical Factors	68.7%

Table I-2. Percentage of Observed Variation in the Percentage of Veterans Receiving Compensation across States Associated with Different Factors

Category	Factor	Percentage of Observed Variation
Direct	Application Rates	71.4%
Veteran	Military Retirees	40.9%
	Period of Service	12.0%
	Age	4.6%
	Gender	0.0%
General Population	Veteran Density	27.3%
	Population Density	9.1%
	Median Family Income	8.9%
	Percentage of County Population with a Mental Disability	3.6%
	Percentage of County Population with a Physical Disability	3.6%
	Unemployment for County Population with an Employment Disability	3.4%
	Percentage of County Population with Any Disability	1.6%
	Percentage of County Population with an Employment Disability	0.0%

ABBREVIATIONS

AMVETS	American Veterans
ANCOVA	Analysis of Covariance
ANOVA	Analysis of Variance
BDD	Benefits Delivery at Discharge
BIRLS	Beneficiary Information Record Locator System
BOS	Branch of Service
C&RT	Classification and Regression Trees
CDD	Combined Degree of Disability
CHAID	Chi-Squared Automatic Interaction Detection
CPMR	Compensation and Pension Master Record
CV	Coefficient of Variation
DAV	Disabled American Veterans
DC	District of Columbia
DM	Data Mining
DoD	Department of Defense
DOOR	Distribution of Operational Resources
EDA	Explanatory Data Analysis
EOD	Entered on Duty
FY	Fiscal Year
HUD	(Department of) Housing and Urban Development
IDA	Institute for Defense Analyses
IU	Individual Unemployability
MOPH	Military Order of the Purple Heart
NOD	Notice of Disagreement
POA	Power of Attorney
POS	Period of Service
POW	Prisoner of War

PTSD	Post-Traumatic Stress Disorder
PVA	Paralyzed Veterans of America
RAD	Released from Active Duty
RVSR	Rating Veterans Service Representative
SMC	Special Monthly Compensation
SSN	Social Security Number
STAR	Systematic Technical Accuracy Review
U.S.	United States
VA	(Department of) Veterans Affairs
VAMC	VA Medical Center
VARO	VA Regional Office
VBA	Veterans Benefits Administration
VetPop	Veteran Population Model
VFW	Veterans of Foreign Wars (of the United States)
VHA	Veterans Health Administration
VSO	Veterans Service Organization
YOS	Years of Service

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14. ABSTRACT

IDA studied the differences across states in average disability compensation awards and in the percentage of veterans receiving disability compensation. IDA first identified the major national factors that influence disability compensation awards or the percentage of veterans receiving compensation. The study team worked with the Department of Veterans Affairs (VA) to identify and collect available data on compensation recipients and the veteran population. We used various statistical methods to identify the main sources of variation. We found that the prevalence of maximum awards determines state averages. Additionally, we found that 50% to 70% of the observed variation in average awards is attributable to differences across states in the recipient populations. These differences across states may be due to differences in the mix of eligible veterans, differences in application rates, or differences in grant rates. The percentage of veterans in a state that receive compensation is primarily driven by state-to-state differences in application rates. We analyzed the VA rating process, including training and adjudication, and found reasons to expect persistent regional differences in adjudication standards. This second volume of a two-volume report contains supporting documentation for the methods, analyses, findings, and recommendations presented in the first volume.

15. SUBJECT TERMS

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