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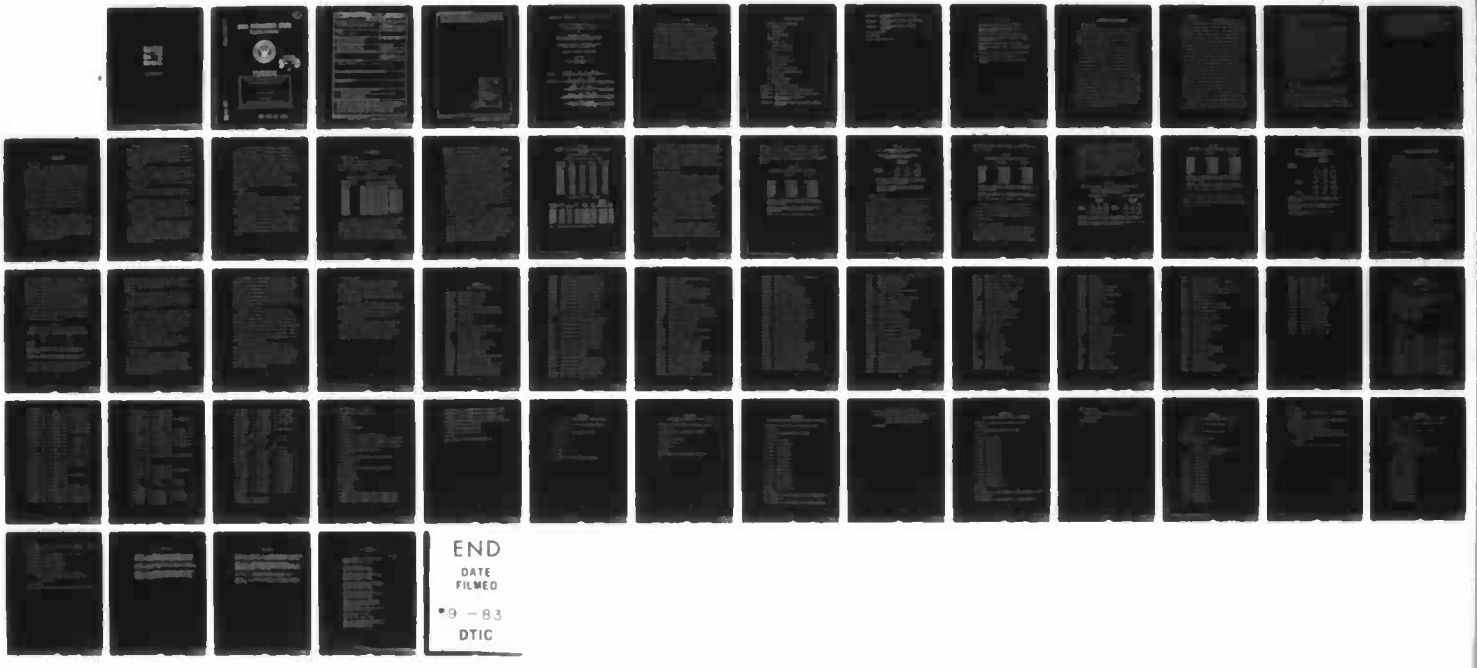

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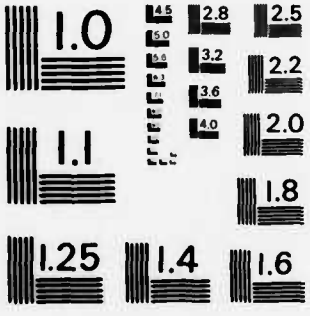

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ENLISTED PERFORMANCE STANDARDS MODEL
FOR
THE OPERATIONS SPECIALIST RATE

by

William E. Wardlaw

June 1983

Thesis Advisor: Richard S. Elster

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This thesis describes the results of analyses investigating the selection of recruits entering the Navy for the Operations Specialist rate. Subsequent performance in that rating is predicted from pre-service education, results of pre-selection service aptitude tests, and marital status. Military enlistment files were used to describe the

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Enlisted Performance Standards Model
For
The Operations Specialist Rate

By

William E. Wardlaw
Lieutenant Commander, United States Navy
B.S., United States Naval Academy, 1972

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
June 1983

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ABSTRACT

This thesis describes the results of analyses investigating the selection of recruits entering the Navy for the Operations Specialist rate. Subsequent performance in that rating is predicted from pre-service education, results of pre-selection service aptitude tests, and marital status. Military enlistment files were used to describe the characteristics of non-prior service males entering the Navy. Selection standards for new recruits are developed based upon the relationships found between pre-enlistment characteristics and performance in the Navy.

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I. INTRODUCTION AND BACKGROUND

A. INTRODUCTION

The purpose of this thesis was to produce a model useful for recruiters in selecting recruits for the Operations Specialist rate. The model can be used in attempts to identify those recruits that will perform successfully during their enlistment period.

Since the inception of the all-volunteer force in 1973, the military services have had to give added attention to the policies and procedures used to select recruits for schools, ratings, advancement, and retention. From an institutional point of view, the Navy seeks to obtain the best man for each job through this selection process. From the viewpoint of the individual, a person will seek the job that he or she thinks is best for him or her. As expected, this may cause some level of conflict since what is deemed best for the Navy may not necessarily be the best for the individual. The methods used by the Navy in selection and classification of recruits for particular schools, ratings, or training pipelines have included use of biographical data, the Basic Test Battery, and the Armed Services Vocational Aptitude Battery (ASVAB). Several studies since the early 1970's have looked at the problems of recruit screening, selection, and performance prediction.

B. BACKGROUND

A concern by the Navy for premature losses as a result of poor screening procedures led to the establishment of an enlisted tracking study to develop a model that could be used to estimate these premature losses. This model could then be used to plan better recruiting policies and the screening of enlistment applicants. This study was conducted during the first year of the All-Volunteer Force and resulted in the development of the Success Chances of Recruits Entering the Navy (SCREEN) model. The variables found that explained most of the differences between those that survived and those who were prematurely separated measured education, age, race, mental group, and number of primary dependents.[Ref. 1]

A validation of the SCREEN model was conducted to cover the first two years of service for the original cohort, and the prediction equations were used to predict attrition from a new cohort of recruits entering the service in 1974. The results of this study, which used weighted linear and logit regressions, showed that the regression coefficients and other statistics for the two cohorts were similar, except that the number of primary dependents was not a significant predictor of attrition for the 1974 cohort, and the race variable declined in significance to the 10 percent level.[Ref. 2]

The Armed Services Vocational Aptitude Battery (ASVAB) was developed by a joint services working group to replace the individual services classification test batteries.[Ref. 3]

The ASVAB replaced the Navy's Basic Test Battery on 1 January 1976 as the primary means of Navy recruit aptitude classification.

Although they have looked at a broad range of technical and non-technical rates, none of the studies mentioned above has dealt with the Operations Specialist rate specifically. They have also looked at the general variable of mental group rather than ASVAB subtest scores. This thesis was done to see if the individual subtests of the ASVAB (some of which are used to determine mental group classification) and other variables can be used to predict the performance or personnel in the OS rating. Previous studies concerning premature losses and success of recruits in the Navy support the premise of this thesis that a feasible model for selecting recruits and assigning the correct recruits to the OS rating may help reduce the number of premature losses in that rate, and help to identify those personnel who are likely not to perform successfully.

C. ANALYSIS COHORT

The cohort used for this analysis was made up of all non-prior service personnel entering active duty in the Navy from 30 September 1976 through 31 December 1978. The military enlistment data file maintained on this cohort covered approximately 200,000 individuals through the end of their first enlistment which extended up to 30 November 1982.

The three separate data files that made up the overall data file on this cohort were the Defense Manpower Data Center (DMDC) file, the Naval Health Research Center (NHRC) file, and the Advancement file. Appendix A is a list of the 243 variables contained in the three data files for this cohort; their definitions are also given.

II. METHODOLOGY

A. OS DATA FILE

The analysis in this thesis was conducted using the Statistical Analysis System (SAS) computer program available on the IBM 3033 computer at the Naval Postgraduate School, Monterey, California. The initial step of this analysis was to identify those individuals (total number) in the cohort who were members of The Operations Specialist Rate. Appendix B is the SAS program used to separate the OS's from the other rates. In this analysis, the initial date file was designed to include only male recruits with length of service less than or equal to six years. A total of 3,078 individuals were identified through this process and established the initial data base file used in the analysis.

B. CATEGORY SELECTION

The next step in the analysis was to break up the initial data file of 3,078 people into categories that could be identified as successful, unsuccessful, and average performance groups. The two groups making up the successful and unsuccessful categories accounted for 1,020 personnel in the OS sample file. The remaining sample file members made up the average performance group.

Category I, classified as the successful performance group, contained those individuals who had achieved paygrade E-4 or above in less than four years of service and were recommended for reenlistment. This category contained 552 individuals. Appendix C is the SAS program used to identify these individuals.

Category II, classified as the unsuccessful performance group, contained those individuals who had not made petty officer and were not recommended for reenlistment, regardless of length of service. This category contained 468 individuals. Appendix D is the SAS program used to identify these individuals.

Category III, classified as the average performance group, contained the remaining 2,058 members of the OS data file.

The paygrade variable used in the definition of these categories (PAYGRDE1) was the DMDC file variable that represents the paygrade held by each individual at the time that file was created, or the paygrade held by that individual at the time he separated from the military service if he was no longer in the service.

The recommendation for reenlistment variable was viewed as a significant factor in the delineation of categories I and II personnel, since the nature of the recommendation process within the Navy takes into account an individual's having met various performance, health and physical, and disciplinary standards.

The relative equality of numbers of personnel in category I and category II indicate that an individual randomly selected from the 1,020 people identified stood nearly the same probability of being in one category as the other. The first category identified those individuals who had progressed rapidly through the system by achieving petty officer status in less than four years of service and who had met the standards of success as evidenced by their recommendations for reenlistment. The second category contained individuals who had obviously not met these standards, as evidenced by their lack of a recommendation for reenlistment.

C. METHOD OF ANALYSIS

Once these categories were identified, data from categories I and II were analyzed to produce a model that could be used to identify into which of the two categories future OS recruits would fall. The model was then tested using random members of each category to test its validity.

Data from category III personnel were examined using the model to determine what percentage of its members would have been predicted to fall into either category I or category II.

The actual procedures used in analysis, the results of the analysis, and the conclusions are discussed in chapters 3 and 4.

III. ANALYSIS

A. MODEL VARIABLES

Categories I and II were first analyzed using 16 variables from the original list of 243 variables. Table I lists the variables chosen for this analysis.

TABLE I

DEFINITION OF VARIABLES USED IN THE ANALYSIS

Label For The Variable	Definition Of The Variable
ENTRYAGE	Age of individual at time of entry
CHYEC	Highest year of education
ASVABGI	ASVAB Aptitude Area Score--Subscale GI
ASVABNO	ASVAB Aptitude Area Score--Subscale NO
ASVABAD	ASVAB Aptitude Area Score--Subscale AD
ASVABWK	ASVAB Aptitude Area Score--Subscale WK
ASVABAR	ASVAB Aptitude Area Score--Subscale AR
ASVABSP	ASVAB Aptitude Area Score--Subscale SP
ASVABMK	ASVAB Aptitude Area Score--Subscale MK
ASVABEI	ASVAB Aptitude Area Score--Subscale EI
ASVABMC	ASVAB Aptitude Area Score--Subscale MC
ASVABGS	ASVAB Aptitude Area Score--Subscale GS
ASVABSI	ASVAB Aptitude Area Score--Subscale SI
ASVABAI	ASVAB Aptitude Area Score--Subscale AI
MRTSTAT1	Marital Status (1, Other, 2, Married)
NDPNDNT1	Number of Dependents (1, 0)

The variables chosen are representative of the variables found in the SCREEN study to be indicative of a recruit's chances of successfully completing his first year of enlistment. As stated in the introduction to this thesis, the variables found to be significant in the SCREEN model were education, mental group, age, race, and number of primary

dependents. The twelve subtests of the ASVAB were chosen as independent variables instead of specific mental categories in order to see which of these subtests correlated specifically with the performance of the OS's in each category. Entry age and years of education variables were also used. The marital status variable was added along with the number of dependents even though there existed the definite possibility of collinearity between the two variables. No variable dealing with race or ethnic background was included.

The analysis of categories I and II using these 16 variables was done initially using the Stepwise Discrimination (STEPDISC) Process available in the SAS computer package. Appendix E is the SAS program used in this procedure. This STEPDISC process takes the independent variables and does a stepwise selection of the variables to determine which ones will provide the best model for prediction. Table II shows the results of the STEPDISC process.

Table II shows step 1 of the stepwise selection process and the final step in the process. In step 1 of the process, the 16 variables are entered. The resultant F-statistics are shown in Table II. As can be seen, the F-statistics for marital status and number of dependents are considerably higher than those for the other variables. This is probably due to collinearity between the two variables. A high correlation should be expected between these two variables and was computed to be .8144 in the STEPDISC process.

TABLE II

SUMMARY OF STEPWISE DISCRIMINANT FUNCTION VARIABLE SELECTION

STEPWISE SELECTION: STEP 1

Statistics For Entry, DF = 1,1018

Variable	R**2	F	Prob F	Tolerance
ENTRYAGE	0.0007	0.689	0.4067	1.0000
CHYEC	0.0052	5.294	0.0216	1.0000
ASVABGI	0.0070	7.171	0.0075	1.0000
ASVABNO	0.0003	0.310	0.5775	1.0000
ASVABAD	0.0004	0.415	0.5195	1.0000
ASVABWK	0.0039	3.947	0.0472	1.0000
ASVABAR	0.0031	3.195	0.0741	1.0000
ASVABSP	0.0004	0.446	0.5042	1.0000
ASVABMK	0.0022	2.204	0.1380	1.0000
ASVABEI	0.0022	2.235	0.1352	1.0000
ASVABMC	0.0023	2.359	0.1249	1.0000
ASVABGS	0.0000	0.001	0.9789	1.0000
ASVABSI	0.0001	0.105	0.7463	1.0000
ASVABAI	0.0003	0.327	0.5678	1.0000
MRTSTAT1	0.0506	54.300	0.0001	1.0000
NDPNDNT1	0.0279	29.254	0.0001	1.0000

STEPWISE SELECTION: SUMMARY

Variable Entered	Partial R**2	F Statistic	Prob F	Wilks' Lambda	Prob Lambda	Average Squared Canonical Correlation	Prob ASCC
MRTSTAT1	0.0506	54.300	0.0001	0.94936160	0.0001	0.05063840	0.0001
ASVABGI	0.0082	8.380	0.0039	0.94160255	0.0001	0.05839745	0.0001
ASVABWK	0.0088	8.990	0.0028	0.93334347	0.0001	0.06665653	0.0001
ASVABEI	0.0046	4.727	0.0299	0.92901680	0.0001	0.07098320	0.0001
ASVABMC	0.0052	5.334	0.0211	0.92415503	0.0001	0.07584497	0.0001
ASVABAR	0.0055	5.618	0.0180	0.91905816	0.0001	0.08094184	0.0001
ASVABMK	0.0077	7.861	0.0051	0.91197454	0.0001	0.08802546	0.0001
CHYEC	0.0032	3.205	0.0737	0.90909284	0.0001	0.09090716	0.0001

Note: The variables are defined in Table I.

The STEPDISC process then removes the variable with the highest F-statistic and builds an equation with the remaining variables. The stepwise selection summary in Table II shows that 8 of the original 16 variables are significant and gives them in decreasing order of significance. Definitions of terms in Table II may be found in the 1982 edition of the SAS Users Guide: Statistics.

B. DISCRIMINANT ANALYSIS

Once the relevant independent variables were identified in the STEPDISC procedure, categories I and II were analyzed using those variables to develop a model that could be used for classification of recruits into one of these two categories. This model building was done using the Discriminant Analysis Procedure in the SAS program as depicted in Appendix F.

The model developed is shown in Table III which delineates for each category the constant term and a coefficient for each significant variable in the equation.

The discriminant function procedure also provides a classification summary. This is depicted in Table IV, which shows the number of observations and percents classified into each category.

The Table IV classification summary indicates that of the 552 individuals actually in category I, approximately 56 percent (308) were predicted to be in category I (hits), and that approximately 44 percent (244) were predicted to be in

category II (misses). Likewise for category II, approximately 68 percent (317) of the 468 people actually in category II were predicted to be in that category (hits), and the remaining 32 percent (151) were predicted to be in category I (misses).

TABLE III

PREDICTION MODEL DISCRIMINANT COEFFICIENTS

	Category 1	Category 2
CONSTANT	-108.37320035	-106.39075573
MRTSTAT1	6.76016742	5.67675421
ASVABGI	0.45790421	0.32968561
ASVABWK	0.85635471	0.90707747
ASVABEI	0.41074409	0.46153362
ASVABMC	0.02772286	-0.02994775
ASVABAR	1.12449920	1.21932033
ASVABMK	-0.47501570	-0.52863728
CHYEC	13.77296273	13.63747563

Category I is made up of OS's that made E-4 or above in less than four years and are recommended for reenlistment.

Category 2 is made up of OS's that have not made petty officer and are not recommended for reenlistment.

Note: The variables are defined in Table I.

TABLE IV

HIT/MISS TABLE REPRESENTING ACCURACY OF MODEL CLASSIFICATION

NUMBER OF OBSERVATIONS AND PERCENTS CLASSIFIED INTO CATEGORY*

		Predicted Category 1	2	Total
Actual Category	1	308	244	552
		55.80	44.20	100.00
	2	151	317	468
		32.26	67.74	100.00

* Category 1 is made up of OS's that have made E-4 or above in less than four years and are recommended for reenlistment.

Category 2 is made up of OS's that have not made petty officer and are not recommended for reenlistment.

C. MODEL TESTING

After developing the model, it was necessary to determine its validity as a predictive tool. This was done for categories I and II using a discriminant procedure shown in the SAS program in Appendix G. This procedure takes approximately two-thirds of the group being analyzed in each category and develops a model using the Discriminant Analysis Procedure. This is a developmental sample. Using the relevant variables, the model (the variables and their coefficients) is applied to the remaining one-third of the group to determine into which category they would be classified. This is the cross-validation sample. The results of this procedure indicate the validity of the model. The

developmental sample model variables and coefficients are shown in Table V.

TABLE V

DEVELOPMENTAL SAMPLE MODEL COEFFICIENTS

	Category 1	Category 2
CONSTANT	-109.42347787	-107.98784561
MRTSTAT1	5.73965799	4.79188092
ASVABGI	0.20963205	0.04365598
ASVABWK	0.82114823	0.88226526
ASVABEI	0.51307685	0.56478652
ASVABMC	-0.04452082	-0.11553667
ASVABAR	1.07611431	1.17494105
ASVABMK	-0.51158167	-0.55835371
CHYEC	14.37195942	14.27949365

Category 1 is made up of OS's that have made E-4 or above in less than four years and are recommended for reenlistment.

Category 2 is made up of OS's that have not made petty officer and are not recommended for reenlistment.

Note: The variables are defined in Table I.

The results of this test are shown in Table VI and give the predicted observations and classifications by category, and the actual observations and classifications by category for the developmental sample and the cross-validation sample.

D. CATEGORY III PREDICTION

The next step in the analysis was to test category III (the average group of OS's) to determine what percentage of that category would be predicted to fall into either category I or category II. This test used a discriminant

procedure similar to that used in testing the predictive validity of the model. The procedure randomly selected approximately two-thirds of the category I and II personnel to produce a developmental model and then classified the category III personnel using that model. The variable coefficients for that developmental model are shown in Table VII. The SAS program procedure steps for this test are shown in Appendix H. Table VIII shows the classifications for all three of the categories as predicted by this procedure.

TABLE VI

RESULTS OF CATEGORY I AND II PREDICTION MODEL TESTING

NUMBER OF OBSERVATIONS AND PERCENTS CLASSIFIED INTO CATEGORY*

		Developmental Sample I				Cross Validation Sample I			
		Predicted Category				Predicted Category			
		1	2	Total		1	2	Total
Actual Category	1	211	154	365	Actual Category	113	74	187
		57.81	42.19	100.00		60.43	39.57	100.00
	2	110	198	308	2	58	102	160
		35.71	64.29	100.00		36.25	63.75	100.00

Category 1 is made up of OS's that have made E-4 or above in less than four years and are recommended for reenlistment.

Category 2 is made up of OS's that have not made petty officer and are not recommended for reenlistment.

TABLE VII

CATEGORY III DEVELOPMENTAL MODEL COEFFICIENTS

	Category 1	Category 2
CONSTANT	-111.95325119	-110.16693586
MRTSTAT1	6.99376710	5.83142944
ASVABGI	0.20630423	0.10606098
ASVABWK	0.94810381	0.99652699
ASVABEI	0.36623999	0.39391853
ASVABMC	-0.07623129	-0.14539578
ASVABAR	1.14818701	1.27837018
ASVABMK	-0.45090117	-0.52410262
CHYEC	14.54394249	14.43825244

Category 1 is made up of OS's that have made E-4 or above in less than four years and are recommended for reenlistment.

Category 2 is made up of OS's that have not made petty officer and are not recommended for reenlistment.

Note: The variables are defined in Table I.

As shown in Table VIII, approximately 56 percent of category III personnel would be predicted to fall into category I, and the remaining 44 percent would be predicted to fall into category II.

TABLE VIII

RESULTS OF CATEGORY III PREDICTION

NUMBER OF OBSERVATIONS AND PERCENTS
CLASSIFIED INTO CATEGORY

Actual Category		Predicted Category 1	2	Total
	1	210	164	374
		56.15	43.85	100.00
	2	106	215	321
		33.02	66.98	100.00
Total		316	379	695
Percent		45.47	54.53	100.00
	3	1,145	913	2,058
		55.64	44.36	100.00
Total		1,145	913	2,058
Percent		55.64	44.36	100.00

Category 1 is made up of OS's that made E-4 or above in less than four years and are recommended for reenlistment.

Category 2 is made up of OS's that have not made petty officer and are not recommended for reenlistment.

Category 3 is made up of OS's not classified in either category 1 or 2.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

With minor exception, the variables selected as significant indicators of membership in both categories I and II are similar to those found to be significant in the SCREEN table. The age variable used in the SCREEN table was found not to be relevant in this analysis, and the number of dependents variable was replaced by the marital status variable. One interesting point is the very high significance related to marital status in relation to the other relevant variables. The F-statistic for marital status and its significance level are much greater than the F-statistics of the other variables.

The coefficients of the eight significant variables (Table III) are relatively close to one another in size. The coefficient for marital status is higher for category I than for category II; indicating that category I personnel are more likely to be married. It can also be seen that those in category I scored substantially better in the ASVAB subscale MC than did those in category II.

In order to determine if the model developed is a valid predictive tool, the results of the cross validation sample (Table VI) must be compared to the category base rate. The category base rate is determined from the number of observations used in developing the model (Table IV). The

base rate for category I is 54.1 percent (552/1,020) and the base rate for category II is 45.9 percent (468/1,020). The base rates indicate that an individual randomly chosen and classified strictly be chance will be correctly classified as a category I person 54.1 percent of the time, and correctly classified as a category II person 45.9 percent of the time. For the model to be considered a good predictive tool, the results of the cross validation sample should be an improvement over the accuracy attainable from the base rate. Table IX shows the comparison of the base rates with the results of the cross validation sample by category for the cross-validation test conducted.

TABLE IX

COMPARISON OF BASE RATE TO CROSS VALIDATION RESULTS

Category	Base Rate	Cross-Validation Sample Hit Rate
1	54.1	60.43
2	45.9	63.75
Overall Hit Rate	--	61.96

Category 1 is made up of OS's that have made E-4 or above in less than four years and are recommended for reenlistment.

Cateogry 2 is made up of OS's that have not made petty officer and are not recommended for reenlistment.

As can be seen in Table IX, the cross-validation accuracy (hit rate) for category I is better than the base rate and for category II, the cross-validation accuracy is

significantly better than the base rate. This indicates that the model should provide a reasonable prediction tool for category I, and a very good prediction tool for category II personnel.

An overall hit rate was computed for the model by taking the ratio of the sum of the hits in both categories to the total number of observations in both categories of the cross-validation sample. This overall hit rate is also shown in Table IX.

The results of the category III personnel prediction tests (Table VIII) demonstrate the averageness of the people in category III. The nearly equal numbers of category III personnel classified into categories I and II (1,145 and 913 respectively) indicates that there may be other factors that will determine whether these category III personnel are eventually successful or unsuccessful.

A direct comparison of the accuracy of this model with the accuracy of the SCREEN model is complicated by the fact that different independent variables were used.

B. USES OF THE MODEL

This model can be used primarily by recruiters, AFEES centers, or Naval Training Commands for recruit classification. By taking this model and applying the applicable variables to a group of recruits, it could be determined which ones would probably perform successfully or unsuccessfully as Operations Specialists.

For example, a recruit or group of recruits that had expressed a desire to become OS's after recruit training could be judged according to this predictive model. Those who had scores indicating successful performance based on this model could be assigned to fill OS A-school billets on a priority basis enabling them to develop their skills as Operations Specialists as soon as possible. Those whose scores indicated they would not be successful as OS's could be steered to other ratings.

This model could also be used in conjunction with similar models developed for other ratings. By applying this model and other similar ones to recruits who have not expressed a desire for any particular rating, prediction could be made concerning which recruits would perform better as OS's or in other ratings, and thereby develop a list of ratings for which a recruit should be considered. These recommendations would be based on predicted scores (success/nonsuccess) for each recruit.

By using this model in these fashions, recruits can probably be better classified and assigned. This will benefit both the recruits and the Navy by enabling recruits to be assigned to ratings where they stand a better chance of succeeding, and by giving the Navy a better method of ensuring that its ratings are filled by those people with the best chances of succeeding.

C. RECOMMENDATIONS

It is recommended that further analyses be done to determine better the separation point for classifying recruits as category I or category II individuals. It is also recommended that further analysis be conducted to see if other variables might provide a better classification tool that the SCREEN table.

It is also possible that further analysis could be conducted on the category III (average performers) personnel using other varialbes and regression techniques. These analyses might better differentiate successful from unsuccessful performers.

Further analysis could be conducted of this model in conjunction with the SCREEN model to determine what correlation exists between predictions of the two models, and to determine if the model developed here provides an incremental validity over the validity of SCREEN.

APPENDIX A

COHORT FILE VARIABLES

CENSUSRG	Census Region (10 codes)
CENSUSDS	Census District (5 codes)
HOMEZIP	Home of Record Zip Code
HMESTATE	Home of Record State
DATEDETY	Year of Final Qualifying Determination
DATEDETM	Month of Final Qualifying Determination
BIRTHYR	Year of Birth
BIRTHMTH	Month of Birth
BIRTHDAY	Day of Birth
ENTRYAGE	Age of Individual at Time of Entry
RECORDID	Record ID--Exam Score, Dep, Active Duty
HYEC	Highest Year of Education
SEX	(1) Male, (2) Female
RACE	(1) White, (2) Black, (3) Other
ETHNIC	Individual's Reported Ethnic Status
RACEETHN	Six Race/Ethnic Combinations
MRTLDPND	Marital Status/Dependents
TESTFORM	Test Form/EOFA, ASVAB, ASWST, AFQT, OSB
AFQTPCNT	AFQT Percentile (or equivalent)
AFQTGRPS	AFQT Groups (5, 4C, 4B, 4A, 3B, 3A, 2, 1)
ASVABGI	ASVAB Aptitude Area Score--Subscale GI
ASVABNO	ASVAB Aptitude Area Score--Subscale NO
ASVABAD	ASVAB Aptitude Area Score--Subscale AD

ASVABWK	ASVAB Aptitude Area Score--Subscale WK
ASVABAR	ASVAB Aptitude Area Score--Subscale AR
ASVABSP	ASVAB Aptitude Area Score--Subscale SP
ASVABMK	ASVAB Aptitude Area Score--Subscale MK
ASVABEI	ASVAB Aptitude Area Score--Subscale EI
ASVABMC	ASVAB Aptitude Area Score--Subscale MC
ASVABGS	ASVAB Aptitude Area Score--Subscale GS
ASVABSI	ASVAB Aotutude Area Score--Subscale SI
ASVABAI	ASVAB Aptitude Area Score--Subscale AI
SERVACCS	Service of Accession (Navy, 2)
PRIORSRV	Prior Service (Non-Prior Service, 1)
PUL	General Health, Upper and Lower Extremities
HES	Hearing, Vision, Psychiatric Well Being
ASVABCM	ASVAB Aptitude Area Score--Subscale CM
ASVABCA	ASVAB Aptitude Area Score--Subscale CA
ASVABCE	ASVAB Aptitude Area Score--Subscale CE
ASVABCC	ASVAB Aptitude Area Score--Subscale CC
ENTRYSTA	Entry Status (1, Direct to Active Duty)
HEIGHT	Height in inches (Fractions Dropped)
WEIGHT	Weight in pounds (fractions rounded)
SYSTOLBP	Systolic Blood Pressure
DIASTLBP	Diastolic Blood Pressure
MEDFAIL1	Primary Medically Disqualifying Defect
MEDFAIL2	Secondary Medically Disqualifying Defect
MEDFAIL3	Tertiary Medically Disqualifying Defect
WAIVER	Permit Code for Otherwise Ineligible
WAIVERAL	Waiver Approval Level and Explanation
EXAMSTAT	Exam Status (1, Fully Qualified)

TERMENLT	Term of Enlistment (Number of Years)
ENTRPAYG	Entry Paygrade
HOMECNTY	Home of Record County
PROGENLT	Program Enlisted for--Service Unique
AFEESSTA	Military Entrance Processing Stations
BONUSOPT	Bonus Option, Combat or Non-Combat
ENLSTOPT	Enlistment Option
YOUTHPRG	Youth and Reserve Training Programs
TAPEDATE	Month of File on Which Record Submitted
TRANLMOS	Occup. Specialty/Rating Choice Upon Entry
TAFMS1	Months of Total Active Federal Military Service
DPOC1	DOD Primary Occupation Code
DDOC1	DOD Duty Occupation Code
HYEC1	Highest Year of Education
PAYGRDE1	Paygrade as of Date of File/Separation
SERVICE1	Service Code (2, Navy)
MRTSTAT1	Marital Status (1, Other, 2, Married)
NDPNDNT1	Number of Dependents (1, None)
SPNSPD1	Separation Program Designator
ISC1	Inter-Service Separation Code
SEPRT1YR	Year of Separation (2nd DMDC Section)
SEPRT1MT	Month of Separation (2nd DMDC Section)
SEPRT1DY	Day of Separation (2nd DMDC Section)
BASD1YR	Year of Active Duty Base Date
BASD1MTH	Month of Active Duty Base Date
BASD1DAY	Day of Active Duty Base Date
ETS1YEAR	Estimated Year of Fulfilled Active Duty

ETS1MNTH	Estimated Month of Fulfilled Active Duty
CHARSRV1	Character of Service
ELGREUP1	Reenlistment Eligibility
PEBD1YR	Year of Pay Entry Base Date
PEBD1MTH	Month of Pay Entry Base Date
PEBD1DAY	Day of Pay Entry Base Date
ENTRYYR	Year of Entry to Active Duty/D.E.P.
ENTRYMTH	Month of Entry to Active Duty/D.E.P.
ENTRYDAY	Day of Entry to Active Duty/D.E.P.
SEPRT1YR	Year of Separation (2nd DMDC Section)
SEPRT1MT	Month of Separation (2nd DMDC Section)
SEPRT1DY	Day of Separation (2nd DMDC Section)
BASD1YR	Year of Active Duty Base Date
BASD1MTH	Month of Active Duty Base Date
BASD1DAY	Day of Active Duty Base Date
PEBD2YR	Year of Pay Entry Base Date
PEBD2MTH	Month of Pay Entry Base Date
PEBD2DAY	Day of Pay Entry Base Date
SEPRT2YR	Year of Separation (3rd DMDC Section)
SEPRT2MT	Month of Separation (3rd DMDC Section)
SEPRT2DY	Day of Separation (3rd DMDC Section)
BASD2YR	Year of Active Duty Base Date
BASD2MTH	Month of Active Duty Base Date
BASD2DAY	Day of Active Duty Base Date
ETS2YEAR	Estimated Year of Fulfilled Active Duty
ETS2MNTH	Estimated Month of Fulfilled Active Duty

TAFMS2	Months of Total Active Federal Military Service
DPOC2	DOD Primary Occupational Code
DDOC2	DOD Duty Occupational Code
HYEC2	Highest Year of Education
PAYGRDE2	Paygrade as of Date of File/Separation
SERVICE2	Service Code (2, Navy)
MRTSTAT2	Marital Status (1, Other, 2, Married)
NDPNDNT2	Number of Dependents (1, None)
SPNSPD2	Separation Program Designator
ISC2	Inter-Service Separation Code
CHARSRV2	Character of Service
ELGREUP2	Reenlistment Eligibility
PEBD3YR	Year of Pay Entry Base Date
PEBD3MTH	Month of Pay Entry Base Date
PEBD3DAY	Day of Pay Entry Base Date
SEPRT3YR	Year of Separation (4th DMDC Section)
SEPRT3MT	Month of Separation (4th DMDC Section)
SEPRT3DY	Day of Separation (4th DMDC Section)
BASD3YR	Year of Active Duty Base Date
BASD3MTH	Month of Active Duty Base Date
BASD3DAY	Day of Active Duty Base Date
ETS3YEAR	Estimated Year of Fulfilled Active Duty
ETS3MNTH	Estimated Month of Fulfilled Active Duty
TAFMS3	Months of Total Active Federal Military Service
TAFMS4	Months of Total Active Federal Military Service
DPOC3	DOD Primary Occupational Code
DDOC3	DOD Duty Occupational Code

HYEC3	Highest Year of Education
PAYGRDE3	Paygrade as of Date of File/Separation
SERVICE3	Service Code (2, Navy)
MRTSTAT2	Marital Status (1, Other, 2, Married)
NDPNDNT3	Number of Dependents (1, None)
SPNSPD3	Separation Program Designator
ISC3	Inter-Service Separation Code
CHARSRV3	Character of Service
ELGREUP3	Reenlistment Eligibility
FILEMTCH	Byte Binary File Match Indicators
DOEYRDEP	Date of Entry Year Into D.E.P.
DOEMTDEP	Date of Entry Month Into D.E.P.
MNTHSDEP	Months in D.E.P.
SPFLGML	Spanish Flag Master/Loss
DCPGMNTH	Month of DCPG
DCPGYR	Year of DCPG
GCT	Basic Battery GCT
ARI	Basic Battery ARI
MECH	Basic Battery Mech
CLER	Basic Battery Cler
PNEC	Navy Enlisted Job Code
CTZNSHIP	Citizenship Code
BRCL	Branch/Class
GROUPIND	Group Indicator
AUTHRATE	Authorized Rate
EDPGYR	Effective Date of Paygrade

SCHLCODE	School Code
SCHLWVR	School Waiver
PRESRATE	Present Rate
PRRTABRV	Present Rate Abbreviated
EXAMRATE	Examination Rate Code
EXRTABRV	Examination Rate Abbreviated
TOTLRAW	Total Raw Score
STDNAVY	Standardized Navy Score
PRCODE	Process Code
ALTPRCDE	Alternate Process Code
FINLMULT	Candidate's Final Multiple
FNMLTCUT	Final Multiple Cut
PRFFACTR	Performance Factor
AWIFACTR	AWI Factor
CHNGRATE	Change of Rate Indicator
NENLSTMT	Number of Enlistments
EAOS	Expiration of Active Obligated Service
TAS	Total Active Service
OAS	Other Active Service
SIPG	Service in Paygrade
LOSCODE	Length of Service
LOSWVR	Length of Service Waiver
TIR	Time in Rate
TIRWVR	Time in Rate Waiver
ADBD	Active Duty Base Date
EDPG	Effective Date of Paygrade

DTIS	Drill Time in Service
NCHANGES	Number of Changes/Entries in NHRC File
AGE	Candidate's Current Age
NHRCGCT	NHRC File's General Classification Test
NHRCAFQT	NHRC File's Armed Forces Qualification Test
MENTLGRP	Mental Group Code
EDCERTIF	Education Certificate
MOBLDSGN	Military Obligation Designator
HYDNPNDT	Highest Number of Primary Dependents
GRP4PROG	Group IV Program Code
SSDUTY	Sea-Shore Duty Indicator
REGRESRV	Regular Reserve Indicator
HYPAYGRD	Highest Paygrade
NOTRCMD	Not Recommended for Reenlistment
SSNCHNGE	Social Security/Name Change
TOTPROMO	Total Promotions
TOTLDEMO	Total Demolitions
TOTLAWOL	Total UA/AWOL
TOTDESRT	Total Desertions
TOTMLTCN	Total Military Confinements
TOTCVLCN	Total Civilian Confinements
LNGTHSRV	Length of Service
SCREEN	SCREEN Score
ATTRITCD	Attrition Indicator
RECNTC	Recruit Naval Training Command
RECENLST	Recruit Type of Enlistment

RECPROGM	Recruit Program at Enlistment
RECPRGSC	Recruit Program/School
RCPGSCRT	Recruit Program/School Rate
ELSTHIST	Enlisted History Status
NDAYSE2	Computed Number Days to E-2 Rating
NDAYSE3	Computed Number Days to E-3 Rating
NDAYSE4	Computed Number Days to E-4 Rating
DOLE1YR	Year of Last Reenlistment
DOLE1MTH	Month of Last Reenlistment
DOLE2YR	Year of Last Reenlistment
DOLE2MTH	Month of Last Reenlistment
DOLE3YR	Year of Last Reenlistment
DOLE3MTH	Month of Last Reenlistment
DMDCRATE	Final Rating as Listed by DMDC
DMDCNEC	Final NEC as Listed by DMDC
DMDCUIC	Final UIC as Listed by DMDC

APPENDIX B

SAS PROGRAM FOR OS FILE SEPARATION

```
//Wardlaw Job (1197,0001),'W.E.Wardlaw',Class=K
//  EXEC SAS
//SAS.Work DD Space=(CYL,(10,10)),DISP=(New,Delete,Delete),
//  VOL=SER=(MVS012,MVS009,MVS004),Unit=3350
//Filein DD Unit=3400-5,VOL=SER=NPS709,
//  DISP=OLD,DSN=Enlist.All.A7678
//Fileout DD Unit=3330V,MSVGP=PUB42,DISP=(New,CATLG),
//       DSN=MSS.S1197.OSONE,
//         DCB=(BLKSIZE=6400)
//SYSIN DD *
Options Errors=0;
Data Fileout.OSONE;
      Infile Filein; Input
@  5 CENSUSRG PIBI. @  6 CENSUSDS PIBI. @  7 HOMEZIP  PIB3.
@ 10 HMESTATE PIBI. @ 11 DATEDETY PIBI. @ 12 DATEDETM PIBI.
@ 13 BIRTHYR  PIBI. @ 14 BIRTHMTH PIBI. @ 15 BIRTHDAY PIBI.
@ 16 ENTRYAGE PIBI. @ 17 RECORDID PIBI. @ 18 HYEC     PIBI.
@ 19 SEX      PIBI. @ 20 RACE     PIBI. @ 21 ETHNIC   PIBI.
@ 22 RACEETHN PIBI. @ 23 MRTLDPND PIBI. @ 24 TESTFORM PIBI.
@ 25 AFQTPCNT PIBI. @ 26 AFQTGRPS PIBI. @ 27 ASVABGI  PIBI.
@ 28 ASVABNO  PIBI. @ 29 ASVABAD  PIBI. @ 30 ASVABWK  PIBI.
@ 31 ASVABAR  PIBI. @ 32 ASVABSP  PIBI. @ 33 ASVABMK  PIBI.
@ 34 ASVABEI  PIBI. @ 35 ASVABMC  PIBI. @ 36 ASVABGS  PIBI.
@ 37 ASVABSI  PIBI. @ 38 ASVABAI  PIBI. @ 39 SERVACCS PIBI.
```

```
@ 40 PRIORSRV PIBI. @ 41 PUL      PIBI. @ 42 HES      PIBI.
@ 43 ASVABCM  PIBI. @ 44 ASVABCA  PIBI. @ 45 ASVABCE  PIBI.
@ 46 ASVABCC  PIBI. @ 47 ENTRYSTA PIBI. @ 48 HEIGHT   PIBI.
@ 49 WEIGHT   PIBI. @ 50 SYSTOLBP PIBI. @ 51 DIASTLBP PIBI.
@ 52 MEDFAIL1 PIBI. @ 53 MEDFAIL2 PIBI. @ 54 MEDFAIL3 PIBI.
@ 55 WAIVER   PIBI. @ 56 WAIVERAL PIBI. @ 57 EXAMSTAT PIBI.
@ 58 ENTRYYR  PIBI. @ 61 TERMENLT PIBI. @ 62 ENTRPAYG PIBI.
@ 59 ENTRYMTH PIBI. @ 60 ENTRYDAY PIBI.
@ 63 HOMECNTY PIB2. @ 65 PROGENLT PIB5. @ 72 AFEESSTA PIBI.
@ 73 BONUSOPT PIBI. @ 74 ENLSTOPT PIBI. @ 75 YOUTHPRG PIBI.
@ 78 TAPEDATE PIBI. @ 81 TRENLMOS PIB5. @ 86 TAFMS1   PIB2.
@ 88 DPOC1    PIB2. @ 90 DDOC1    PIB2. @ 92 HYEC1    PIBI.
@ 93 PAYGRDE1 PIBI. @ 94 SERVICE1 PIBI. @ 95 MRTSTAT1 PIBI.
@ 96 NDPNDNT1 PIBI. @ 97 SPNSPD1  PIB3. @100 ISC1     PIBI.
@101 SEPRT1YR PIBI. @102 SEPRT1MT PIBI. @103 SEPRTIDY PIBI.
@104 BASD1YR  PIBI. @105 BASD1MTH PIBI. @106 BASD1DAY PIBI.
@107 ETS1YEAR PIBI. @108 ETS1MNTH PIBI.
@109 DOLE1YR  PIBI. @110 DOLE1MTH PIBI.
@113 PEBD1YR  PIBI. @114 PEBD1MTH PIBI. @115 PEBD1DAY PIBI.
@111 CHARSRV1 PIBI. @112 ELGREUP1 PIBI.
@116 FILEFLG1 PIB2. @118 TAFMS2   PIB2.
@120 DPOC2    PIB2. @122 DDOC2    PIB2. @124 HYEC2    PIBI.
@125 PAYGRDE2 PIBI. @126 SERVICE2 PIBI. @127 MRTSTAT2 PIBI.
@128 NDPNDNT2 PIBI. @129 SPNSPD2  PIB3. @132 ISC2     PIBI.
@133 SEPRT2YR PIBI. @134 SEPRT2MT PIBI. @135 SEPRT2DY PIBI.
@136 BASD2YR  PIBI. @137 BASD2MTH PIBI. @138 BASD2DAY PIBI.
```

```
@139 ETS2YEAR PIBI. @140 ETS2MNTH PIBI.
@141 DOLE2YR  PIBI. @142 DOLE2MTH PIBI.
@145 PEBD2YR  PIBI. @146 PEBD2MTH PIBI. @147 PEBD2DAY PIBI.
@143 CHARSRV2 PIBI. @144 ELGREUP2 PIBI.
@148 FILEFLG2 PIB2. @150 TAFMS3   PIBI.
@151 TAFMS4   PIBI. @152 DPOC3    PIB2. @154 DDOC 3   PIB2.
@156 HYEC3    PIBI. @157 PAYGRDE3 PIBI. @158 SERVICE3 PIBI.
@159 MRTSTAT3 PIBI. @160 NDPNDNT3 PIBI. @161 SPNSPD3  PIB3.
@165 SEPRT3YR PIBI. @166 SEPRT3MT PIBI. @167 SEPRT3DY PIBI.
@168 BASD3YR  PIBI. @169 BASD3MTH PIBI. @170 BASD3DAY PIBI.
@171 ETS3YEAR PIBI. @172 ETS2MNTH PIBI.
@173 DOLE3YR  PIBI. @174 DOLE3MTH PIBI.
@177 PEBD3YR  PIBI. @178 PEBD3MTH PIBI. @179 PEBD3DAY PIBI.
@164 ISC3     PIBI.
@175 CHARSRV3 PIBI.
@176 ELGREUP3 PIBI. @180 FILEFLG3 PIB2.
@182 FILEMTCH PIB4. @186 DOEYRDEP PIBI. @187 DOEMTDEP PIBI.
@188 MNTHSDEP PIBI. @189 SPFLGML  PIBI.
@190 DCPGYR   PIBI. @191 DCPGMNTH PIBI.
@212 GCT         2. @214 ARI         2. @216 MECH        2.
@218 CLER        2. @220 AFQTS       2. @222 PNEC       $4.
@227 CTZNSHIP   $1.
@229 PRIDEPND   $1. @230 SECDEPND   $1. @231 BRCL       $2.
@233 GROUPIND   $1. @234 AUTHRATE   $4. @240 EDPGYR     $4.
@244 SCHLCODE   $1. @245 SCHLWVR    $1. @246 ASTAR      $1.
@247 TSSIND     $1. @250 PRESRATE   $4.
```

```
@254 NUMPG1      $1. @255 PRRTABRV    $3. @258 EXAMRATE    $4.
@262 NUMPG2      $1. @263 EXRTABRV    $3. @266 TOTLRAW      3.
@269 STDNAVY      2. @272 PRCODE      $2. @274 ATLPRCDE     $2.
@276 FINLMULT     5. @281 FNMLTCUT     5. @287 PRFFACTR     3.
@290 AWIFACTR     2. @292 CHNGRATE    $1.
@296 RATEIND     $1. @297 SPPROIND    $1. @298 TYPENLST     $2.
@301 MODEST      $1. @302 NENLSTMT     1.
@303 EAOS  YYMMDD6. @309 TAS         $4. @313 OAS          $4.
@317 LOSCODE     $1. @318 LOSWVR     $1. @319 SIPG         $4.
@323 TIRWVR      $1. @324 TIR        $4.
@336 ADBD  YYMMDD6. @343 EDPG  YYMMDD6. @349 DTIS          3.
@352 RECFORES     1. @356 NCHANGES     3. @384 AGE          2.
@386 NHRCGCT      2. @388 NHRCAFQT     2. @390 MENTLGRP     $1.
@391 EDCERTIF    $1. @392 MOBLDSGN    $1. @394 HYNDPNDT     2.
@396 GRP4PROG    $2. @398 SSDUTY      $1. @399 REGRESRV     $1.
@400 HYPAYGRD    $1. @401 NOTRCMD     $1. @402 SSNCHNGE     $1.
@403 TOTPROMO     2. @405 TOTLDEMO     1. @406 TOTLAWOL     1.
@407 TOTDESRT     1. @408 TOTMLTCN     1. @409 TOTCVLCN     1.
@412 LNGTHSRV    $4. @416 SCREEN       2. @418 ATTRITCD     $1.
@419 RECNTC      $1. @420 RECENLST    $2. @422 RECPROGM     $1.
@423 RECPRGSC    $2. @425 RCPGSCRT    $4. @435 ELSTHIST     $1.
@436 NDAYSE2      4. @440 NDAYSE3      4. @444 NDAYSE4      4.
@449 DMDCRATE    $3. @452 DMDCNEC     $4. @456 DMDCUIC     $6.;
FLAGOO1=0;
IF DMDCRATE='OS' THEN FLAGOO1=1;
IF PRRTABRV='OS' THEN FLAGOO1=1;
```

```
IF RCPGSCRT='0300' THEN FLAG001=1;
IF EXAMRATE='0300' THEN FLAG001=1;
IF FLAG001=1;
IF PRIORSRV=1;
IF ENTRYAGE>=17;
IF HYEC=13 THEN HYEC=6;
IF SEX=1;
IF ((TESTFORM GE 35) AND (TESTFORM LE 37));
IF ASVABGI<=15;IF ASVABNO<=50;IF ASVABAD<=30;IF ASVABWK<=30;
IF ASVABAR<=20;IF ASVABSP<=20;IF ASVABMK<=20:IF ASVABEI<=30;
IF ASVABMC<=20;IF ASVABGS<=20;IF ASVABSI<=20;IF ASVABAI<=20;
IF PRFFACTR<=400;PRFFACTR=PRFFACTR/100;
IF AWIFACTR<=6;
IF SCHLCODE='1' THEN SCHLCOED='1';ELSE SCHLCODE='0';
NUSCHCDE=SCHLCODE+0;
IF TOTPROMO<=5;
NUATTRIT=ATTRITCD+0;IF NUATTRIT=2 THEN NUATTRIT=1;
ELSE NUATTRIT=0;
NUNOTRC=NOTRCMD+0;
NUHYPAY=HYPAYGRD+0;
IF TOTLDEMO<=3;
IF TOTLAWOL<=5;
IF TOTDESRT<=3;
IF LNGTHSRV NE '0000';IF LNGTHSRV NE '0600';IF LNGTHSRV NE '0601';
IF LNGTHSRV NE '0602';IF LNGTHSRV NE '0603';IF LNGTHSRV NE '0604';
IF LNGTHSRV NE '0605';IF LNGTHSRV NE '0606';IF LNGTHSRV NE '0607';
```

```
IF LNGTHSRV NE '0608';IF LNGTHSRV NE '0609';IF LNGTHSRV NE '0610';
IF LNGTHSRV NE '0611';IF LNGTHSRV NE '0806';IF LNGTHSRV NE '1003';
IF LNGTHSRV NE '1004';IF LNGTHSRV NE '1005';IF LNGTHSRV NE '1006';
TNDAYSE2=LOG(NDAYSE2+1);TNDAYSE3=LOG(NDAYSE3+1);TNDAYSE4=LOG(NDAYSE4+1);
IF NDAYSE2=9999 THEN NDAYSE2=2000;
IF NDAYSE3=9999 THEN NDAYSE3=2000;
IF NDAYSE4=9999 THEN NDAYSE4=2000;
PROC FREQ;
TABLES DMDCRATE RCPGSCRT PRRTABRV EXAMRATE;
/*
//
```

APPENDIX C

SAS PROGRAM FOR CATEGORY I IDENTIFICATION

```
//Wardlaw7 Job (1197,0001),'W.E.Wardlaw',Class=A
//  EXEC SAS
//Filein DD DISP=SHR,DSN=MSS.S1197.OSONE
//SYSIN DD *
Data: Set Filein.OSONE;
IF PAYGRDE1 GE 4;
IF NOTRCMD EQ 0;
IF LNGTHSRV LT '0400';
PROC FREQ;
TABLES DMDCRATE RCPGSCRT PRRTABRV EXAMRATE:
/*
//
```

APPENDIX D

SAS PROGRAM FOR CATEGORY II IDENTIFICATION

```
//Wardla15 Job (1197,0001),'W.E.Wardlaw',Class=A
//  EXEC SAS
//Filein DD DISP=SHR, DSN=MSS.S1197.OSONE
//SYSIN DD *
Data;Set Filein.OSONE;
IF PAYGRDE1 LT 4;
IF NOTRCMD EQ 1;
PROC FREQ;
TABLES DMDCRATE RCPGSCRT PRRTABRV EXAMRATE:
/*
//
```

APPENDIX E

SAS PROGRAM-STEPWISE DISCRIMINANT ANALYSIS PROCEDURE

```
//Wardla21 Job (1197,0001),"W.E.Wardlaw',Class=C
//  EXEC SAS
//Filein DD DISP=SHR,DSN=MSS.S1197.OSONE
//SYSIN DD *
Data;Set Filein.OSONE;
IF HYEC=1  THEN CHYEC=3.5;
IF HYEC=2  THEN CHYEC=8;
IF HYEC=3  THEN CHYEC=9;
IF HYEC=4  THEN CHYEC=10;
IF HYEC=5  THEN CHYEC=11;
IF HYEC=6  THEN CHYEC=12;
IF HYEC=7  THEN CHYEC=13;
IF HYEC=8  THEN CHYEC=14;
IF HYEC=9  THEN CHYEC=15;
IF HYEC=10 THEN CHYEC=16;
IF HYEC=11 THEN CHYEC=18;
IF HYEC=12 THEN CHYEC=20;
IF HYEC=13 THEN CHYEC=11.5;
HYEC=CHYEC;
IF ((PAYGRDE1 GE 4) AND (NOTRCMD EQ 0) AND (LNGTHSRV LT '400'))
THEN CATEGORY =1;
IF ((PAYGRDE1 LT 4) AND (NOTRCMD EQ 1)) THEN CATEGORY=2;
```

```
PROC STEPDISC SIMPLE STDMEAN TCORR WCORR;VAR
     ENTRYAGE CHYEC ASVABGI ASVABNO ASVABAD ASVABWK ASVABAR
              ASVABSP ASVABMK ASVABEI ASVABMC ASVABGS
              ASVABSI ASVABAI MRTSTAT1 NDPNDNT1;
CLASS CATEGORY;
/*
//
```

APPENDIX F

SAS PROGRAM-DISCRIMINANT ANALYSIS PROCEDURE

```
//Wardla22 Job (1197,0001),'W.E.Wardlaw',Class=C
//  EXEC SAS
//Filein DD DISP=SHR, DSN=MSS.S1197.OSONE
//SYSIN DD *
Data; Set Filein.OSONE;
IF HYEC=1  THEN CHYEC=3.5;
IF HYEC=2  THEN CHYEC=8;
IF HYEC=3  THEN CHYEC=9;
IF HYEC=4  THEN CHYEC=10;
IF HYEC=5  THEN CHYEC=11;
IF HYEC=6  THEN CHYEC=12;
IF HYEC=7  THEN CHYEC=13;
IF HYEC=8  THEN CHYEC=14;
IF HYEC=9  THEN CHYEC=15;
IF HYEC=10 THEN CHYEC=16;
IF HYEC=11 THEN CHYEC=18;
IF HYEC=12 THEN CHYEC=20;
IF HYEC=13 THEN CHYEC=11.5;
HYEC=CHYEC;
IF ((PAYGRDE1 GE 4) AND (NOTRCMD EQ 0) AND (LNGTHSRV LT '0400'))
THEN CATEGORY=1;
IF ((PAYGRDE1 LT 4) AND (NOTRCMD EQ 1)) THEN CATEGORY=2;
```

```
PROC DISCRIM;VAR
     MRTSTAT1 ASVABGI ASVABWK ASVABEI ASVABMC ASVABAR
     ASVABMK CHYEC;
CLASS CATEGORY;
/*
//
```

APPENDIX G

SAS PROGRAM-DISCRIMINANT MODEL TESTING PROCEDURE

```
//Wardla22 Job (1197,0001),'W.E.Wardlaw', Class=C
//  EXEC SAS
//Filein DD DISP=SHR,DSN=MSS.S1197.OSONE
//SYSIN DD *
OPTIONS NOCENTER LS=75 NODATE;
Data; Set Filein.OSONE;
            RANDOM10=NORMAL(0);
      IF ((RANDOM10 GE -1) AND (RANDOM10 LE 1)) THEN
         DVSMPL10=1; ELSE DVSMPL10=0;
IF HYEC=1  THEN CHYEC=3.5;
IF HYEC=2  THEN CHYEC=8;
IF HYEC=3  THEN CHYEC=9;
IF HYEC=4  THEN CHYEC=10;
IF HYEC=5  THEN CHYEC=11;
IF HYEC=6  THEN CHYEC=12;
IF HYEC=7  THEN CHYEC=13;
IF HYEC=8  THEN CHYEC=14;
IF HYEC=9  THEN CHYEC=15;
IF HYEC=10 THEN CHYEC=16;
IF HYEC=11 THEN CHYEC=18;
IF HYEC=12 THEN CHYEC=20;
IF HYEC=13 THEN CHYEC=11.5;
```

```
HYEC=CHYEC;
IF ((PAYGRDE1 GE 4) AND (NOTRCMD EQ 0) AND (LNGTHSRV LT '0400'))
THEN CATEGORY=1;
IF ((PAYGRDE1 LT 4) AND (NOTRCMD EQ 1)) THEN CATEGORY=2;
DATE DERIV8;SET DATA1:IF DVSMPL10=1;
DATE VALID8;SET DATA1;IF DVSMPL10=0;
PROC DISCRIM S POOL=YES DATA=DERIV8 OUT=CALIBR81;VAR
          MRTSTAT1 ASVABGI ASVABWK ASVABWI ASVABMC ASVABAR
          ASVABMK CHYEC;
CLASS CATEGORY;
PROC DISCRIM DATA=CALIBR81 TESTDATA=VALID8;TESTCLASS CATEGORY;
/*
//
```

APPENDIX H

SAS PROGRAM-CATEGORY III TESTING PROCEDURE

```
//Wardla23 Job (1197,0001),'W.E.Wardlaw',Class=C
//  EXEC SAS
//Filein DD DISP=SHR,DSN=MSS.S1197.OSONE
//SYSIN DD *
OPTIONS NOCENTER LS=75 NODATE;
Data;Set Filein.OSONE;
            RANDOM10=NORMAL(0);
     IF ((RANDOM10 GE -1) AND (RANDOM10 LE 1))
        THEN DVSMPL10=1; ELSE DVSMPL10=0;
IF HYEC=1  THEN CHYEC=3.5;
IF HYEC=2  THEN CHYEC=8;
IF HYEC=3  THEN CHYEC=9;
IF HYEC=4  THEN CHYEC=10;
IF HYEC=5  THEN CHYEC=11;
IF HYEC=6  THEN CHYEC=12;
IF HYEC=7  THEN CHYEC=13;
IF HYEC=8  THEN CHYEC=14;
IF HYEC=9  THEN CHYEC=15;
IF HYEC=10 THEN CHYEC=16;
IF HYEC=11 THEN CHYEC=18;
IF HYEC=12 THEN CHYEC=20;
IF HYEC=13 THEN CHYEC=11.5;
```

```
HYEC=CHYEC;
IF ((PAYGRDE1 GE 4) AND (NOTRCMD EQ 0) AND (LNGTHSRV LT '0400'))
THEN CATEGORY=1;
IF ((PAYGRDE1 LT 4) AND NOTRCMD EQ 1)) THEN CATEGORY=2;
IF (CATEGORY='.') THEN CATEGORY=3;
DATA DISTING;SET DATA1;IF CATEGORY<3;
DATA DERIV8;SET DISTING;IF DVSMPL10=1;
DATA VALID8;SET DATA1;IF CATEGORY=3;
PROC DISCRIM S POOL=YES DATA=DERIV8 OUT=CALIBR81;VAR
         MRTSTAT1 ASVABGI ASVABWK ASVABEI ASVABMC ASVABAR
            ASVABMK CHYEC:
CLASS CATEGORY;
PROC DISCRIM DATA=CALIBR81 TESTDATA=VALID8;TESTCLASS CATEGORY;
/*
//
```

LIST OF REFERENCES

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