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A REVISED SCREEN MODEL FOR RECRUIT SELECTION AND RECRUITMENT PLANNING

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A table of Success Chances of REcruits Entering the Navy (SCREEN) relates a recruit's background characteristics and Armed Forces Qualification Test (AFQT) score to his chances of completing the first year of service. Operational experience with SCREEN and further work on statistical models suggested possible ways to improve it. The revised SCREEN for recruit selection is described. Recruit input data and projections useful for recruitment planning are provided.

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1. Enclosure (1) is forwarded as a matter of possible interest.

2. This Research Contribution presents an improved version of the table of Success Chances of REcruits Entering the Navy (SCREEN) for use by recruiters. It also contains recruit input data and projections useful for recruitment planning.

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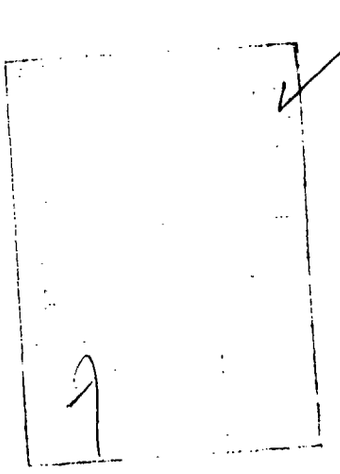

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SUMMARY

Success Chances of REcruits Entering the Navy (SCREEN) were implemented for recruit selection on 1 October 1976. They relate an applicant's educational level, AFQT mental group, age, primary dependents, and race to his chances of completing the first year of service.

When SCREEN had been in use for six months, concern arose over the possibly excessive losses of men with less than 11 years of education and men who were between 17 and 17½ years old. Neither of these variables was specifically addressed in SCREEN. A redefinition of the race or minority factor also had occurred. Lastly, further investigation of the best statistical model for screening had been completed.

These events led to a reanalysis of SCREEN that resulted in a revised, improved version. The revision uses the most efficient statistical model and differs from the original version in that educational level is further broken into 11 years and less than 11 years and, as a result, the race variable is no longer of consequence.

The technical background of the revision is contained in this report, along with recruit input data and model projections useful for recruitment planning.

A REVISED SCREEN MODEL FOR RECRUIT SELECTION AND RECRUITMENT PLANNING

REASONS FOR REVISING SCREEN

On 1 October 1977, tables of "Success Chances of Recruits Entering the Navy" (SCREEN) were implemented for use in recruit selection and recruitment planning. The tables indicated the chances of completing the first year of service given a recruit's level of civilian education, AFQT mental group, age and dependents status at the time of enlistment, and race. (reference 1).

SCREEN had been developed on non-prior service males who joined the regular Navy in CY 1973, and it was successfully tested on a similar cohort who enlisted in CY 1974. Adjustments were also made to take care of the fact that mental group today is based on the Armed Service Vocational Aptitude Battery (ASVAB) rather than the Navy Basic Test Battery (BTB) that was used when SCREEN was developed (reference 2). The SCREEN variables are as follows:

AFQT:	95-99	Years of education:	over 12
	67-94		12
	50-66		under 12
	35-49		
	21-34	Primary dependents:	Yes
			No
Age:	17 years		
	18 and 19	Race:	Caucasian
	20 or older		Non-Caucasian

By April 1977, several events had taken place that led to a need for reanalyzing SCREEN to insure that it was working as efficiently as possible. First, extensive investigation of linear and non-linear models for predicting losses from SCREEN variables showed that the best fitting as well as the cheapest statistical model to use with very large numbers of observations was the grouped logit model (reference 3). A grouped linear model had been used in the original SCREEN; although it made little practical difference whether this or the grouped logit model was used with the qualifying score established in FY 1977, differences favoring the logit version were found to occur at higher qualifying scores.

Second, the original SCREEN had separate tables for Caucasians and non-Caucasians. In the CY 1973 and 1974 cohorts, about 90 percent of the non-Caucasians were black. By 1977, however, recruits of Spanish heritage, who had been categorized as Caucasians in the original SCREEN, were included in a redefined minority category that now contained only 75 percent blacks. Consequently, the original SCREEN non-Caucasian table was being used inappropriately.

Third, an unexpected increase in attrition in March 1977 at the San Diego Training Center suggested that the level of education "Less than 12 years" used in SCREEN should be broken into "11 years" and "Less than 11 years" to see if loss predictions could be improved.

Finally, Air Force experience leading to a recommendation not to accept recruits less than 17½ years of age made it appropriate to break the SCREEN age 17 level into older and younger categories to determine the effect on the Navy loss predictions (reference 4).

In summary, questions about the best statistical model, the appropriateness of minority classifications, and the precision of the lower educational and age levels motivated a new look at the original SCREEN technique.

THE PROCESS OF REVISION

Both CY 1973 and 1974 cohorts were used in the process of revising the SCREEN tables. The input and loss rates for the separate SCREEN variables are shown for these cohorts in table 1. There are sizeable proportions of recruits who have less than 11 years of education and who are younger 17-year-olds in both cohorts. Further, the loss rates for these education and age levels are the highest when looking at education or age alone. Of course, the purpose of the SCREEN technique is not to look at such separate loss rates, but rather to look jointly at all SCREEN variables to determine the net effects on loss rates of any one of them when the remainder are held constant. In other words, the importance of any one of several variables for predicting attrition cannot be judged simply by observing its separate relationship to loss rate.

The 17-year-old age level was split between the 6th and 7th month, because cumulative loss rates dropped noticeably at this point. This effect was observed at the end of recruit training, the first year of service, and the second year of service (see appendix A, table A-1).

To test and compare the effects on loss rates of the race and redefined educational and age variables, six different grouped logit models were run, five of them on the CY 1973 cohort:

1. The original SCREEN that included the race, "Less than 12 years" education, and "Age 17" variables,
2. A revised SCREEN that included the race variable and the split education and age variables,
3. A revised SCREEN without race where the education variable was split, but where the older 17-year olds were grouped with 18 and 19 year olds,
4. A revised SCREEN without race where only the education variable was split,
5. A revised SCREEN as in 4., but for the CY 1974 cohort, and
6. A revised SCREEN as in 4., but at the 2-year period of service for the CY 1973 cohort.

The purposes of these analyses were to establish a base line and test the effects of redefining the education and age variables within the CY 1973 cohort and then on the CY 1974 cohort. The detailed results are in appendix A, and a summarization of them is presented in table 2.

Table 2 contains the partial correlation coefficients for each variable in each model and the model's summary statistics. The partial correlation is the correlation with loss rates for a given variable when the rest of the variables are held constant. It indicates the relative net importance of the variable in accounting for the variability in loss rates. The variables in table 2 are ordered in descending order of importance, as are the levels within each variable.

TABLE 1

INPUT AND LOSS RATES OF CY 1973 AND 1974 COHORTS BY SCREEN VARIABLES

	CY 73 Cohort (66,680)			CY 74 Cohort (82,698)	
	% input	1st year loss %	2-year loss %	% input	1st year loss %
Education:					
Under 11	14	32	49	19	38
11	15	27	44	18	32
12	63	14	22	57	15
Over 12	8	10	15	6	11
AFQT:					
21-34	17	29	44	27	33
35-49	19	25	38	20	28
50-66	23	17	28	20	20
67-94	37	12	20	29	13
95-99	4	5	12	4	5
Age:					
17-17½	17	27	46	18	34
17½-18	11	19	31	11	22
18-19	55	15	25	51	19
20 or older	17	17	25	21	21
Primary dependents:					
Yes	6	23	33	7	26
No	94	18	29	93	22
Race:					
Non-Caucasian	11	22	36	14	25
Caucasian	89	18	28	86	22
Cohort	100	18	29	100	22

TABLE 2

PARTIAL CORRELATIONS AND SUMMARY STATISTICS
FOR VARIOUS SCREEN WEIGHTED GROUP LOGIT MODELS

	1st Year					
	CY 73				CY 74	2 Years
Variable[a]	Original	Rev. educ. & age with race	Rev. educ. & age	Rev. educ.	rev. educ.	CY 73 rev. educ.
Education:						
Under 11	.88	.78	.87	.91	.95	.95
11 years		.72	.82	.87	.91	.93
Over 12	-.35	-.28	-.40	-.45	-.36	-.59
AFQT:						
21-34	.77	.67	.78	.83	.87	.87
35-49	.60	.53	.66	.73	.62	.75
95-99	-.58	-.46	-.59	-.66	-.65	-.71
67-94	-.47	-.31	-.39	-.46	-.56	-.60
Dependents	.51	.42	.53	.59	.47	.57
Age:						
20 or older	.48	.38	.51	.57	.60	.55
17-17½	.23	.28	.40	.29	.20	.72
17½-18		.01[b]	–			
Non-Caucasian	-.22	-.08[b]	–	–	–	–
R^2	.95	.89	.94	.96	.97	.98
Std Error[c]	.17	.22	.16	.14	.13	.10

[a]One level of each set of variables (e.g., 12 years of education) is contained in the constant term of the regression equation for each model; these levels do not have separate correlations.

[b]Not statistically significant; all other variables are significant at the 95% confidence level.

[c]In logrithmic form.

Across the models in table 2, the lower educational levels emerge as the most important predictors of loss rates: "Less than 11" and "11" in order. Mental group IV is the next most important predictor. The least important (and in some cases statistically insignificant) predictors are race and the 17-year old (combined or split) age groups with one exception: at the 2-year point, age 17 is of much higher importance.

In the original SCREEN logit model, all variables were significant statistically at the 99 percent confidence level. A revised model where the education and age variables were split showed that neither the older 17 year-old nor the race predictor was significant (t values of 1.22 and 0.19, respectively). This means that splitting the "Less than 12 years" education level in "11" and "Less than 11," subsumes the predictive power originally belonging to the race variable.

The third model did not contain race, and the older 17 year-olds were grouped with the 18 and 19 year-olds. (The loss rate of the older 17 year-olds was more like that of men 20 or older than that of 18 and 19 year olds, but a grouping with 20 year-olds lacked appeal.)

The fourth model was run with the education split but without the age 17 split. Across mental groups, the first year loss rates of older and younger 17 year-olds with 11 and less than 11 years of education were quite similar (see appendix A, table A-3). Only at 12 years of education was there a difference, the older group having about half the first year loss rate of the younger one (12 versus 21 percent). Thus, the 12 year educational level is the best discriminator among older and younger 17 year-olds as far as first year losses are concerned.

All of the variables were statistically significant at the 99 percent confidence level in the third and fourth models, but the standard error (the square root of the mean square error) was least in the latter one where the 17 year-olds were not split. Consequently, this model with only the education split was the model of choice.[1] It also has the practical advantage of greater simplicity for use by recruiters, since it obviates the need to calculate recruit ages to the nearest month when using a SCREEN table.

The variables in the model of choice then were analyzed for the CY 1974 cohort with results that were remarkably similar to those found for the CY 1973 cohort.

Finally, the variables in the model of choice were used at the 2-year point for the CY 1973 cohort. Again the results were very similar to those at the one year point, except that the age 17 variable assumed a greater importance.

THE REVISED SCREEN AND ITS USES

The revised first year SCREEN is given in table 3. It is based on AFQT score intervals which reflect the mental group standards of the Navy Basic Test Battery (reference 2), the same age and primary dependents variables contained in the original SCREEN, and the expanded years of education variable. The 2-year revised version is presented in appendix A (table A-5).

[1] The R^2 and mean square error for each successive step in this model are given in appendix A, table A-4.

TABLE 3

FIRST YEAR SCREEN (rev. 5-77)[a]

AFQT	Age	No dependents				Dependents			
		Years of education				Years of education			
		Over 12	12	11	Under 11	Over 12	12	11	Under 11
95-100	18-19	96	95	90	89	94	93	87	84
	17	96	94	90	88	94	92	86	83
	20+	95	93	88	86	93	90	83	80
67-94	18-19	92	90	82	79	89	86	76	72
	17	92	89	81	78	88	84	74	70
	20+	90	87	78	74	86	82	70	66
50-66	18-19	91	88	79	76	87	83	72	78
	17	90	87	77	74	86	82	70	66
	20+	88	84	74	70	84	79	66	62
35-49	18-19	87	83	72	68	82	77	63	59
	17	86	81	70	66	81	75	61	57
	20+	83	78	66	62	78	71	57	52
21-34	18-19	85	80	68	64	79	73	59	55
	17	84	79	66	62	78	72	57	52
	20+	81	75	62	57	74	68	52	48

[a]Weighted group logit.

For planning purposes, revised first year SCREEN tables containing the percentages of non-prior service male recruits who joined the regular Navy in CY 1973, 1974, and 1975 are given in appendix B. According to which of these years is considered more representative of a prospective future recruiting year, the actual effects of various SCREEN qualifying scores in the base input cohort can be calculated. For example, with a qualifying score of 72 (that is, anyone with a score of 71 or lower would not be enlisted), 16 percent of the CY 1973 cohort, 24 percent of the CY 1974 cohort, and 5 percent of the CY 1975 cohort would not have been admitted.

Appendix B shows the percentages of blacks who entered in CY 1973, and CY 1974 for each revised SCREEN score.[1] A qualifying score of 72 would have excluded 28 percent of the blacks in CY 1973 and 31 percent in CY 1974, compared to 16 and 24 percent in their total cohorts.

Another way to use SCREEN scores for recruitment planning is shown in table 4. In contrast to the appendix B tables of actual input numbers by SCREEN score, table 4 shows predicted or model generated results for each SCREEN score. It also includes the selection ratio, or proportion of recruits who would be selected at any qualifying score from the base cohort; the proportion of correct predictions (Hits); the proportions of the two kinds of wrong predictions (False positives or predicted successes who fail and False negatives or predicted failures who would have succeeded); and expected reductions in first year loss rates. For example, at a qualifying score of 72, about 84 percent of the CY 1973 cohort would have been enlisted (selection ratio), 77 percent of the selection decisions would have been correct (Hits); about 13 percent of the cohort selected would not have completed the first year of service (False positives); nearly 11 percent of the cohort would not have been selected but would have completed the first year if all cohort members had been let in (False negatives); and the first year loss rate would have been reduced by 16 percent (from 18 to 15 percent). Note that the selection ratio calculated for the same qualifying score from the appendix B tables containing actual input values does not necessarily agree with predicted value generated from the model.

Table 5 is an application of the SCREEN model to the CY 1974 cohort, one which was larger and of lower average quality than the CY 1973 cohort. As an example, at a qualifying score of 72, only 75 percent of the CY 1974 cohort would have been enlisted (vice 84 percent in 1973); 72 percent of the decisions would have been correct (vice 77 percent in 1973); 12 percent of the cohort would have entered and failed (about the same as in 1973); 15 percent would not have entered but would have succeeded (vice 11 percent in 1972); and the first year loss rate would have been reduced by 23 percent (vice 16 percent in 1973).

Tables 4 and 5 illustrate the differences in application of the revised SCREEN table depending upon the cohort under consideration. If specific information about the supply of men available for enlistment is not known, recruit cohorts provide the next best alternative for recruitment planning. The choice of cohort, however, should approximate the expected market, since wide variations in cohort size and quality occur as shown below:

[1] A similar distribution of blacks for CY 1975 could not be made because of a change in and confusion of race codes that year.

CY	Cohort size	Percent	
		12 or more yrs. educ.	AFQT 50-99
1973	67,000	71	64
1974	83,000	63	53
1975	73,000	82	75

Finally, there is a standard error involved in predicting success rates from the SCREEN variables, as there is in any prediction system. This error is about ±1 percentage point at the mean SCREEN score of the CY 1973 cohort. Not only do SCREEN scores vary in distribution depending on the supply of recruits or cohort to which they are applied, but they also vary in precision within any given cohort. These facts should be kept in mind when using SCREEN for recruitment planning.

TABLE 4

PREDICTED RESULTS OF USING REVISED FIRST-YEAR SCREEN MODEL ON CY 1973 COHORT

Qual. score	Reduction in 1st year loss rates	Hits	False positives	False negatives	Selection ratio
61	.00	.818	.177	.005	.991
62	.00	.818	.177	.006	.990
63	.04	.808	.164	.028	.954
64	.04	.808	.163	.029	.953
65	.06	.806	.158	.036	.942
66	.06	.806	.158	.036	.942
67	.11	.787	.141	.073	.888
68	.11	.787	.141	.073	.888
69	.14	.778	.131	.092	.859
70	.14	.778	.131	.092	.859
71	.16	.769	.125	.106	.839
72	.16	.769	.125	.106	.839
73	.17	.762	.120	.118	.822
74	.18	.762	.120	.118	.822
75	.20	.747	.112	.142	.789
76	.20	.747	.112	.142	.789
77	.21	.743	.109	.148	.781
78	.22	.734	.106	.160	.765
79	.24	.724	.102	.174	.747
80	.25	.713	.098	.189	.728
81	.25	.713	.098	.189	.728
82	.27	.699	.091	.211	.700
83	.28	.691	.089	.221	.687
84	.29	.681	.085	.233	.671
85	.30	.672	.082	.246	.655
86	.34	.642	.071	.287	.604
87	.35	.621	.066	.314	.571
88	.40	.575	.054	.371	.502
89	.40	.558	.051	.391	.479
90	.42	.552	.049	.398	.470

TABLE 5

PREDICTED RESULTS OF USING REVISED FIRST-YEAR SCREEN MODEL
ON CY 1974 COHORT

Qual. score	Reduction in 1st year loss rates	Hits	False positives	False negatives	Selection ratio
61	.00	.778	.211	.011	.981
62	.00	.778	.211	.011	.981
63	.06	.768	.188	.045	.924
64	.06	.767	.187	.045	.923
65	.08	.765	.179	.051	.904
66	.08	.765	.179	.051	.904
67	.16	.750	.151	.100	.832
68	.16	.750	.151	.100	.832
69	.21	.732	.132	.136	.777
70	.21	.732	.132	.136	.777
71	.23	.724	.125	.151	.754
72	.23	.723	.124	.154	.751
73	.25	.714	.118	.168	.731
74	.25	.713	.117	.170	.728
75	.28	.701	.109	.191	.699
76	.30	.684	.100	.216	.666
77	.31	.681	.098	.222	.657
78	.32	.672	.093	.235	.639
79	.34	.655	.086	.259	.608
80	.37	.636	.077	.287	.571
81	.43	.597	.062	.341	.502
82	.44	.580	.057	.364	.474
83	.46	.566	.053	.381	.452
84	.49	.524	.043	.433	.391
85	.50	.510	.040	.450	.371
86	.50	.510	.040	.451	.370
87	.51	.503	.038	.458	.361
88	.53	.466	.031	.503	.309
89	.56	.405	.022	.573	.230
90	.58	.380	.018	.603	.196

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4. Air Force Human Resources Laboratory, AFHRL-TR-77-16, "Impact of Various Enlistment Standards on the Procurement-Training System," by B. M. Vitola, N. Guinn, and J. M. Wilbourn, Unclassified, Apr 1977.

APPENDIX A

DETAILED ANALYTIC RESULTS

TABLE A-1

17-YEAR-OLD INPUT AND LOSS RATES BY MONTH OF AGE (CY 1973 COHORT)

Age		Input		Loss rate		
		No.	%	RTC	1 year	2 years
17 years	0 mos.	2,450	13	13	25	42
	1 mo.	2,291	12	14	29	49
	2 mos.	1,632	9	13	28	48
	3 mos.	1,407	8	12	27	46
	4 mos.	1,215	6	14	28	43
	5 mos.	1,197	6	15	28	45
	6 mos.	1,144	6	14	27	43
	7 mos.	1,178	6	11	23	37
	8 mos.	1,336	7	9	19	28
	9 mos.	1,540	8	9	18	27
	10 mos.	1,650	9	9	17	26
	11 mos.	1,666	9	9	17	26
Total/average		18,706	99	12	24	40

TABLE A-2

WEIGHTED LOGIT REGRESSION RESULTS FOR VARIOUS COMBINATIONS OF SCREEN VARIABLES

	CY 73 original		CY 73 revised educ. & age with race		CY 73 revised educ. & age	
	Coeff.	t	Coeff.	t	Coeff.	t
Constant	-1.98	-57.35	-1.95	-55.29	-1.96	-52.34
Less than 11 yrs educ.	.70	21.20	.78	18.88	.79	17.85
11 yrs educ.			.62	15.56	.62	14.38
AFQT 21-34	.60	14.23	.59	13.65	.57	12.46
AFQT 35-49	.37	8.85	.40	9.56	.39	8.69
AFQT 95-99	- .99	- 8.37	- .92	- 7.86	- .94	- 7.29
Dependents	.39	6.95	.40	7.10	.38	6.17
Age 20 or older	.28	6.43	.28	6.31	.28	5.91
AFQT 67-94	- .25	- 6.22	- .20	- 4.85	- .19	- 4.23
More than 12 yrs educ.	- .31	- 4.42	- .32	- 4.50	- .34	- 4.33
Age 17	.09	2.76				
Age 17-17½			.18	4.41	.18	4.30
Age 17½-18			.01	- 1.22[a]		
Non-Caucasian	- .12	- 2.64	- .06	- 0.19[a]		
R^2	.93		.89		.94	
Std. Error	.17		.22		.16	
F	178.65		149.26		149.99	
df	10 and 137		12 and 230		10 and 99	

[a]Not statistically significant; all other variables are significant at the 95 percent confidence level.

TABLE A-2 (Continued)

	CY 73 revised education		CY 74 revised education		CY 73 2-yr. revised education	
	Coeff.	t	Coeff.	t	Coeff.	t
Constant	-1.97	-61.97	-1.89	-55.75	-1.36	-55.65
Less than 11 yrs educ.	.82	22.50	1.01	29.57	.88	29.29
11 yrs educ.	.64	17.69	.74	22.35	.73	25.00
AFQT 21-34	.57	15.11	.62	17.44	.54	17.51
AFQT 35-49	.40	10.54	.31	7.90	.34	11.13
AFQT 95-99	- .93	- 8.69	- .97	- 8.67	- .71	-10.03
Dependents	.38	7.36	.26	5.39	.30	7.01
Age 20 or older	.28	6.94	.26	7.44	.21	6.55
AFQT 67-94	- .20	- 5.22	- .27	- 6.74	- .21	- 7.41
More than 12 yrs educ.	- .33	- 5.05	- .28	- 3.85	- .36	- 7.39
Age 17	.09	2.97	.06	2.08	.26	10.27
Age 17-17½						
Age 17½-18						
Non-Caucasian						
R^2	.96		.97		.98	
Std. Error	.14		.13		.10	
F	218.41		297.14		398.15	
df	10 and 100		10 and 100		10 and 100	

TABLE A-3

FIRST-YEAR LOSS RATES OF 17-YEAR-OLDS
BY AFQT AND EDUCATION

AFQT	17 to 17½ (11,336)					17½ to 18 (7,370)				
	12	11	<11	Total	% N	12	11	<11	Total	% N
95-99	–	–	–	–	0	3	–	–	3	3
67-94	19	22	20	20	22	10	22	28	13	36
50-66	20	21	26	23	28	9	23	28	15	27
35-49	24	27	33	30	28	18	32	32	26	21
21-34	28	34	36	35	22	26	27	33	29	13
Total	21	26	30	27	–	12	26	31	19	–
% N	25	23	52	–	100	61	18	21	–	100

TABLE A-4

R^2 AND MEAN SQUARE ERROR AT EACH STEP IN WEIGHTED GROUP LOGIT REGRESSION FOR REVISED SCREEN

Variable entering the regression equation	R^2	Mean square error
Under 11 years education	.347	.250
11 years education	.618	.147
AFQT 21-34	.742	.101
AFQT 35-49	.857	.056
Primary dependents	.888	.044
AFQT 95-99	.917	.033
AFQT 67-94	.930	.028
Age 20 or older	.941	.024
Over 12 years education	.952	.020
Age 17	.956	.018

TABLE A-5

TWO-YEAR SCREEN (rev. 5-77)[a]

AFQT	Age	No dependents				Dependents			
		Years of education				Years of education			
		Over 12	12	11	Under 11	Over 12	12	11	Under 11
95-100	18-19	92	89	79	77	89	85	74	71
	17	90	86	75	72	87	82	68	65
	20+	90	86	75	73	87	83	69	66
67-94	18-19	87	83	70	67	84	78	63	60
	17	84	79	64	61	80	73	57	53
	20+	85	80	65	62	81	74	58	54
50-66	18-19	85	80	65	62	81	74	58	54
	17	81	75	59	55	76	69	52	48
	20+	82	76	60	57	77	70	53	49
35-49	18-19	80	73	57	53	75	67	50	46
	17	76	68	51	47	70	61	43	40
	20+	76	69	52	48	71	62	44	41
21-34	18-19	77	69	52	48	71	63	45	44
	17	72	64	46	42	65	57	38	35
	20+	73	65	47	43	66	58	40	36

[a]Weighted group logit.

APPENDIX B

REVISED SCREEN RECRUIT INPUTS

TABLE B-1

SCREEN (rev. 5-77) LOGIT MODEL WITH CY 1973 QUEBEC INPUT PERCENTAGES

AFQT	Age	No dependents (62,584)								Dependents (4,101)							
		Years of education								Years of education							
		Over 12		12		11		Under 11		Over 12		12		11		Under 11	
95-100	18-19	96	.28	95	1.93	90	.04	89	–	94	.01	93	.09	87	–	84	–
	17	96	–	94	.41	90	.03	88	.01	94	–	92	–	86	–	83	–
	20+	95	.84	93	.42	88	.01	86	–	93	.15	90	.13	83	–	80	–
67-94	18-19	92	1.22	90	18.27	82	1.02	79	.44	89	.06	86	.78	76	.08	72	.04
	17	92	–	89	4.52	81	1.15	78	1.32	88	–	84	.08	74	.03	70	.04
	20+	90	2.79	87	3.02	78	.10	74	.09	86	.47	82	.87	70	.05	66	.03
50-66	18-19	91	.31	88	9.70	79	1.40	76	.78	87	.01	83	.38	72	.12	68	.09
	17	90	–	87	2.84	77	1.59	74	2.72	86	–	82	.04	70	.04	66	.06
	20+	88	.68	84	1.55	74	.17	70	.09	84	.11	79	.37	66	.07	62	.05
35-49	18-19	87	.15	83	6.42	72	1.58	68	1.01	82	–	77	.24	63	.12	59	.12
	17	86	–	81	1.90	70	1.72	66	3.40	81	–	75	.04	61	.03	57	.06
	20+	83	.36	78	1.22	66	.21	62	.14	78	.07	71	.23	57	.08	52	.06
21-34	18-19	85	.07	80	4.98	68	1.79	64	1.16	79	–	73	.15	59	.10	55	.08
	17	84	–	79	1.16	66	1.63	62	3.10	78	–	72	.03	57	.03	52	.06
	20+	81	.24	75	1.35	62	.31	57	.20	74	.02	68	.21	52	.08	48	.07

Note: QUEBEC is the communications code word for the letter "Q", which is the Navy Recruiting Command's designation for non-prior-service male recruits who enlist in the regular Navy.

TABLE B-2

SCREEN (rev. 5-77) LOGIT MODEL WITH CY 1974 QUEBEC INPUT PERCENTAGES

		No dependents (76,950)								Dependents (5,732)							
		Years of education								Years of education							
AFQT	Age	Over 12		12		11		Under 11		Over 12		12		11		Under 11	
95-100	18-19	96	.22	95	1.59	90	.03	89	–	94	.01	93	.05	87	–	84	–
	17	96	–	94	.40	90	.03	88	.03	94	–	92	–	86	–	83	–
	20+	95	.68	93	.48	88	.01	86	–	93	.16	90	.18	83	–	80	–
67-94	18-19	92	.68	90	13.88	82	1.15	79	.47	89	.03	86	.52	76	.08	72	.05
	17	92	.01	89	3.50	82	1.19	78	1.38	88	–	84	.07	74	.03	70	.03
	20+	90	2.01	87	3.50	78	.22	74	.12	86	.38	82	1.09	70	.08	66	.06
50-66	18-19	91	.15	88	7.03	79	1.49	76	.79	87	–	83	.25	72	.09	68	.07
	17	90	–	87	1.69	77	1.52	74	2.34	86	–	82	.02	70	.03	66	.06
	20+	88	.47	84	1.81	74	.25	70	.15	84	.08	79	.47	66	.11	62	.10
35-49	18-19	87	.08	83	5.56	72	1.89	68	1.33	82	–	77	.18	63	.13	59	.11
	17	86	–	81	1.28	70	2.01	66	3.75	81	–	75	.02	61	.03	57	.09
	20+	83	.30	78	1.60	66	.41	62	.25	78	.06	71	.32	57	.11	52	.14
21-34	18-19	85	.08	80	7.05	68	3.14	64	1.94	79	–	73	.22	59	.21	55	.16
	17	84	–	79	1.27	66	2.88	62	4.73	78	–	72	.01	57	.04	52	.07
	20+	81	.31	75	2.79	62	.74	57	.40	74	.04	68	.48	52	.22	48	.18

TABLE B-3

SCREEN (rev. 5-77) LOGIT MODEL WITH CY 1975 QUEBEC INPUT PERCENTAGES

		No dependents (67,359)								Dependents (5,693)							
		Years of education								Years of education							
AFQT	Age	Over 12		12		11		Under 11		Over 12		12		11		Under 11	
95-100	18-19	96	.26	95	.96	90	.01	89	.00	94	.02	93	.05	87	.00	84	.00
	17	96	.01	94	.76	90	.03	88	.02	94	.00	92	.01	86	.00	83	.00
	20+	95	.71	93	.43	88	.01	86	.00	93	.19	90	.16	83	.00	80	.00
67-94	18-19	92	1.43	90	11.90	82	.64	79	.27	89	.08	86	.71	76	.06	72	.05
	17	92	.04	89	11.41	82	1.49	78	1.28	88	.00	84	.19	74	.04	70	.04
	20+	90	2.82	87	3.90	78	.20	74	.09	86	.63	82	1.41	70	.07	66	.05
50-66	18-19	91	.46	88	9.49	79	1.00	76	.52	87	.02	83	.51	72	.10	68	.08
	17	90	.02	87	9.01	77	2.57	74	2.77	86	.00	82	.15	70	.06	66	.08
	20+	88	1.56	84	2.88	74	.28	70	.15	84	.19	79	.80	66	.11	62	.08
35-49	18-19	87	.19	83	5.90	72	.64	68	.24	82	.00	77	.27	63	.06	59	.03
	17	86	.01	81	5.01	70	1.38	66	1.19	81	.00	75	.08	61	.04	57	.03
	20+	83	.46	78	1.62	66	.20	62	.08	78	.07	71	.43	57	.05	52	.04
21-34	18-19	85	.07	80	2.32	68	.05	64	.03	79	.00	73	.11	59	.00	55	.00
	17	84	.00	79	1.44	66	.07	62	.05	78	.00	72	.02	57	.00	52	.00
	20+	81	.58	75	1.19	62	.04	57	.04	74	.09	68	.47	52	.03	48	.03

TABLE B-4

SCREEN (rev. 5-77) LOGIT MODEL WITH CY 1973 BLACK INPUT PERCENTAGES

AFQT	Age	No dependents (6,040)								Dependents (407)							
		Years of education								Years of education							
		Over 12		12		11		Under 11		Over 12		12		11		Under 11	
95-100	18-19	96	.02	95	.03	90	–	89	–	94	–	93	.02	87	–	84	–
	17	96	–	94	–	90	–	88	–	94	–	92	–	86	–	83	–
	20+	95	.03	93	.03	88	–	86	–	93	–	90	–	83	–	80	–
67-94	18-19	92	.25	90	2.48	82	.25	79	.08	89	.02	86	.14	76	.05	72	–
	17	92	–	89	.60	82	.17	78	.05	88	–	84	–	74	–	70	–
	20+	90	.92	87	.88	78	.06	74	.05	86	.28	82	.26	70	–	66	–
50-66	18-19	91	.42	88	5.20	79	.87	76	.40	87	.02	83	.20	72	.02	68	.02
	17	90	–	87	1.35	77	1.09	74	.68	86	–	82	–	70	.03	66	.02
	20+	88	.98	84	1.42	74	.26	70	.03	84	.28	79	.38	66	.08	62	.03
35-49	18-19	87	.50	83	10.14	72	2.92	68	.96	82	–	77	.42	63	.20	59	.02
	17	86	–	81	2.93	70	2.37	66	1.83	81	–	75	.02	61	.05	57	.02
	20+	83	1.47	78	2.73	66	.74	62	.26	78	.37	71	.43	57	.19	52	.03
21-34	18-19	85	.34	80	18.35	68	6.36	64	2.31	79	.03	73	.50	59	.29	55	.08
	17	84	–	79	4.00	66	4.50	62	3.58	78	–	72	.05	57	.08	52	.02
	20+	81	1.36	75	5.34	62	1.40	57	0.73	74	.22	68	1.04	52	.36	48	.08

TABLE B-5

SCREEN (rev. 5-77) LOGIT MODEL WITH CY 1974 BLACK INPUT PERCENTAGES

		No dependents (9,713)								Dependents (770)							
		Years of education								Years of education							
AFQT	Age	Over 12		12		11		Under 11		Over 12		12		11		Under 11	
95-100	18-19	96	.01	95	.08	90	--	89		94	--	93	-	87	–	84	–
	17	96	-	94	.02	90	--	88	--	94	--	92	–	86	–	83	–
	20+	95	.07	93	-	88	--	86	.01	93	.01	90	.03	83	–	80	–
67-94	18-19	92	.19	90	1.67	82	.23	79	.07	89	.01	86	.07	76	.01	72	–
	17	92	--	89	.40	82	.20	78	.10	88	–	84	–	74	.01	70	–
	20+	90	.89	87	.95	78	.05	74	.02	86	.23	82	.22	70	.01	66	.02
50-66	18-19	91	.21	88	3.19	79	.95	76	.21	87	–	83	.16	72	.06	68	.03
	17	90	--	87	.91	77	.68	74	.52	86	–	82	--	70	.02	66	.01
	20+	88	.75	84	1.72	74	.24	70	.10	84	.21	79	.46	66	.11	62	.02
35-49	18-19	87	.20	83	6.98	72	2.46	68	1.11	82	.01	77	.11	63	.17	59	.04
	17	86	--	81	1.54	70	1.88	66	1.85	81	–	75	.01	61	.02	57	.02
	20+	83	.95	78	3.16	66	.94	62	.30	78	.18	71	.68	57	.16	52	.10
21-34	18-19	85	.39	80	19.11	68	7.89	64	2.78	79	–	73	.72	59	.34	55	.06
	17	84	-	79	3.45	66	5.13	62	3.95	78	–	72	.01	57	.03	52	.03
	20+	81	1.45	75	9.24	62	2.73	57	.74	74	.29	68	1.97	52	.45	48	.25