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EVALUATION OF THE TARGETED ENLISTMENT BONUS (TEB) FOR NUCLEAR FIELD RECRUITS

OCTOBER 1985 THROUGH FEBRUARY 1986

Timothy W. Cooke

A Division of CNA Hudson Institute

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This Research Memorandum contains the first of three evaluations of the Targeted Enlistment Bonus (TEB) for Nuclear Field recruits. The TEB differs from the standard enlistment bonus by varying the bonus amounts according to the season a recruit begins active duty. FY 1986 Nuclear Field recruits are compared to those of previous fiscal years in terms of the timing of accessions and enlistment contracts, performance on military entrance examinations, and age.

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

2. This Research Memorandum documents early experience with the Targeted Enlistment Bonus for Nuclear Field recruits in terms of the timing of accessions and enlistment contracts, performance on military entrance exams, and age.

Robert F. Lockman

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Director
Manpower Program

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EVALUATION OF THE TARGETED ENLISTMENT BONUS (TEB) FOR NUCLEAR FIELD RECRUITS

OCTOBER 1985 THROUGH FEBRUARY 1986

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ABSTRACT

This Research Memorandum contains the first of three evaluations of the Targeted Enlistment Bonus (TEB) for Nuclear Field recruits. The TEB differs from the standard enlistment bonus by varying the bonus amounts according to the season a recruit begins active duty. FY 1986 Nuclear Field recruits are compared to those of previous fiscal years in terms of the timing of accessions and enlistment contracts, performance on military entrance examinations, and age.

EXECUTIVE SUMMARY

This is the first of three evaluations of the Targeted Enlistment Bonus (TEB) for Nuclear Field (NF) recruits. Enlistment bonuses (EBs) have been offered to new recruits in selected ratings since 1974. The new and distinguishing feature of the TEB is seasonal determination of the amount of the EB. The TEB is an 18-month experiment with seasonally variable EBs ranging from a low of $3,750 for accession in the summer months (June, July, and August) to a high of $6,000 for accession in the spring months (March, April, and May). The intention of the TEB is to encourage spring and winter accession by NF recruits, enabling a more level loading of NF training facilities.

Historically, the pattern of NF accessions has been highly seasonal, with a summer peak and spring trough. The primary purpose of this evaluation is to judge the initial success of the program in attaining a more level phasing of accessions. Because the TEB has just been implemented for FY 1986 and data collection proceeds slowly, only data from the first 5 months of FY 1986 are available for evaluation. All data used in the analysis originate from Commander, Navy Recruiting Command (CNRC). The two sources are the monthly Production Summary and the Personalized Recruiting for Immediate and Delayed Entry (PRIDE) data on enlistment contracts.

The evaluation examines several measures of recruiting performance, including Delayed Entry Program (DEP) participation of NF recruits, quality composition of accessions by mental group, and the relation between accession goal and accessions. The last of these measures provides strong qualitative evidence that the desired change in seasonal pattern of accessions has been achieved. Movement toward the level loading of NF accessions is accompanied by a remarkable improvement in the NF DEP posture, without sacrificing the average quality of NF recruits. The extent to which these changes are attributable to the TEB is yet to be determined. Other changes in the recruiting environment and an increase in the level of recruiting effort must be considered.

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INTRODUCTION

This is the first of three evaluations of the Targeted Enlistment Bonus (TEB) for Nuclear Field (NF) recruits. Enlistment bonuses (EBs) have been offered to new recruits in selected ratings since 1974. A history of the Navy EB program in terms of bonus levels, eligible ratings, and period of eligibility is provided in [1], which also examines the NF EB in some detail. That study does not, however, deal with the recent period when the amount of the NF EB is determined by the season in which the recruit begins active duty. Such seasonal determination of the NF EB is the defining characteristic of the TEB. The TEB is an 18-month experiment with seasonally variable EBs ranging from a low of $3,750 for accession in the summer months (June, July, and August) to a high of $6,000 for accession in the spring months (March, April, and May).[1] These amounts compare to an EB for September through December 1984 of $4,000, and an EB for January through August 1985 of $5,000.

The intention of the TEB is to encourage spring and winter accession by NF recruits, enabling a more level loading of NF training facilities. Historically, the pattern of accessions has been highly seasonal, with a summer peak and spring trough. This pattern conforms more closely to potential recruit preferences than does a levelly loaded accession profile. However, seasonal phasing of accessions tends to cause overcrowding of NF "A" school capacity and may lead to pooling of NF recruits awaiting training. Saving resulting from a successful TEB is expected to accrue in reduced training costs associated with less time awaiting instruction and more level loading of NF training resources.

It is not expected that this evaluation, or the ones to follow, will be able to carefully and quantitatively judge total training cost saving associated with the expected reduction in seasonal surges of new recruits into the training pipeline.[2] Rather, the primary purpose is to evaluate the degree to which the TEB assists recruiters in attaining a more level phasing of accessions over the course of the year. The January 1985 increase in the NF EB is perceived to have been ineffective in encouraging winter and spring accessions in that year. It provides a rough benchmark against which to judge the performance of the TEB.

Because the TEB has just been implemented for FY 1986 and data collection is slow, only data from the first 5 months of FY 1986 are available for evaluation. All data used in this report originate from Commander, Navy Recruiting Command (CNRC). The first source is the

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1. The fall (September, October, and November) TEB amount is presently $4,500, and the winter (December, January, and February) is $5,250.
2. It may be possible, however, to quantify the cost of time awaiting instruction for recruits accessing in different months.

monthly Production Summary (PS), which includes information on goals, accessions, and the number of recruits in the Delayed Entry Program (DEP).[1] The second source is the Personalized Recruiting for Immediate and Delayed Entry (PRIDE) data on accessions and cancellations of enlistment contracts. (See [2] for a description of the PRIDE data base at the Center for Naval Analyses.) The PRIDE data provide demographic, contract-date, and entry-test information on recruits. In general, the agreement between PRIDE data and PS statistics is reasonably good, especially for the period of the TEB. When there are potential differences in definitions between the two sources, such as with direct shipments, the PRIDE data are used and the definition is provided in the text.

With only a single observation of TEB experience to evaluate for each of the months, examination of several different quantitative measures of NF recruiting forms the basis of this evaluation. The measures to be examined include the rate of accumulation of recruits in the DEP awaiting future accession, the pattern of time spent in DEP for those observed to have shipped, the quality composition of shipments by mental group, and the relationship of goal to accessions. Recently completed CNA research [3] shows that, in general, the DEP is an effective screening device for new recruits. Thus, for the TEB to have its most desirable effect, it should encourage more recruits (of equal or higher quality) to spend time in the DEP before accessing in the winter or spring months.

ACCESSION GOAL AND ACCESSIONS: THE BASIC EVIDENCE

The accession goal provides an important incentive for the allocation of recruiting resources between seasons. In recent years, the correspondence between accession goal and accessions has been quite close. In fact, one of the primary means of encouraging a more level loading of accessions is reduction of the seasonal fluctuation in the historical pattern of the accession goal. However, the implementation of the TEB was not accompanied by such a change, but the monthly goals have been adjusted to reflect actual recruiting performance.

Figure 1 plots the NF accession goal from October 1981 through September 1986. For FY 1986, two values are plotted. The solid line is the accession goal at the beginning of the fiscal year, and the dashed line is the revised goal as of March 1986, which reflects adjustments based on actual recruiting performance during the period of the TEB.

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1. The DEP is a program that allows recruits to sign an enlistment contract in a month and begin active duty up to 1 year later. For this research, recruits who sign an enlistment contract and access in the same month are called direct shipments, as opposed to shipments from DEP.

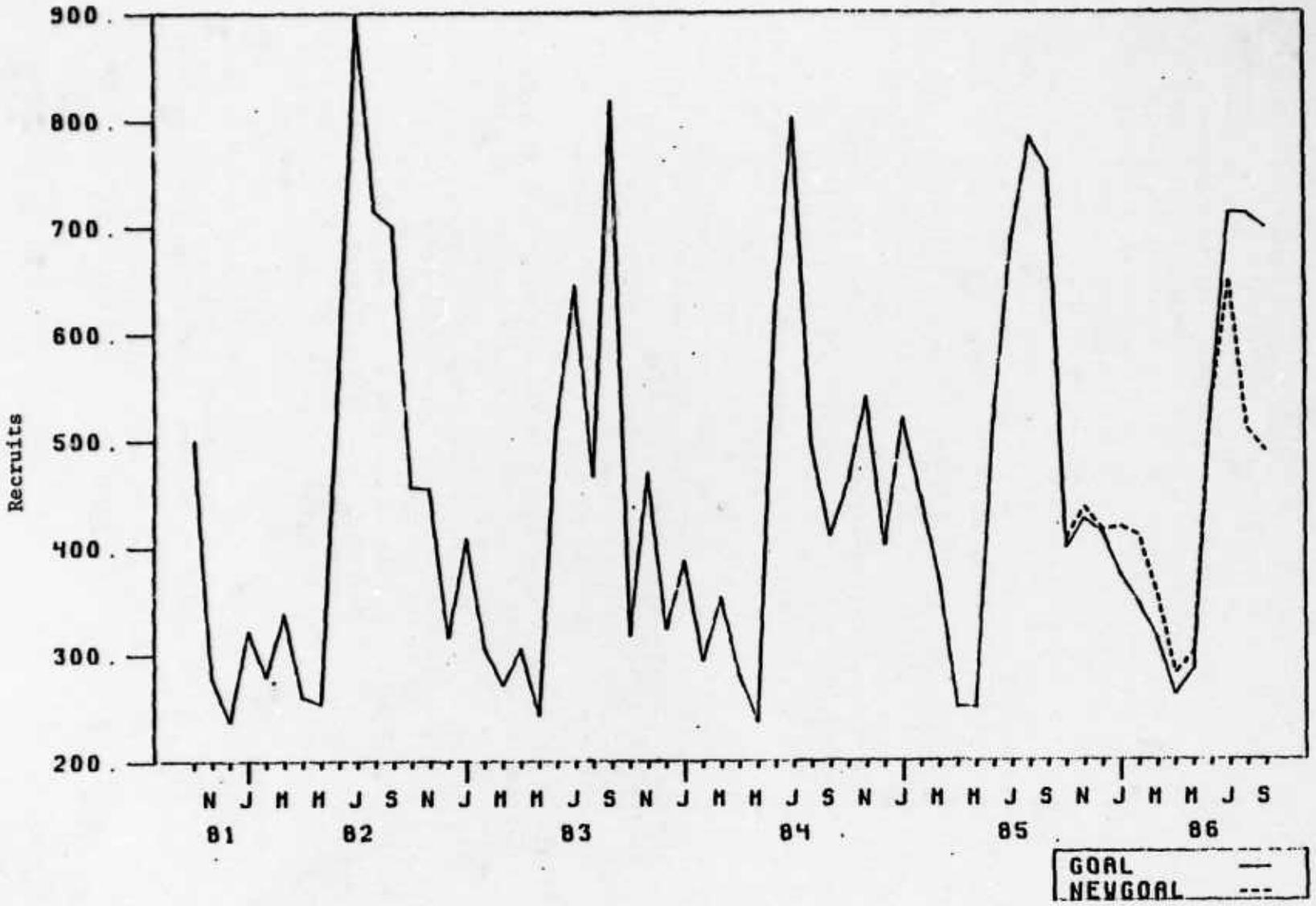

FIG. 1: NF ACCESSION GOAL

Table 1 presents the August 1985 and revised March 1986 versions of the NF accession goals for FY 1986.[1] Planned accessions for the months of June through September have been reduced from 48.5 percent of FY 1986 accessions to 41.7 percent, relative to the goals set at the beginning of the year. Winter and spring accessions have been increased from 36.4 percent to 41.9 percent. These percentages reflect total excess accessions of 190 (9.5 percent) over the August 1985 goals for the months of December through May, and a reduction of 258 (4.7 percent) in the FY 1986 total NF accession goal. This is strong qualitative evidence that the desired change in the seasonal pattern of accessions has been achieved. The extent to which this change can be attributed to the operation of the TEB is yet to be determined. It may, for example, be associated with other changes in the recruiting environment or with an increase in the level of recruiting effort.

Qualitatively, it seems unlikely that the observed adjustment of the accession goal for FY 1986 can be attributed to sources external to the Navy since the seasonal preferences of youth and private employers have probably not changed significantly in the last 6 months. The quantifiable Navy policy variables that are most likely to affect the seasonal pattern of accessions are the accession goal and the TEB. Though the original NF goals were quite similar to observed historical patterns, recruiters have been given incentives to exceed the January-through-May goals. Overshipments in these months, relative to the original accession goal, reduce summer accession goals one for one. Summer accession goals as of March 1986, however, cannot be reduced further without causing summer overshipments. Thus, additional spring accessions will reduce the total FY 1987 NF accession goal on a one-for-one basis. These are strong incentives to exceed stated winter and spring accession goals (as well as to fill summer positions early).

The pattern of accessions relative to goal by geographic recruiting area further complicates the evidence on the influence of goals and the TEB. Table 2 presents the ratio of actual accessions to accession goal for each of the six Navy recruiting areas since October 1983. Overall, there is a close correspondence between actual accessions and goal. However, in the spring of 1985, areas 3, 5, and 7 exceeded their goals by up to 40 percent, while areas 1 and 4 were only able to achieve 81 and 75 percent, respectively, of their March goals. A similar phenomenon is observed in January and February of 1986, with areas 3, 5, and 7 exceeding their shipment goals by 16 to 37 percent. In contrast to

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1. The source of the March revision is OP-135E. According to this source, the reduction in planned summer accessions is limited, at this late date, by the number of enlistment contracts already signed for accession in those months. The fact that summer accession slots fill up so early indicates that the TEB for the summer months could be reduced even further, with the potential for a large saving in bonus expenditures.

TABLE 1

NF ACCESSION GOALS: FY 1986

Month	August 1985 Number	(Percent)	March 1986 Number	(Percent)	Δ
October	399	(7.3)	408	(7.8)	9
November	425	(7.8)	436	(8.4)	11
December	413	(7.6)	416	(8.0)	3
January	373	(6.8)	418	(8.0)	45
February	346	(6.3)	410	(7.9)	64
March	314	(5.7)	355	(6.8)	41
April	261	(4.8)	281	(5.4)	20
May	285	(5.2)	302	(5.8)	17
June	528	(9.7)	532	(10.2)	4
July	712	(13.0)	650	(12.5)	-62
August	711	(13.0)	510	(9.8)	-201
September	698	(12.8)	489	(9.4)	-209
Total	5,465	100.0	5,207	100.0	-258

TABLE 2

RATIO OF TOTAL SHIPMENTS TO ACCESSION GOAL
BY RECRUITING AREA (OCTOBER 1983 THROUGH FEBRUARY 1986)

	Recruiting area					
Year - Month	1	3	4	5	7	8
1983 - 10	1.06	1.00	1.00	1.04	1.03	1.00
1983 - 11	.98	1.01	1.01	1.00	1.04	1.05
1983 - 12	1.06	1.04	1.01	1.02	1.03	1.00
1984 - 1	1.05	1.01	1.04	.98	1.00	.98
1984 - 2	.97	1.08	1.03	1.00	1.00	1.00
1984 - 3	1.01	1.03	1.04	1.00	1.05	1.00
1984 - 4	1.00	1.02	1.00	1.00	1.10	1.00
1984 - 5	.75	1.15	.95	1.07	1.24	1.00
1984 - 6	.94	1.03	1.01	1.00	1.08	1.00
1984 - 7	.79	1.05	1.03	1.01	1.09	1.01
1984 - 8	1.01	1.16	1.09	1.09	1.07	1.01
1984 - 9	1.07	1.10	1.02	1.03	1.09	1.03
1984 - 10	1.01	1.03	1.01	1.02	1.07	1.00
1984 - 11	1.00	1.01	.99	.99	.98	1.00
1984 - 12	.98	1.09	1.00	1.02	1.04	1.00
1985 - 1	1.00	1.10	.95	1.00	1.08	1.00
1985 - 2	.95	1.03	.92	1.00	1.03	1.00
1985 - 3	.81	1.24	.75	1.27	1.07	1.02
1985 - 4	1.00	1.29	.98	1.31	1.10	1.10
1985 - 5	1.06	1.17	1.02	1.40	1.30	1.13
1985 - 6	1.06	1.07	1.06	1.11	1.07	1.06
1985 - 7	1.06	1.05	1.06	1.07	1.07	1.06
1985 - 8	1.01	1.16	1.09	1.08	1.18	1.16
1985 - 9	1.03	1.02	1.03	1.03	1.06	1.02
1985 - 10	.99	1.05	1.01	1.07	1.04	1.00
1985 - 11	1.00	1.04	1.00	1.10	1.02	1.01
1985 - 12	1.02	.99	1.00	1.02	1.02	1.00
1986 - 1	1.01	1.19	1.03	1.16	1.28	.98
1986 - 2	.99	1.37	1.01	1.27	1.30	1.00

the 1985 experience, no area falls significantly below its goal in any month since the beginning of the TEB.

QUANTIFYING THE CHANGE IN SEASONAL PATTERN

Perhaps the most common method of characterizing seasonal patterns in economic data is the Census X-11 procedure that is used by the U.S. government.[1] One way to present the seasonal pattern is in terms of seasonal factors, which measure relative accession goals, normalized to average 100 over a year. Seasonal factors greater than 100 indicate months with relatively large goals, while factors smaller than 100 indicate small goals.

Table 3 presents seasonal factors for NF accession goals from January 1974 through September 1986. (The original data are presented in the appendix.) The degree of seasonality, as measured by these factors, is quite high, though there is a significant long-term decline in the seasonality of the NF accession goal dating from 1979.

Comparison of actual goals (see appendix) between FY 1985 and FY 1986 shows that the FY 1985 goals for October through March are more ambitious than prior goals or actual recruiting performance in FY 1986. This finding is indicative of an attempt to achieve a more evenly loaded accession profile through the use of accession goals and an increase (effective January 1985) in the NF EB. As will be shown later, achievement of the FY 1985 accession goals for these months produced a relatively large number of direct shipments.

The change in average seasonal component for the months of June through September, FY 1984 to FY 1986, is 139.8 to 135.8. For the observed annual level of about 5,200 accessions, this result implies a reduction of about 200 during the peak of summer and early fall. This estimate is consistent with the magnitude of winter and spring over shipments (190) presented in the previous section.

COST OF CURRENT TEB SUCCESS

Comparisons of bonus expenditures can easily be computed for alternative accession patterns. Paying relatively higher bonuses for spring and winter accessions and having relatively more accessions in those seasons means higher total bonus payments; thus, it is expected that a successful TEB will have higher total expenditures than one that is not successful. This does not imply that such expenditures will be higher than with a level bonus payment of, say, $5,000, which was introduced in January 1985.

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1. The Census X-11 procedure was developed at the U.S. Bureau of the Census. It is applied here by way of its implementation in the SAS ETS computer software [4], which contains a description of the technique.

TABLE 3

SEASONAL FACTORS OF NUCLEAR FIELD ACCESSION GOAL[a]

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
1974	96.5	78.1	67.9	64.3	52.6	132.5	161.5	165.2	159.1	105.1	70.2	47.8	100.1
1975	96.5	77.0	67.1	63.7	51.8	132.9	162.3	166.1	161.0	106.4	70.3	47.9	100.3
1976	95.2	74.2	65.5	63.1	51.1	134.8	163.0	166.6	163.4	108.0	70.8	47.9	100.3
1977	83.8	70.6	64.0	62.6	50.6	135.9	164.0	167.0	166.2	108.9	71.9	48.1	100.3
1978	82.3	67.2	62.8	62.3	50.3	136.8	164.7	167.1	167.7	109.6	73.7	48.3	100.2
1979	90.9	64.6	63.2	61.9	50.6	135.0	167.1	166.3	167.2	108.6	76.8	50.0	100.2
1980	89.1	63.7	64.0	62.7	52.0	133.3	168.4	161.8	163.8	106.5	82.1	53.4	100.1
1981	88.0	64.2	66.7	63.9	53.6	130.8	169.1	153.1	158.6	103.2	88.9	59.0	99.9
1982	88.9	67.0	69.3	64.3	54.6	128.4	167.4	143.2	154.7	99.9	95.0	65.9	99.9
1983	90.0	71.0	72.5	63.6	55.8	125.8	165.7	133.8	149.7	96.9	99.4	73.9	99.8
1984	91.9	75.4	74.2	63.0	57.0	124.2	162.2	126.3	146.5	94.7	102.4	80.8	99.9
1985	93.2	78.6	75.8	62.4	58.1	123.4	159.5	121.2	143.2	93.6	103.8	85.8	99.9
1986	94.9	80.4	76.5	61.9	58.0	123.2	157.7	119.3	143.0	93.5	104.1	87.9	100.0
AVG	92.6	72.4	69.0	63.0	53.9	130.0	163.5	148.2	156.2	102.0	86.7	63.3	

a. The seasonal factors for October through December 1986 are based on the 1985 goal values.

Holding the total accession goal constant at the revised March 1986 level, TEB expenditures for the revised phasing are about $422,000 per year more than the original August 1985 phasing (using the same TEB rates for both accession plans). If the $422,000 per year figure is taken as the cost of a successful rephasing of NF recruits into the winter and spring months, it yields a present value of roughly $4 to $5 million. Relative to a $5,000 EB not targeted to month of accession, total TEB payments are about $1.53 million per year less, assuming that the revised phasing is achievable under the nontargeted EB. The TEB is thus cost effective relative to the nontargeted EB that it replaced.

In a cost-benefit context, the $422,000 cost estimate gives a rough order of magnitude of training cost saving necessary to justify the current rephasing of NF accessions. For example, consider the pooling costs of recruits who must wait for training seats to become available when accessions are highly seasonal. For each recruit whose (planned) accession has been shifted out of the summer and into the spring, pooling costs of $2,250 per year (the difference in TEBs) must be saved in the training pipeline for the TEB differential to be cost effective relative to pooling of recruits awaiting instruction. In fact, differences in average pooling costs can provide a partial measure of the limit on the cost-effective differential between NF EBs for different seasons of the year.

DEP EXPERIENCE OF NF ACCESSIONS

In general, attrition during the first term of service is less likely to occur among recruits who spend time in the DEP than recruits who access in the same month as their original enlistment contract [3]. From this perspective, shipments from DEP are preferred to direct shipments. Comparison of NF DEP posture before and after the implementation of the TEB is thus an important component of its evaluation. An increase in direct shipments, at the expense of shipments from DEP, reduces the overall effectiveness of rephasing accessions.

Table 4 presents the distribution of original contract dates, by month, for accessions during October through February of 1982 through 1986. A useful indicator of DEP posture based on these tables is the percentage of total accessions for the month that are obtained either in the current month (direct shipments) or in the previous month. For October 1985, 11.1 percent of total accessions signed contracts in September and October. This compares to 10.4 percent for October 1982 and 24.6 percent for October 1984. November has a similar pattern across the years with the 1985 and 1982 percentages roughly equal and about half the 1984 value. It is remarkable that the October and November DEP postures are so similar between 1982, one of the best recruiting years of the All-Volunteer Force, and 1985, which is generally perceived to have been a less favorable recruiting environment.

TABLE 4

DISTRIBUTION OF CONTRACTS BY
ORIGINAL RESERVATION MONTH

Shipment month: October

Reservation month	1982	1983	1984	1985
OCT	11	21	56	21
SEP	37	24	60	24
AUG	63	11	57	43
JUL	95	19	66	46
JUN	53	19	59	45
MAY	36	62	33	72
APR	75	62	31	42
MAR	38	39	33	17
FEB	18	21	13	25
JAN	19	11	19	16
DEC	12	22	16	12
NOV	3	9	12	30
OCT	2	4	12	10
OTHER	0	1	4	4
Total	462	325	471	407

Shipment month: November

Reservation month	1982	1983	1984	1985
NOV	34	51	105	34
OCT	40	38	93	40
SEP	82	67	56	49
AUG	108	60	84	49
JUL	56	43	48	52
JUN	46	41	39	64
MAY	23	84	29	49
APR	31	40	32	35
MAR	19	26	14	19
FEB	6	6	15	12
JAN	3	6	7	7
DEC	3	4	9	11
NOV	2	5	5	9
OTHER	0	3	3	6
Total	453	474	539	436

TABLE 4 (Continued)

Shipment month: December

Reservation month	1982	1983	1984	1985
DEC	27	67	122	74
NOV	41	58	84	55
OCT	38	38	41	43
SEP	51	39	42	32
AUG	45	39	57	48
JUL	44	23	20	45
JUN	30	13	12	48
MAY	19	25	13	22
APR	9	12	6	17
MAR	7	9	4	9
FEB	2	2	5	4
JAN	3	4	2	9
DEC	1	2	4	7
OTHER	0	0	1	4
Total	317	331	413	417

Shipment month: January

Reservation month	1982	1983	1984	1985	1986
JAN	48	34	59	156	95
DEC	37	36	56	100	58
NOV	51	42	42	64	30
OCT	61	66	35	43	34
SEP	51	67	42	32	51
AUG	31	39	34	31	37
JUL	16	48	31	16	27
JUN	10	22	24	12	22
MAY	2	19	25	23	14
APR	6	17	17	18	18
MAR	6	14	15	13	14
FEB	6	2	6	15	7
JAN	3	3	4	3	5
OTHER	0	1	3	5	5
Total	328	410	393	531	417

TABLE 4 (Continued)

Shipment month: February

Reservation month	1982	1983	1984	1985	1986
FEB	54	43	57	152	89
JAN	49	26	63	125	92
DEC	64	35	35	44	44
NOV	52	49	23	27	27
OCT	23	30	40	21	44
SEP	16	20	26	21	25
AUG	7	31	11	11	19
JUL	5	34	10	5	26
JUN	3	20	12	14	19
MAY	1	8	8	7	8
APR	4	3	7	4	5
MAR	2	6	4	5	2
FEB	2	3	1	2	2
OTHER	0	0	1	1	3
Total	282	308	298	439	405

The rate at which the FY 1986 DEP filled up relative to the accession goal for December, January, and February was more similar to the experience of FY 1984 than that of FY 1983, though for each month it was a substantial improvement over FY 1985. In December 1985, 30.9 percent of the shipments signed their contracts in November or December. The corresponding percentages for December 1982 and 1984 are 21.4 and 38.2. In January 1985 (1983), 48.2 (17.1) percent of accessions were contracted in December 1984 (1982) or were direct shipments. The 1986 percentage was 36.7. The 1983, 1985, and 1986 percentages for February were 22.4, 63.1, and 44.7, respectively.

For January, the primary difference between 1985 and 1986 is in summer recruiting, with 20.6 percent of January 1986 accessions contracted during the summer of 1985 and only 11.1 percent of January 1985 accessions contracted during the summer of 1984. A similar observation holds for February accessions of 1985 and 1986. The low direct-shipment percentages for January and February of 1983 are due to better summer and fall contract attainment than is observed in more recent years.

Tables 5 through 8 provide another view of the rate at which DEP inventories scheduled for shipment have accumulated in relation to past years and to the accession goal. Each entry in these tables is a ratio of the FY 1986 value to a previous fiscal year value (FY 1982 through FY 1985). The variable defined as DEP in the tables is the ratio of the number of recruits in DEP in FY 1986 relative to the same month of a previous year, for each month of expected shipment. The GOAL variable is defined similarly. Thus, the October 1985 DEP scheduled for shipment in November was 93 percent of the October 1984 DEP scheduled for shipment in November, but the 1986 November goal was only 79 percent of the 1985 goal. The October 1985 DEP scheduled to ship in November stood in better relation to the November 1985 goal than did the previous year's DEP with a ratio of relative DEP to relative GOAL of 1.19.

Table 5 shows that, relative to FY 1985, the FY 1986 DEP profile of expected shipments is larger in almost every instance (except for shipments in August and September), both in absolute terms and as a percentage of goal. Though March, April, and May appear to have fared particularly well by this measure of recruiting performance, there is evidence that June and July are also substantially improved, in spite of a reduction in the EB for those months. This may be the result of shifting August and September recruits into the early part of the summer.

TABLE 5

RELATIVE DEP AND GOAL LEVELS BY
MONTH (FY 1986 vs. FY 1985)

Month of FY	Variable	Accession month N	D	J	F	M	A	M	J	J	A	S
	DEP	.93	1.48	1.17	1.77	2.02	2.13	2.20	1.56	2.08	.03	.00
OCT	GOAL	.79	1.03	.72	.70	.63	1.04	1.14	1.06	1.04	1.21	1.19
	DEP/GOAL	1.19	1.44	1.62	2.54	3.18	2.04	1.93	1.48	2.00	.02	.00
	DEP	--	1.26	1.04	1.76	1.87	2.43	2.00	1.46	1.62	.68	.54
NOV	GOAL	--	1.03	.72	.70	.63	1.04	1.14	1.06	1.04	1.21	1.19
	DEP/GOAL	--	1.23	1.45	2.53	2.95	2.33	1.75	1.38	1.56	.56	.46
	DEP	--	--	.98	1.58	2.07	2.80	1.71	1.23	1.33	1.01	.71
DEC	GOAL	--	--	.74	.73	.63	1.04	1.14	1.12	.95	.92	1.01
	DEP/GOAL	--	--	1.33	2.18	3.27	2.68	1.50	1.11	1.40	1.11	.71
	DEP	--	--	--	1.23	1.73	3.43	1.91	1.16	1.21	.99	.88
JAN	GOAL	--	--	--	.73	.63	1.04	1.14	1.12	.95	.92	1.01
	DEP/GOAL	--	--	--	1.70	2.74	3.29	1.68	1.04	1.28	1.08	.87
	DEP	--	--	--	--	1.37	2.65	2.02	1.18	1.15	.87	.91
FEB	GOAL	--	--	--	--	.63	1.04	1.14	1.10	.95	.88	.93
	DEP/GOAL	--	--	--	--	2.17	2.54	1.77	1.07	1.22	.99	.97

TABLE 6

RELATIVE DEP AND GOAL LEVELS BY MONTH (FY 1986 vs. FY 1984)

Month of FY	Variable	Accession month N	D	J	F	M	A	M	J	J	A	S
	DEP	.98	1.59	1.12	1.32	1.32	1.25	2.65	1.92	2.43	.04	.00
OCT	GOAL	.90	1.27	.96	1.18	.78	.93	1.48	.74	1.02	1.24	.85
	DEP/GOAL	1.08	1.25	1.16	1.12	1.69	1.35	1.78	2.61	2.40	.04	.00
	DEP	--	1.45	1.10	1.38	1.15	1.41	2.76	1.80	2.17	.94	.68
NOV	GOAL	--	1.27	.96	1.18	.78	.93	1.48	.74	1.02	1.24	.85
	DEP/GOAL	--	1.13	1.14	1.17	1.47	1.51	1.86	2.44	2.13	.76	.79
	DEP	--	--	1.12	1.42	1.05	1.43	2.46	1.57	1.87	1.35	.93
DEC	GOAL	--	--	.99	1.23	.78	.93	1.48	.78	.93	.94	.73
	DEP/GOAL	--	--	1.13	1.16	1.35	1.54	1.66	2.02	2.02	1.43	1.28
	DEP	--	--	--	1.40	1.08	1.50	2.44	1.38	1.68	1.36	1.16
JAN	GOAL	--	--	--	1.23	.78	.93	1.48	.78	.93	.94	.73
	DEP/GOAL	--	--	--	1.14	1.38	1.61	1.64	1.78	1.81	1.45	1.59
	DEP	--	--	--	--	1.08	1.45	2.46	1.24	1.49	1.36	1.24
FEB	GOAL	--	--	--	--	.78	.93	1.48	.77	.93	.91	.67
	DEP/GOAL	--	--	--	--	1.38	1.56	1.66	1.62	1.61	1.50	1.85

TABLE 7

RELATIVE DEP AND GOAL LEVELS BY MONTH (FY 1986 vs. FY 1983)

Month of FY	Variable	Accession month N	D	J	F	M	A	M	J	J
	DEP	.94	1.30	.89	1.03	.95	.85	1.00	1.26	1.59
OCT	GOAL	.94	1.31	.91	1.13	1.03	1.07	.97	.84	1.07
	DEP/GOAL	1.00	.99	.97	.91	.93	.80	1.03	1.50	1.48
	DEP	--	1.25	.88	1.03	.89	.86	1.23	1.24	1.51
NOV	GOAL	--	1.31	.91	1.13	1.03	1.07	.97	.84	1.07
	DEP/GOAL	--	.96	.97	.91	.86	.80	1.27	1.47	1.41
	DEP	--	--	.99	1.07	.89	.88	1.06	1.17	1.38
DEC	GOAL	--	--	.94	1.18	1.03	1.07	.97	.89	.98
	DEP/GOAL	--	--	1.05	.90	.87	.82	1.09	1.32	1.41
	DEP	--	--	--	1.33	.98	.93	1.07	1.13	1.24
JAN	GOAL	--	--	--	1.18	1.03	1.07	.97	.89	.98
	DEP/GOAL	--	--	--	1.12	.95	.87	1.11	1.28	1.26
	DEP	--	--	--	--	1.23	.92	1.21	1.12	1.14
FEB	GOAL	--	--	--	--	1.16	.86	1.17	.99	.82
	DEP/GOAL	--	--	--	--	1.06	1.07	1.03	1.13	1.39

TABLE 8

RELATIVE DEP AND GOAL LEVELS BY
MONTH (FY 1986 vs. FY 1982)

Month of FY	Variable	Accession month N	D	J	F	M	A	M	J	J	A	S
	DEP	1.69	2.05	1.29	2.17	3.36	5.82	3.46	1.56	3.23	.07	.00
OCT	GOAL	1.53	1.96	.93	1.23	1.11	.88	1.22	.70	.95	.95	.92
	DEP/GOAL	1.10	1.05	1.39	1.77	3.02	6.58	2.83	2.21	3.40	.07	.00
	DEP	--	1.81	1.17	1.60	2.15	3.75	3.52	1.58	2.76	1.41	1.14
NOV	GOAL	--	1.74	1.16	1.24	.93	1.00	1.22	.70	.95	.95	.92
	DEP/GOAL	--	1.04	1.01	1.30	2.32	3.74	2.87	2.24	2.91	1.48	1.23
	DEP	--	--	1.21	1.27	1.38	2.92	2.96	1.46	2.27	1.81	1.57
DEC	GOAL	--	--	1.19	1.29	.93	1.00	1.22	.74	.87	.72	.78
	DEP/GOAL	--	--	1.01	.99	1.49	2.92	2.42	1.96	2.62	2.50	2.01
	DEP	--	--	--	1.35	1.05	1.43	2.20	1.28	1.82	1.75	1.88
JAN	GOAL	--	--	--	1.29	.93	1.00	1.12	1.00	.82	.72	.78
	DEP/GOAL	--	--	--	1.04	1.13	1.43	1.96	1.27	2.20	2.42	2.40
	DEP	--	--	--	--	1.05	1.14	1.56	1.18	1.49	1.54	1.72
FEB	GOAL	--	--	--	--	.93	1.00	1.12	.73	.82	.70	.73
	DEP/GOAL	--	--	--	--	1.14	1.14	1.39	1.62	1.81	2.22	2.38

The same pattern of improvement in the DEP profile is apparent for FY 1982 and FY 1984. However, the FY 1983 DEP profile indicates a faster accumulation of recruits in DEP relative to goal for some months than FY 1986. This result is not surprising in view of the better recruiting environment of that period. (The FY 1983 table does not include the months of August and September because no goal information on those months is available from the PS until late in the year.) January, March, and April DEP for 1986 ranges from 85 to 99 percent of the 1983 values, depending on the particular observation month-accession month combination, and the 1986 goals are generally higher. It is surprising that the December, February, and May DEP profiles of FY 1986 are slightly better than those of FY 1983. This result is strong evidence that a greater recruiting effort over an extended period has been devoted to the winter and spring months of FY 1986.

AGE AND MENTAL GROUP COMPOSITION OF ACCESSIONS

Age and mental group are two other characteristics that might be affected by the implementation of the TEB.[1] The age composition of accessions may be affected because virtually all NF accessions have high school diplomas. Since high school graduation typically occurs in early summer, larger winter and spring accessions must be drawn from a group that has graduated at least 6 months before accessing. The TEB could increase the average age of accessions, a characteristic which is generally negatively related to first-term survival.

Table 9 presents percentages of accessions by mental group and age for the first 5 months of FY 1985 and FY 1986 and the average of the relevant month for FY 1981 through FY 1984. The mental group composition of NF accessions is quite stable over the period since 1981. The November 1985 mental group 1 percentage of NF accessions is 4 points below the recent average, with no compensating increase in mental group 2 accessions. On the other hand, the February 1986 accessions are slightly higher quality than the recent average. Accessions for October through December of FY 1986 are significantly younger than in recent history, especially FY 1985, though February 1986 accessions are older. There appears to be no systematic deterioration of the mental group composition of NF accessions, nor any increase in the average age of NF recruits thus far in the TEB experiment.

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1. Mental group is based on the recruit's score on the Armed Services Vocational Aptitude Battery (ASVAB), which is taken before an enlistment contract is signed. Virtually all NF accessions are drawn from the top two mental group categories, defined to be mental groups 1 and 2.

TABLE 9

MENTAL GROUP AND AGE COMPOSITION
OF NUCLEAR FIELD ACCESSIONS
(Percent)

Month of accession	Fiscal year	Mental group		Age		
		1	2	17-18	19-20	21-22
	FY 1985	23	75	50	30	14
	FY 1986	24	73	54	26	11
October	Average[a]	24	73	47	33	13
	FY 1985	27	72	41	31	18
	FY 1986	22	74	42	34	15
November	Average[a]	26	73	36	38	17
	FY 1985	25	72	27	43	17
	FY 1986	26	70	38	36	18
December	Average[a]	24	74	32	41	18
	FY 1985	26	72	34	37	21
	FY 1986	25	73	31	38	21
January	Average[a]	26	73	29	43	19
	FY 1985	29	69	25	43	19
	FY 1986	30	69	21	47	18
February	Average[a]	27	72	27	41	21

a. Average is calculated for the relevant month's accessions from FY 1981 through FY 1984.

FUTURE EVALUATIONS

No effort has been made in this first evaluation of the TEB experiment to determine the relative importance of the financial incentives of the TEB in altering the phasing of the NF accession profile. A quantitative assessment of TEB's influence on NF accessions will be attempted in future evaluations. It is expected that the methodology will consider the simultaneous variation in accessions, DEP profiles, and quality measures of NF recruits over time. It should also be possible to analyze statistics on the switching of enlistment contracts from other programs to the NF program and vice versa. The large differences between recruiting areas with respect to the accession goal and actual accessions indicate another dimension in which the effects of the TEB can be explored.

CONCLUSION

Available evidence indicates that some combination of factors including the TEB, recruiting effort, and economic conditions has increased winter and spring accessions above their historical seasonal levels and reduced planned summer accessions below their historical levels. This change has occurred in spite of stated accession goals that closely resemble the historical pattern. Movement toward the level loading of NF accessions has been achieved with a remarkable improvement in the NF DEP posture and without sacrificing the average quality of NF recruits. Future evaluations will attempt to quantitatively assess the relative importance of the TEB, increased recruiting effort, and economic conditions.

REFERENCES

[1] CNA, Research Memorandum 85-105, "The History and Effectiveness of the Enlistment Bonus Program for Procuring Nuclear Field Personnel," by Aline Quester and Sarah Jeffries, Oct 1985

[2] CNA, Research Memorandum 86-3, "Non-Prior-Service Accession Data Set: FY 1978 - FY 1984," by George R. Corliss, Jan 1986

[3] CNA, Research Memorandum 86-45, "Screen Tables for Non-Prior-Service Accessions for FY 1978 - 1984" by Aline Quester, Mar 1986

[4] SAS Institute, Inc. SAS/ETS User's Guide, Version 5. Cary, NC: SAS Institute, Inc., 1984

APPENDIX

NUCLEAR FIELD ACCESSION GOAL

TABLE A-1

NUCLEAR FIELD ACCESSION GOAL

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1974	450	350	300	250	250	490	650	650	360	360	250	170	4530
1975	350	300	250	250	200	500	600	600	550	400	250	170	4420
1976	350	280	250	250	200	500	574	598	501	405	425	209	4542
1977	356	310	280	270	220	650	760	800	800	600	335	220	5601
1978	450	300	280	280	220	650	840	840	840	541	300	228	5769
1979	378	250	260	265	230	650	752	752	752	483	261	203	5236
1980	429	296	301	303	242	586	751	752	751	483	267	200	5361
1981	421	294	293	295	233	750	750	746	758	500	278	238	5556
1982	322	280	338	260	254	556	898	714	700	456	454	316	5548
1983	408	306	271	305	243	514	644	466	818	318	470	324	5087
1984	387	294	353	280	237	616	801	495	410	461	540	402	5276
1985	520	446	371	250	250	517	687	783	751	408	436	416	5835
1986	419	410	355	281	302	532	650	510	489	408[a]	436[a]	416[a]	5208
AVG	403	317	300	272	237	578	720	670	652	448	362	270	

a. These values are assumed to be the same as the 1985 values. At this time, the FY 1987 goals are not known.