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THESIS

A LONGITUDINAL ANALYSIS OF THE
ACCEPTANCE RATES OF THE NAVY'S
VOLUNTARY SEPARATION INCENTIVE/
SPECIAL SEPARATION BENEFIT
(VSI/SSB) PROGRAM

by

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This thesis investigates the behavior of Navy enlisted personnel who were eligible for the fiscal 1992 or fiscal 1993 VSI (Voluntary Separation Incentive) and SSB (Special Separation Bonus) Program. The objectives of this thesis are: (1) to determine the characteristics of individuals who do not accept VSI or SSB when initially offered, but rather wait for a period of time before making the acceptance decision, and (2) to determine if individuals are more likely to take the separation bonus during the initial phase of eligibility or during a later phase. Using data provided by the Defense Manpower Data Center, binomial and multinomial logit models are estimated to explain the factors affecting the timing of the acceptance decision. The results show that the statistically significant factors in the timing of the acceptance decision are consistent with those identified in previous studies as being significant to the overall take decision, and that the overwhelming majority of those who accept either VSI or SSB do so during their initial phase of eligibility. In addition, individuals who were eligible during the previous fiscal year (1992) are less likely to accept one of the separation bonuses in fiscal 1993. The thesis provides recommendations for adjusting program eligibility criteria to achieve desired acceptance results and also recommends future research.

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of the Navy's Voluntary Separation Incentive/
Special Separation Benefit (VSI/SSB) Program

by

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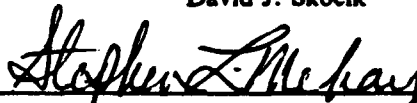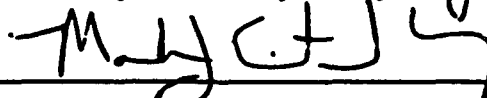September 1993

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ABSTRACT

This thesis investigates the behavior of Navy enlisted personnel who were eligible for the fiscal 1992 or fiscal 1993 VSI (Voluntary Separation Incentive) and SSB (Special Separation Bonus) Program. The objectives of this thesis are: (1) to determine the characteristics of individuals who do not accept VSI or SSB when initially offered, but rather wait for a period of time before making the acceptance decision, and (2) to determine if individuals are more likely to take the separation bonus during the initial phase of eligibility or during a later phase. Using data provided by the Defense Manpower Data Center, binomial and multinomial logit models are estimated to explain the factors affecting the timing of the separation decision. The results show that the statistically significant factors in the timing of the acceptance decision are consistent with those identified in previous studies as being significant to the overall take decision, and that the overwhelming majority of those who accept either VSI or SSB do so during their initial phase of eligibility. In addition, individuals who were eligible during the previous fiscal year (1992) are less likely to accept one of the separation bonuses in fiscal 1993. The thesis provides recommendations for adjusting program eligibility criteria to achieve desired acceptance results and also recommends future research.

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I. INTRODUCTION

A. PURPOSE OF THESIS

The Department of Defense has adopted the Voluntary Separation Incentive (VSI) and Special Separation Benefit (SSB) programs, authorized by the 1992 National Defense Authorization act, as one of the most visible policy tools in its current strategy to downsize the military. The program has been fairly successful in aiding the Navy's efforts to meet end-strength requirements and to properly "shape" the force, particularly at the mid-career level. In 1992, for example, 3,876 Navy enlisted personnel elected to accept the VSI or SSB, with 3,408 "takers," to date, in 1993 [Ref. 1]

This thesis, unlike others that have been completed on this subject, will not attempt to determine why an individual decided to accept the VSI/SSB offer or why more service members opted for lump-sum payments (SSB) over yearly annuity checks (VSI). Rather, it will attempt to determine the effect of ratings type and the timing of program offerings on individual decisions to take the VSI or SSB. The results of this study should be of benefit to Navy manpower and budget planners as the drawdown continues. The results should also provide additional insight into the efficiency and

effectiveness of the programs and possibly aid in "fine-tuning" voluntary separation benefits in the future.

B. BACKGROUND: WHY IS VSI/SSB NEEDED?

In 1989, the armed services began reducing military personnel end strength. Contributing factors to these force reductions included the fall of the Soviet Union and the dissolution of the Warsaw Pact. The end of the Cold War radically altered the basis of the defense policy of the United States and, as a result of these events, Congress determined that the size of the armed forces exceeded the nation's needs. The military was planning its reductions and developing policies based on estimates that projected the enlisted Navy end strength at 494,923 for fiscal 1991, with current estimates further reducing it to 439,373 by the end of fiscal 1993 [Ref. 1]. The budget problems facing the newly-elected administration, highlighted by larger-than-expected deficit figures, provided sufficient pressure to cut military spending more than planned and forced the projected end strength figures even lower than anticipated. This is reflected in the fiscal 93 Presidential Budget, which proposed, for the Navy, a fiscal 1994 enlisted end strength of 413,825, approximately 20,500 fewer than in previous projections [Ref. 1].

There is no precedent for these drastic reductions in the all-volunteer period. All previous large-scale force

reductions occurred following the conclusion of a war in which conscription was used to "grow the force." Since the majority of the personnel in the armed forces during these periods were draftees or draft-induced enlistees had not chosen the military as their primary career, equitable treatment of volunteers was not a major consideration. Consequently, force reductions in these cases were accomplished simply by lowering the number of draftees and by allowing those drafted to return home.

These methods of reducing end strength cannot be used by responsible policy makers in the era of the all-volunteer force (AVF). In today's AVF, individuals voluntarily enter the service by enlisting. Relatively high numbers of these enlistees re-enlist, stay in the military, and plan on retiring at the completion of at least 20 years of service. Also, during the most of the volunteer era, manpower policies focused on enlisting and retaining high-quality personnel. To maintain a high-quality force, policies were aimed at providing higher levels of compensation as well as substantial reenlistment bonuses to keep quality personnel. These policies have been successful. Today's military is the most senior of any in the last 50 years. Ironically, it is the successes of manpower planners in developing these policies, coupled with their increased understanding of the effects of previous force reduction methods on force-shaping and

effectiveness, that complicate force drawdowns in the all-volunteer era.

To reach ₋he end strength goals of a smaller armed forces, military manpower planners are turning their attention toward developing a set of compensation policies particularly suited for the all-volunteer force. These policies must satisfy stated Congressional preferences for reducing the force through voluntary separations, in an equitable and fiscally prudent-manner, and take into account the career expectations of volunteers.

It is obvious that these constraints effectively negate the use of the draft-era force reduction methods. Aside from the fact that previous downsizing techniques did not equitably consider career expectations, manpower analysts have concluded that the force reduction methods used in past do more harm than good, both in the short and long term. End strength reductions that cut accessions and/or release junior personnel disproportionately cause large increases in seniority in the short-term and make cyclical changes in the experience distribution of the force more likely in the future [Ref. 2:p. 8]. The increase in near-term seniority provides the services with a capable, but expensive force. The cyclical experience distribution, on the other hand, may require senior personnel to perform jobs below their ability level. As these senior personnel retire, the junior personnel are required to fill positions that they may not have sufficient experience to

perform effectively. This may lead to a decrease in military effectiveness. The uneven experience distribution can also cause a lag in promotion opportunities for junior personnel. One effect of decreased promotion opportunities is the loss of higher quality junior personnel, who tend to be more sensitive to promotion opportunities.

Involuntary separations can clearly (and easily) meet any numerical end strength goals. The major drawbacks to large-scale involuntary separations include: 1) devastating effects on the morale of remaining members; 2) adverse consequences for future recruiting; and 3) negative public perceptions, especially if senior personnel are adversely affected. In addition, they would be contrary to the wishes of Congress to concentrate on voluntary separations [Ref. 2:p. vii]. These detrimental effects occur even though monetary separation payments are provided for personnel involuntarily separated under honorable conditions. These payments fall far short of providing equitable compensation for the loss of pension benefits for the majority of individuals and, if provided as an incentive for voluntary separations, would not provide the military departments with an adequate number of separations.

Involuntary separations become even less of an option as an individual's length of service increases above ten to twelve years. This results from an implicit contract that develops between the military and service members, over time, as a result of the sudden vesting for retirement which occurs

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at twenty years of service. This contract protects mid-career personnel from actions that would substantially affect their expected future income. The implicit contract is not one-sided, however, as it also benefits the military. It serves as protection to the services against sudden, sizable departures of career personnel during periods of growth or stability. During periods of force reductions, though, this implicit contract acts as an additional constraint for military planners. It requires voluntary separation policies to provide incentives that service members perceive as being sufficient to surrender expected retirement benefits [Ref. 2:p. 2].

To date, military manpower planners have developed several policies to help facilitate the downsizing efforts required to meet end strength requirements imposed upon the services. These policies provide the mechanisms for properly "shaping" the force, thus avoiding problems caused by cyclical changes in the experience distribution. One reason these policies prove to be effective is that each policy affects personnel at different levels of experience and skill. The policies provide different incentives for distinct categories of service members in an attempt to overcome the diverse career expectations of the force. By targeting personnel at different levels of experience with different programs, military policy planners have been successful in ensuring that

force reductions result in proportional cuts across experience levels.

The first downsizing policy is to reduce accessions. But, reducing accessions goes only so long as future end strength requirements are sustained. Reductions that are below the level to sustain requirements only serve to exacerbate the "hollow force" phenomenon caused by cyclical experience distribution.

Another policy, the Enlisted Navy Career Objectives for Reenlistment (ENCORE) program, though not technically a voluntary separation incentive program, is an effective force-shaping tool. Employed in conjunction with controlled reenlistment rates, it concentrates exclusively on first-term personnel. ENCORE redistributes junior personnel into underpopulated ratings or occupations and separates those unwilling to transition into other ratings. It has been successful in filling historically undermanned ratings, thus reducing "experience gaps." It also creates increased promotion opportunities. The reduction in experience gaps and the resulting morale increase from additional advancement opportunities should result in a higher quality force in the future.

High Year Tenure (HYT) adjustments and Selective Early Retirement (SER) boards have also been used to influence retention behavior. They both are methods used to reduce the number of mid- and upper-level officers and enlisted personnel

without affecting the retirement eligibility of these personnel. Though they are involuntary programs, they only apply to personnel who are already retirement-eligible and have not met advancement or promotion requirements. SER boards in the Navy have, to date, concentrated on retirement-eligible Limited Duty Officers, Commanders and Captains who have twice failed to be selected for the next highest pay grade. HYT numbers, on the other hand, indicate the maximum number of years that enlisted members of certain pay grades may remain in the service prior to mandatory retirement. The HYT limits have been adjusted as shown in Table 1.

TABLE 1

**HIGH YEAR TENURE (HYT) ADJUSTMENTS
BY PAYGRADE, FISCAL 1993-94**

Fiscal Year	HYT Years by Paygrade					
	E-4	E-5	E-6	E-7	E-8	E-9
1993	10	20	23	26	28	30
1994	10	20	20	24	26	30

Source: [Ref. 3]

These policies have worked very well thus far. Personnel with six to 20 years of service, however, have not been effectively targeted, though, which led to the development of the VSI and SSB programs. This program policy, in keeping with the intentions of Congress to minimize involuntary separations, focuses on specific individuals, based on

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ratings, Navy Enlisted Classifications (NEC), and various years of service. The policy offers these individuals their choice of a Variable Separation Incentive (VSI) or a Special Separation Benefit (SSB). The years of service range, driven by manning levels in specific occupations, varies across ratings and allows the program to meet the specific needs of the Navy. The specifics of the VSI and SSB programs are discussed in the next section.

C. VSI/SSB PROGRAM STRUCTURE

The VSI and SSB programs became effective on January 1, 1992. Specific procedures for eligibility, VSI/SSB program benefits and details. about program implementation are described below.

1. ELIGIBILITY CRITERIA

A service member is eligible to apply for the VSI or SSB program if he or she meets the following criteria:

- Has completed at least six years of active duty prior to December 6, 1991, but less than 20 years of service;

- Has completed at least five years of continuous active service immediately prior to the effective date of separation;

- Is serving on active duty, or, if a Reservist, is on the active duty list; and

- Fulfills any other criteria, as established by the individual services, such as years of service, skill or rating, grade or rank and remaining period of obligated service [Ref. 4:pp. 6-59,6-60].

Service members who do meet all of the eligibility requirements may voluntarily request separation under the VSI or SSB program. Not all eligible personnel who apply for the program must be approved; applications may be rejected if readiness becomes an issue. Service members who are approved must separate from the military prior to September 30, 1995, when Congressional authority for the program expires [Ref. 5:p. 2].

2. PAYMENTS, BENEFITS AND RESERVE OBLIGATIONS.

a. Voluntary Separation Incentive (VSI)

The VSI provides a stream of annual payments equal to 2.5 percent of the separating individual's final monthly basic pay, multiplied by 12 and multiplied again by the number of years of service. These annual payments will continue for a period equal to twice the number of years of active duty service. Acceptance of VSI requires a Ready Reserve obligation for a period equal to the length of the annual payments. All payments and benefits will be discontinued if the service member is separated from the reserves, unless the service member becomes ineligible to continue to serve in the reserve due to medical, age or other limitations. In the event of the service member's death, annual payments will continue to designated beneficiaries for the remaining entitlement length.

b. *Special Separation Benefit (SSB)*

Member's approved for separation under the SSB will receive a lump-sum payment equal to 15 percent of the individual's final monthly basic pay, multiplied by 12 and multiplied again by years of service. In addition to the pecuniary benefits just mentioned, these individuals also receive the same non-pecuniary benefits as members who are involuntarily separated. Individuals receiving the SSB are required to serve in the Ready Reserve for at least three years. If the service member has obligated service remaining at the time of separation from active duty, the three-year obligation commences on the day after completion of the obligation.

3. PROGRAM IMPLEMENTATION DETAILS

The fiscal 1992 program was offered in four separate phases. As the year progressed, the VSI and SSB were offered to an increasing number of Navy enlisted personnel by expanding eligible ratings and years of service categories. The vast majority of "takers" chose the lump sum payments of the SSB instead of the VSI annuity. These results were opposite of those expected by the manpower planners. They had anticipated that a much higher proportion of personnel would choose the VSI annuities, due, in part, to the higher net present values and to the similarity to the 20-year retirement plan. The difference in results from those expected caused a

large increase in the up-front costs to the Navy due to the higher initial SSB payments. It is felt that a possible reason for the one-sided result is the difference in the non-pecuniary benefits between the two separation incentives. To help increase the number of personnel opting for the annual annuities, the Department of Defense authorized the equalization of non-pecuniary benefits between the two separation incentives for fiscal 1993. These changes in the benefits may not have achieved the desired results, as the equalization of the benefits were not widely known by the Fleet until the third of the three fiscal 1993 program phases. But, even in phase 3, the number of personnel choosing SSB over VSI shows the changes would not have produced the desired results.

D. OBJECTIVES

This study has two primary objectives. The first objective is to determine the characteristics of individuals who do not accept VSI or SSB when initially offered, but rather wait for a period of time until making the decision to leave the service via this program. Secondly, this study attempts to determine when individuals are more likely to take the separation bonus. That is, are individuals more likely to accept the bonus when first eligible or during a later phase?

E. RESEARCH QUESTIONS

The primary research questions to be answered are:

- When an individual is eligible to separate via the VSI or SSB program for several phases, what are the determining factors in the timing of the separation decision?

- How does prior eligibility for the VSI and SSB program affect the take decision making process during later eligibility phases?

F. SCOPE OF THESIS

This thesis uses both 1992 and 1993 data to analyze the impact of the timing of the eligibility announcements and attempts to determine why individuals accepted VSI/SSB when they did. It attempts to accomplish this by looking at the data longitudinally. This information may help to clarify reasons why some individuals or groups of individuals are more or less likely than others to use the VSI or SSB to separate from the naval service. The results may also provide some insight into the importance of ensuring the widest possible dissemination of information concerning the drawdown to all Naval personnel, whether eligible for the program or not.

This study should help manpower and budget planners as the Navy continues its drawdown, with larger than expected reductions possible in the near future. It should provide additional insight into the efficiency and effectiveness of the separation benefits and enable manpower planners to fine-tune the program in the near future.

G. ORGANIZATION OF STUDY

It is intended for each chapter to build on the information contained in the preceding chapters. The information presented in Chapter II, for example, provides the theoretical framework for the creation of the variables used and the model specified in Chapter III. Following this, Chapter IV offers an in-depth look at the data used in the study. Results and analysis of the data previously described is presented in Chapter V, while Chapter VI contains the conclusions and recommendations.

II. LITERATURE REVIEW

A. INTRODUCTION

The military is facing the unique challenge of developing incentives for individuals to voluntarily leave the service. A great deal of the literature on the All-Volunteer Force investigates factors that affect the propensity of people to join or remain in the military. An example of an analytical model used in these studies is the annualized cost of leaving (ACOL) model, developed by John T. Warner to study the relative effectiveness of alternative retirement systems on enlisted retention [Ref 6:p. 3].

There have been very few studies conducted to date that specifically discuss the subject of voluntary separation incentives used by the military. Consequently, this chapter summarizes some literature that is available in related areas. First, a short discussion of the ACOL model is presented, along with an explanation of the theory of occupational choice. This is followed by summaries of studies in the following areas: organizational decline in the private sector and reenlistment and voluntary turnover in the military. The literature review is concluded with a discussion of studies most closely related to the use of voluntary separation

incentives--reports on military financial incentives and benefits.

B. ANNUALIZED COST OF LEAVING (ACOL)

Many of the factors that go into the reenlistment decision have been summarized in the ACOL model. This model, developed by Warner to determine the effects of changes in the military retirement system on reenlistment decisions, is widely used today by manpower planners to predict retention [Ref. 7:p. 24]. The model assumes that an individual's decision to leave or remain in the military is based on the perceived costs and benefits of continued military service versus civilian alternatives. It compares the present value of streams of future military and civilian incomes. In its simplest form, the model is specified as

$$ACOL = M + B - C$$

where M is the discounted expected military stream of payments, B is the effect of a bonus, and C is the discounted, expected civilian payment stream [Ref. 8:p. 25]. The decision to stay will be made when M, the military option, is perceived to be greater than C, the civilian option. The bonus effect, B, would be added to the military payment stream in the case of a selected reenlistment bonus (SRB) and subtracted in the event of VSI/SSB. In essence, VSI/SSB payments have the effect of increasing the expected civilian payment stream, while SRBs have the opposite effect and increase the expected

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military stream. It is precisely these effects that point to the probable relevance of past SRB studies to current studies on the VSI/SSB program.

The perceived value of each income stream is determined by personal discount rates. The perceived values of these streams are identical at the "breakeven" point, also known as the "breakeven" discount rate. Those with personal discount rates exceeding the "breakeven" rate will accept the separation bonus and leave the service, while those with personal discount rates below the "breakeven" point will stay [Ref. 9:p. 4].

Prior research has identified a variety of factors or individual characteristics that determine personal discount rates. These characteristics may assist in acting as indicators of the likelihood of accepting the VSI/SSB bonus. Many of these factors were summarized by Mehay and Kirby [Ref. 9]. Some of the factors that are associated with higher personal discount rates (and thus the probability of accepting the separation bonus) include lower education levels, lower skill levels, fewer years of service, minority status, a lower probability of promotion or of reaching retirement (as measured the degree to which an occupation is over strength), and, all else equal, better civilian opportunities. Better civilian opportunities are typically measured by type of occupation, skill transferability, and overall labor market conditions. Factors lowering the personal discount rate

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include an increased probability of reaching retirement, as measured by higher year of service cells and pay grades [Ref. 9:p. 4-5].

The general economic theory behind the studies that follow involve occupational choice. This theory looks at the decision to leave or stay in the military as a choice between alternative occupations, military or civilian. This choice is felt to be a measure of utility, and, as such, includes a "taste" or "distaste" for the military [Ref. 10:p. 258]. This widely accepted theory parallels the thinking behind the development of the ACOL model. Thus, the variables, proxies, and modeling techniques used in these studies should be usable in this thesis.

C. ORGANIZATIONAL DECLINE IN THE PRIVATE SECTOR

The majority of the research conducted in the area of organizational decline in the private sector agrees that organizations have a variety of strategies to choose from when downsizing [Ref. 11:p. 20]. The strategies most commonly used were compiled by The American Management Association in a 1992 survey and are listed in Table 4. As can be seen here, private organizations are moving toward the use of voluntary separation incentives and early retirements, as is also the case with the military services.

TABLE 2

**PERCENTAGE OF FIRMS SURVEYED THAT USED A PARTICULAR
STRATEGY TO REDUCE INVOLUNTARY LAYOFFS/SEPARATIONS,
JUNE 1989 AND JULY 1992**

STRATEGY	JULY 1989 PERCENT USING	JUNE 1992 PERCENT USING
Hiring freeze	62.8	61.6
Demotions/transfer	44.1	44.2
Salary reduction/freeze	46.2	35.1
Early retirement incentive	19.3	34.3
Voluntary separation plan	19.5	28.6
Voluntary job sharing	11.0	15.8
Mandatory short work week/day	24.1	15.3
Limited duration furlough	N/A	13.8

Source: [Ref. 12:p. 3].

The selection of specific strategies used by downsizing organizations is driven by a variety of factors.   These factors include the length of time available to achieve downsizing goals, the organizational philosophy, legal constraints, outside influences and the impact of downsizing actions on both terminated and surviving employees [Ref. 13:p. 42].   The more proactive an organization is in planning a reduction-in-force, the more it can use strategies such as voluntary separation incentives and the more successful it has been in achieving its goals.   If the downsizing process includes honest estimates as to the future direction of the organization, decreased costs and increased efficiency will

result, in addition to the achievement of numerical goals
[Ref. 13:p. 21]. The proactive approach will also aid in
minimizing negative effects on the morale of the surviving
employees. In addition, it will increase the perception by
the public that, although downsizing is occurring, the
organization is doing all it can to "be fair." This
perception is vital in maintaining a positive image of the
organization for future employees [Ref. 13:p. 21].

D. REENLISTMENT STUDIES

Three studies, all of which were based on the theory of
occupational choice, were reviewed for this portion of the
thesis. Chow and Polich attempted to assess the determining
factors on first-term reenlistment decisions through use of a
survey given to 4,000 enlisted personnel from all three
military services [Ref. 14]. Hiller published a report in
1982 that discussed his findings concerning the reenlistment
behavior of career personnel (those with six to 10 years of
service). Like Chow and Polich, Hiller obtained his data from
a previously conducted survey, only this time of 2,500
enlisted and officer personnel [Ref. 15]. Finally, Adedeji
and Quester (1991) studied the impacts of changes in personnel
policies and personal characteristics on the reenlistment
decisions of enlisted Marines. Unlike the previous two
studies, they did not use survey results, but relied on data

files from over 27,000 Marines who had made the first term reenlistment decision over a ten-year period [Ref. 16].

Though each of these studies looked at different groups of military personnel, at different decision points in their careers, and were conducted with different purposes in mind, many similarities between the studies exist. Each of these studies developed a variety of variables, similar yet distinct, with the exact variable characteristics determined by the data available to the researchers. These variables were used to describe both the pecuniary and nonpecuniary benefits of military service, and to estimate expected civilian earnings.

Using logit models,[1] the researchers in each of these studies were able to determine the statistical significance of selected variables on the probability of a person's reenlistment. Variables that proved to be statistically significant in _increasing_ the probability of reenlistment include the level of military compensation, the fact that the service member has dependents, lower education levels, being female or non-white,[2] increased years of service,[3] and being

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[1]"Logit" models are discussed in greater detail in the chapter on methodology.

[2]These three variables partially describe groups that may have relatively greater difficulty in obtaining civilian employment with compensation equivalent to their current military employment.

[3]This variable is felt to capture both pecuniary and non-pecuniary factors.

in a higher pay grade. Each one of the significant explanatory variables had signs consistent with the researchers' expectations and were consistent w'th the hypothesis based on occupational choice [Ref: 17:pp. 16-23].

B. VOLUNTARY TURNOVER STUDIES

The studies of voluntary turnover reviewed here were concerned with determining the factors that best explain "quit" behavior, or the reasons why individuals leave the military. Information from studies on this topic were especially useful during the early years of the All Volunteer Force, since decreasing the voluntary separation of military personnel (or increasing their retention rates) was considered vital to the future of the all-volunteer system. Stolzenberg and Winkler (1983) compiled a comprehensive review of military voluntary separation studies conducted through 1981. In general, the authors concluded that compensation influences the "stay or leave" decision, but that nonpecuniary factors may be even more important than pecuniary factors in importance in their effects on attrition decisions. The complexity of the military pay and benefits causes many enlisted personnel to underestimate their true compensation, which blurs the line between monetary and nonmonetary factors. Regardless of the reasoning, it has been determined that higher compensation levels do decrease voluntary separation

rates, compensation paid in lump-sum amounts were found to be more attractive to military personnel than installment payments and non-pecuniary benefits grow in importance as retirement nears [Ref. 18].

Lakhani (1988) performed an analysis of U. S. Army data to determine the effects of training received in the military on an individual's quit behavior [Ref. 19]. He found that there are differences in separation behavior between groups that received different types of training. Persons receiving military-specific (combat) training develop skills that are less transferrable to the civilian sector than the skills of those who are trained in more general areas. This should lead to the conclusion that persons in combat occupations are more likely to remain in the Army. However, Lakhani also determined that combat occupational specialties (MOS) involve higher nonpecuniary costs than other specialties. These increased nonmonetary costs, in the form of more difficult working conditions and increased danger, should increase voluntary separation. Lakhani concluded that occupations must be grouped into categories that are relatively homogeneous, based on similar training, job requirements, working conditions, and transferability to the civilian sector [Ref. 19:p. 433].

F. MILITARY FINANCIAL INCENTIVES AND BENEFITS

Considerations addressed in research on the SRB program parallel those pertinent to the VSI/SSB program. The goals of both programs include the coordination of national security objectives with end-strength requirements. Both programs also consider the effective shaping of the force to ensure the proper mix of knowledge, skills and experience. This ability to allocate funds specifically to desired ratings and years-of -service groups supports the selection of VSI/SSB as a tool for voluntary separation, and it is the parallels to the SRB program that provide us with the majority of the theoretical underpinnings for analysis of the VSI/SSB data.

The two reenlistment bonus studies reviewed here both began with the theory of occupational choice and specified variables to control for military pay, and they both used personal demographic variables as proxies for civilian earning opportunities. Hosek and Peterson conducted their research to determine the effectiveness of reenlistment incentive programs, specifically looking at the extent to which retention rates were increased by the bonuses [Ref. 20]. Their study found that the effect of the bonus was positive and significant in the reenlistment decision. Lump sum bonuses were also found to be almost twice as effective at increasing retention rates as installment bonuses. Bonuses were seen to produce the same effects as higher unemployment rates in increasing reenlistment rates. The effects of

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personal attributes were as expected: non-whites, women and non-high school graduates were more likely to stay in the service than whites, men and those with a high school education. Bonuses were found to be especially effective in the force-shaping role, as they allow for the selective targeting of groups by occupation and years of service [Ref. 20:pp. 30-52].

Cymrot used historical data to measure the strength of the relationship between bonuses and reenlistment rates in the Marine Corps [Ref. 8:p. 24]. Using the ACOL model, he included schooling, work experience, AFQT category, race, and sex as explanatory variables. Overall, his study found that the reenlistment bonus is effective at increasing the reenlistment rates of enlisted Marines. There were differences in the behavior of Marines in the same occupations, but with different years of service. Those with fewer years of service tended to be more likely to accept the bonus, while Marines with 10+ years of service were more influenced by the military retirement system [Ref. 8:pp. 39-45].

G. CONCLUSIONS

Trends evident in civilian downsizing studies and the desires and requirements of Congress concerning the current military downsizing support the military's choice of voluntary separation incentives as the correct method to use. Prior

studies conducted that the factors that will determine the VSI or SSB take decision should parallel those that have proved to be statistically significant in affecting the stay or leave and reenlistment bonus decisions, especially in response to voluntary incentives. These factors have been analyzed through the cost-of-leaving model (ACOL), the primary retention prediction model used by researchers and are the basis for the models specified later in this thesis.

III. DATA AND METHODOLOGY

A. DESCRIPTION OF DATA

1. OVERVIEW

The original data used in this thesis consisted of a combination of VSI and SSB files and versions of the Enlisted Master File (EMF) controlled by the Defense Manpower Data Center (DMDC).[4] Three main files were employed in compiling the information required for use in performing the statistical analysis. For fiscal 1992, there was a single file containing 37,907 records of all Navy enlisted personnel eligible for VSI/SSB during that fiscal year. This file also contained information identifying the specific individuals who elected to voluntarily separate from the Navy during fiscal 1992.

The 1993 data were initially contained in two separate data sets. The first set was comprised of 2,992 records of individuals accepting either the VSI or SSB program during fiscal 1993, while the second set consisted of the 464,557 records of Navy enlisted personnel remaining in the September 1992 EMF (i.e., at the beginning of fiscal 1993).

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[4]This information was merged and converted into the Statistical Applications System (SAS) format by Ms. Melissa Potter. SAS is the statistical package used for all analysis.

2. DATA SEPARATION

Prior to merging and analyzing the records, it was necessary to ensure that the files from both fiscal years were in similar formats. The first step was to identify persons eligible for VSI and SSB during fiscal 1993. The applicable records from this file were identified by matching information obtained from the Naval messages used to publicize program eligibility requirements [Ref. 21]. The eligibility criteria consisted of specific ratings, paygrades, and YOS windows, with restrictions, based on Naval Enlisted Classifications (NECs), applicable to many of the ratings. The merged fiscal 1993 data set, containing information on both the "takers" and the "non-takers," consists of 25,465 personnel. The eligibility criteria for both fiscal 1992 and fiscal 1993 are presented in their entirety in Appendix A.

Once all personnel eligible to separate from the Navy through the VSI and SSB program were identified for both fiscal 1992 and fiscal 1993, it was necessary to code the individual records for the phases in which they were eligible. For both the fiscal 1992 and the combined fiscal 1993 takers files, this was accomplished by determining the initial phase in which individuals were eligible through the use of the variable OFFERDATE, with some manipulation required to account for eligibility in more than one phase. The variable ACTDATE was used to mark the individual files for the phase in which the VSI/SSB program was accepted, if applicable.

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The records in the fiscal 1993 eligible file were marked for phase eligibility using the program criteria. The eligibility criteria expanded as the fiscal year progressed; more ratings were added, YOS windows were expanded to between 8 and 17 years of service for most ratings, and paygrades, unlike fiscal 1992, included E-7 as well as E-5 and E-6 for some ratings. Although the eligibility criteria never excluded personnel eligible in a previous phase, some drop out as their actual service time "ages" them out of the required years-of-service window. The coding for all the data are included in Appendix B.

The final merged file, comprised of all enlisted Navy personnel eligible for VSI and SSB in either or both fiscal 1992 and 1993 consisted of 47,261 observations. The number of personnel eligible for each phase of the separation program are included in Table 3. The number of people eligible for both fiscal years exceeds the number of observations in the final merged data set, since many individuals could have opted to take the program during both periods.

TABLE 3

**NUMBER OF NAVY ENLISTED PERSONNEL ELIGIBLE FOR
FISCAL 1992/93 VSI AND SSB PROGRAMS, BY PHASE**

PHASE	NUMBER ELIGIBLE
Fiscal 1992	
Phase 1	3,050
Phase 2	8,451
Phase 3	19,374
Phase 4	35,472
Fiscal 1992 Total	37,898*
Fiscal 1993	
Phase 1	14,962
Phase 2	20,202
Phase 3	22,114
Fiscal 1993 Total	25,465*
Total Eligible in Both Fiscal Years	47,261*

Source: Derived from data provided by the Defense Manpower
Data Center, 1993.

Note:* The number of eligible personnel for both fiscal years
exceeds the number of observations in the three "total" data
sets, since many individuals were eligible to take the program
during both periods.

B. DEVELOPMENT OF MODEL

The model used in this thesis is based on the findings
presented in the literature review. The vast majority of
previous studies used binary and multivariate logit techniques
to study the effects of various factors on retention and
reenlistment decisions. Since the dependent variable here is
the decision to take or not take the bonus, a discrete "yes or

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no" choice, the predicted value of this decision can be
calculated to represent the probability of taking either the
VSI or SSB program.

The binomial logit model is the most commonly used model
in situations where the dependent variable is binary and the
response function is non-linear. The probability that an
individual will take VSI or SSB can be estimated as follows:

$$D_i = \frac{1}{1 + \exp(-(B_0 + B_j X_j + e_j))}$$

where D_i is the probability of taking the VSI or SSB, the betas
are the parameter estimates, the X_i's are the independent
variables and ϵ_i is the stochastic error term. In the logit
model, the estimated values of the coefficients (betas)
indicate the impact of a one-unit change in the corresponding
independent variable on the log of the odds of a given choice,
holding all other independent variables constant [Ref. 22:pp.
518-520].

C. VARIABLE DEFINITIONS

The factors determined to be germane in the studies
concerning retention behavior and the effects of reenlistment
bonuses on reenlistment decisions should also prove to be
relevant in this study. Based on the sources discussed in the
literature review and on a concise summary of applicable

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variables produced by Mehay and Kirby (1993), the variables listed in Table 4 were determined to be of significance to this study [Ref. 9:p. 5-8]. They were chosen or created from the variables available in the combined data set. The definitions and expected signs of the factors used for descriptive or statistical analysis are discussed in the next section. The means of the raw data sets are displayed in Table 5, following the listings of Table 4.

TABLE 4

NAMES, DEFINITIONS AND VALUES OF VARIABLES USED IN ANALYSIS

VARIABLE	DEFINITION	VALUES
TAKE	Accept separation bonus	Accepted VSI/SSB=1
MINORITY	White or Non-white	Non-white=1
GRADE	Paygrade of individual	E-6=1
NONGRAD	No high school diploma	Non-graduate=1
HSGRAD	High school diploma	HS graduate=1
MARRIED	Marital status	Married=1
CHILD	Number of children	Total # children
MALE	Gender	Male=1
YOS	Years of service	8-17 YOS=1
MILSPS	Military spouse	Military spouse=1
AFQT	Armed Forces Qual Test	10-99 Points
HITECH	In a high-tech rating	High tech=1
ADVRATE	Advancement rate, by rating	Percentage
UNRATE	Home of record unemployment rates	Percentage
PHASE$_i$	Number of phases eligible	=1, up to 7 phases

Source: Derived from Mehay and Kirby (1993).

TABLE 5

**MEANS OF INDEPENDENT VARIABLES FOR
PROGRAM-ELIGIBLE ENLISTED PERSONNEL, BY FISCAL YEAR**

VARIABLE	MEAN		
	BOTH FISCAL YEARS COMBINED	FISCAL 92 ONLY	FISCAL 93 ONLY
MINORITY	.250	.275	.207
GRADE	.603	.659	.575
NONGRAD	.130	.141	.107
HSGRAD	.835	.824	.860
MARRIED	.785	.784	.788
CHILD	2.144	2.171	2.114
MALE	.901	.894	.920
YOS	12.464	12.881	12.322
MILSPS	.061	.061	.C60
AFQT	60.878	59.231	64.630
HITECH	.242	.218	.355
ADVRATE	11.670	21.175	5.255
UNRATE	7.352	7.332	7.287

Source: Derived from data provided by the Defense Manpower Data Center, 1993.

1. DEPENDENT VARIABLE

The dependent variable, TAKE, was developed from the original PROGRAM variable, which was used to code records with respect to the type of program accepted by individuals. TAKE was set equal to zero to reflect either acceptance of the VSI or SSB, and TAKE=1 when neither program was accepted. This coding is the opposite of what would normally be expected because of the ordered value approach used by SAS. In this approach, the lower value is considered as "the event" and the

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higher value as "no event." Thus, TAKE must be coded zero for the model to estimate the probability of taking VSI or SSB [Ref. 23:p. 1072].

2. INDEPENDENT (EXPLANATORY) VARIABLES

The explanatory variables are classified into five categories: demographic, tenure, occupational, educational, and economic factors. In addition, a PHASE variable is included that is the heart of the longitudinal analysis. Following descriptions of each of these independent variables, the means, broken out by fiscal year, are presented in Table 5.

a. Demographic Variables

(1) MARRIED is a dummy variable used to signify marital status, with not married the omitted condition. This variable was constructed from the original MS (marital status) variable. The coefficient of MARRIED is expected to be negative, reflecting historically higher reenlistment rates demonstrated by married service members.

(2) MILSPS (military spouse) is a dummy variable set=1 when a service member is married to a military spouse. It is hypothesized that the coefficient of MILSPS will be positive, reflecting an expected tendency to accept the separation incentive based on the difficulties in managing dual military careers. However, the fact that both military

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spouses in a family are unlikely to leave the service at the same time may reduce the significance of this variable.

(3) MALE (gender) is a dummy variable set=1 for males. Its coefficient is expected to be negative, for women have generally exhibited a lower likelihood than their male counterparts of remaining in the Navy beyond a first term [Ref. 24:p. 63].

(4) CHILD is a continuous variable that was coded using the variable DEPS. It includes both married and single parents. The coefficient is expected to be negative, since previous studies have shown a tendency for service members to remain in the service as the number of dependent children increases [Ref. 24:p. 45].

(5) MINORITY is a dummy explanatory variable used to code the ethnic origin of the eligible individuals. The omitted condition is Caucasian, which occurs when the original variable RACE=1. The coefficient for MINORITY is expected to be negative, based on prior evidence that minorities tend to reenlist at higher rates than whites [Ref. 24:p. 45].

b. Tenure variables

(1) YOS (years of service) is a continuous variable that ranges from eight to seventeen years (per program eligibility requirements) to reflect the amount of time specific individuals have served in the Navy. This should be considered the least accurate of the variables in this study

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as it was developed differently for the different fiscal year data sets.

The ACOL model suggests that a person's propensity to leave the Navy decreases as YOS increases. As tenure increases, the time to retirement decreases with a corresponding increase in the cost of leaving. In addition, the "job-matching" associated with increasing years of service reflects the fit between the individual and military service. The result is that persons with longer tenure tend to demonstrate lower "quit" rates [Ref. 9:p. 6].

(2) GRADE (paygrade), limited by eligibility criteria to E-5 and E-6 (for fiscal 1992) and E-5 through E-7 (for fiscal 1993), was coded as GRADE=1 when PG=E-6. Though some correlation with YOS will exist, an independent effect may occur as a result of the higher pay associated with higher paygrades. This separate effect should cause its coefficient to be negative, since persons in higher grades are less likely to separate from the Navy through the VSI and SSB program.

c. Occupational Variables

(1) The HITECH (highly technical) ratings were included to reflect the probable civilian opportunities available to those with the most extensive and technical training. The ten Navy ratings were grouped according to previous research and are generally considered most likely to have direct civilian equivalents [Ref. 25]. This civilian

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equivalence should result in a positive coefficient, reflecting a tendency of persons in HITECH ratings to accept the separation incentive.

(2) ADVRATE (advancement rate) is a continuous variable included to reflect the effect of promotion opportunities on the decision to "take" the separation bonus. It was created by using the promotion information from periods closest to the program offering dates. There are separate rates for both fiscal 1992 and fiscal 1993, since there are also separate advancement rates by rating and paygrade. Although the advancement opportunities for the ratings in this group are below the Navy average (as a result of their inclusion in the eligible population due to current or projected overmanning), it is felt that there is sufficient variation within this group to capture differences in acceptance behavior. As the ADVRATE increases, the coefficient should be negative, reflecting a decreasing tendency to take the separation bonus as a result of increased opportunity for advancement and increased pay.

d. Educational Variables

(1) AFQT is a continuous variable of raw scores on the Armed Forces Qualification Test. Persons with higher AFQT scores have generally displayed a greater tendency to leave the Navy for various reasons, including better opportunities

for civilian employment [Ref. 24:p. 63]. The sign of this coefficient, therefore, is hypothesized to be positive.

(2) NONGRAD (non-high school graduate) is one of the dummy variables used to document the level of education attained by individuals eligible for VSI and SSB. NONGRAD equals one if an individual has not received a high school diploma. This attribute should decrease the probability of accepting the separation bonus.

(3) HSGRAD (high school graduate) is the other dummy variable used to indicate education level. It is equal to one when the individual has at least a high school diploma. The omitted condition is some college or college completion.

e. Economic Variable

(1) UNRATE (unemployment rate) is the continuous variable used to represent the economic and employment conditions facing eligible individuals. Based on the home of record state of each individual, it has been separated into variables representing both fiscal 1992 and fiscal 1993.

f. Phase Variables

(1) PHASE (1-7) is a set of dummy variables that have been included to allow for the analysis of the effects of eligibility for a number of phases. They were developed by first coding each observation with the variable OA (offered and accepted). The OA variable used the eligibility criteria for each of the seven overall phases of the VSI and SSB

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program up to the point where either a "take" decision is made, the end of a fiscal year arrives, or the member is no longer eligible. Following this process, data sets were constructed for each of the seven phases. Each of these phase data sets consists of the following:

- a PH variable, which is set equal to one if that specific phase is the initial phase an individual is eligible for VSI or SSB;

- a TAKE variable, used later in the logit and linear probability models to indicate program acceptance, and;

- PHSE1 through PHSE7 dummy variables, which are used to indicate continued or multiple eligibility. For example, in the phase 3 data set an individual eligible for the third time will code PHSE3=1, with PHSE1, PHSE2 and PHSEs 4-7 equal to zero.

Following the construction of these seven data sets, the observations were stacked into one large set composed of 115,698 observations, even though there are only 47,261 individual program participants. Each of these observations represents an "opportunity," for an eligible individual to accept voluntary separation. The sign of these variables, when compared to PHASE67, the omitted condition, should be positive, with the coefficients decreasing in size as the number of opportunities increases.[5] The coding for the OA and PHSE variables are also included in Appendix A. Table 6 presents the means of each of the "stacked" data sets, representing the total number of "opportunities" of the

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[5]The variables PHSE6 and PHSE7 had to be combined as neither individual variable had sufficient variance in the dependent variable to allow for the logit process to "converge."

independent variables for the combined set of eligibles and for each fiscal year of eligibility.

TABLE 6

MEANS OF ALL VARIABLES, BASED ON TOTAL NUMBER OF "OPPORTUNITIES" TO SELECT VSI OR SSB, FISCAL YEARS 1992 AND 1993

VARIABLE	MEAN		
	ALL ELIGIBLES	ONLY ELIGIBLE FISCAL 1992	ONLY ELIGIBLE FISCAL 1993
TAKE	.054	.079	.071
MINORITY	.257	.319	.192
GRADE	.625	.619	.466
NONGRAD	.129	.164	.093
HSGRAD	.836	.799	.871
MARRIED	.786	.781	.783
CHILD	2.155	2.195	2.028
MALE	.903	.878	.911
YOS	12.620	13.283	11.561
MILSPS	.059	.061	.066
AFQT	60.980	59.169	65.603
HITECH	.260	.066	.278
ADVRATE2	21.955	18.391	N/A
UNRATE2	7.296	7.430	N/A
ADVRATE3	5.143	N/A	5.661
UNRATE3	7.287	N/A	7.261
PHSE1	.406	.505	.511
PHSE2	.296	.311	.335
PHSE3	.176	.131	.154
PHSE4	.105	.053	N/A
PHSE5	.011	N/A	N/A
PHSE6	.003	N/A	N/A
PHSE7	.001	N/A	N/A
PHSE67	.003	N/A	N/A

Source: Derived from data provided by the Defense Manpower Data Center, 1993.
N/A = not applicable.

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IV. ANALYSIS OF RESULTS

A. ORGANIZATION OF ANALYSIS

Several different approaches are taken to answer the primary research question posed in this thesis. First, the fully-coded, "stacked" data file was broken into groups based on the phase during which VSI or SSB was accepted by eligible personnel. With this completed, the mean characteristics of personnel "taking" the separation bonus during their initial eligibility were compared to the mean characteristics of those taking the bonus during a later phase of eligibility. This comparison of means of the independent variables was conducted on the combined fiscal 1992 and fiscal 1993 data, and on both of the years separately. The differences of these means were then analyzed through the use of a t-test to determine statistical significance.

The second approach required the development and use of the PHSE variables to allow for a longitudinal bivariate analysis. This approach was developed in conjunction with Professor Paul Hogan of George Mason University and Professor Steve Mehay of the Naval Postgraduate School. The size and direction of the coefficient of each of the PHSE variables should provide an indication of the differences in the

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propensity of individuals to take either VSI or SSB when they are first eligible or later in the fiscal year.

Some problems came to light when constructing this model. First, a true longitudinal model requires that the time elapsed between events (for example, between the notification of the bonus availability and deadline for application) to be of equal length. In this case, the equal length would give the eligible individuals the same opportunity in which to make their decision. The lengths of the phases for both years ranged from 21 to 40 days in duration. Though obviously not of equal length, the assumption was made that the associated time differences would not invalidate the model.

A second, more serious problem, arose when the model was run on the data set consisting of "take opportunities" over both years in question. As mentioned in Chapter III, neither PHSE6 nor PHSE7 provided a sufficient number of observations to allow for convergence of the logit model, necessitating the combination of PHSE6 and PHSE7 into a single variable. Although this eliminated one of the phases, it should have little effect on the model, since the number of people eligible for phases 6 or 7, separately, is very small.

Another possible problem with the combined model concerns the break in eligibility between the fiscal 1992 and fiscal 1993 programs. Individuals eligible during fiscal 1993, whether they were eligible or not in fiscal 1992, would base their decisions on different information and over a longer

time period than persons eligible during fiscal 1992. With this in mind, a longitudinal model was estimated separately for persons eligible for the VSI and SSB program during fiscal 1992 and those eligible during fiscal 1993. Following this, the model was run on a data set comprised of only individuals with take opportunities in both fiscal 1992 and fiscal 1993. These results, when compared with the model that included both years, should provide additional insight into the take behavior of eligible individuals.

In conjunction with the bivariate analysis of the logit models, the "notional person" approach was also used to determine the effects that the individual explanatory variables have on the probability of accepting a separation bonus. This method of analysis defines the notional person by assigning the mean characteristics from each of the data sets used in the analysis to this "notional" individual. The coefficients from the estimated logit models are used to calculate the total probability of voluntary program acceptance. As each of the explanatory variables are changed by one unit, the change in probability of program acceptance for each of the independent variables can be determined. It was felt that this would provide a clearer picture of the effects of the number of phases in which an individual is eligible on the probability of program acceptance. This, however, did not prove to be the case. The total probabilities associated with the notional persons resulting

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from these data sets were extremely small, as were the changes in acceptance probability due to changes in the explanatory variables. For this reason, the results of the notional person analysis is only presented for the initial data set, to provide an indication of the types of results achieved.

Finally, a multinomial logit model was developed and run on the same data sets as discussed above. This model involves a three-level response for the dependent variable. For example, a dependent variable is created, MULTI, and set equal to one if a sailor selected either VSI or SSB the initial time eligible; set equal to 2 if the take decision were made in a later phase; and equal to 3 if an individual were eligible during the year but never took the bonus. The results consist of two coefficients for each of the explanatory variables. The first value, or coefficient, is the log of the relative probability of program acceptance when first eligible to the relative probability of the base case, refusal to choose voluntary separation at all ($\ln (P_1/P_3)$). The second coefficient is the log of the relative probability of taking in a later period relative to the base case ($\ln (P_2/P_3)$).

B. PRELIMINARY DATA ANALYSIS

Since the focus of this study is on the timing of the acceptance decision for those selecting the separation bonus, personnel taking the bonus will be the focus of the data analysis. This section describes and compares the data for

four different populations of takers: (a) of persons eligible during any portion of fiscal 1992 and fiscal 1993, those who took the first phase they were eligible compared with those who took during a later phase; (b) of persons eligible during fiscal 1992, those who took the first phase they were eligible compared with those who took during a later phase; (c) of persons eligible during fiscal 1993, and of persons eligible during fiscal 1993 only, those who took the first phase they were eligible compared with those who took during a later phase; and (d) of persons who were eligible in both fiscal 1992 and fiscal 1993, those who took the separation bonus the first phase they were eligible in fiscal 1993 compared with those who took during a later fiscal 1993 phase. A description of each of these groups of data is presented, along with a table showing the means of the explanatory variables for each group of individuals.

1. COMBINED FISCAL-YEAR ELIGIBILITY

In all, 47,261 Navy enlisted men and women were eligible to take VSI and SSB during fiscal 1992 and fiscal 1993. Of these individuals, 13.3 percent (6,270), accepted a bonus and voluntarily separated from the Navy through this program. Of those taking the separation bonus, 66.6 percent (or 4,177) did so during the first phase they were eligible, while the remaining number (2,093) opted for the voluntary separation bonus in a phase other than when first eligible.

Table 7 lists the means for the relevant variables for both samples and t-tests of differences in the means between the two groups.[6]

TABLE 7

**MEANS OF EXPLANATORY VARIABLES:
FIRST PHASE ELIGIBLE TAKERS VS. LATER PHASE TAKERS,
FISCAL 1992 AND 1993**

VARIABLE	TOOK FIRST PHASE ELIGIBLE	TOOK OTHER THAN FIRST PHASE	T-VALUE
MINORITY (%)	.144	.188	-4.5196***
GRADE (% E-6)	.547	.558	-.8083
NONGRAD (%)	.161	.151	.9653
HSGRAD (%)	.811	.819	-.7945
MARRIED (%)	.767	.757	.8802
CHILD (number)	2.070	2.129	-1.4516
MALE (%)	.879	.885	-.7735
YOS (years)	11.780	12.104	-4.9787***
MILSPS (%)	.064	.062	.3138
AFQT (score)	64.077	63.318	1.4172
HITECH (%)	.318	.334	-1.2798
ADVRATE (% X 100)	14.176	10.685	8.9457***
UNRATE (% X 100)	7.216	7.340	-3.0103***
SAMPLE SIZE	4,177	2,093	---

Source: Derived from data provided by the Defense Manpower
Data Center, 1993.
*** Indicates differences significant at .01 level

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[6]T-scores are the results of statistical tests used to investigate the differences in means of different variables. These scores are used to determine the statistical significance of the differences in the means.

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Notable differences in the characteristics between persons accepting during initial eligibility and those accepting during a later phase can be seen in four of the explanatory variables: MINORITY, YOS, ADVRATE and UNRATE. According to these differences, a higher proportion of minorities opted to take the incentive during the later phases. Also, those who took in a later phase had slightly more service time. Surprisingly, persons with higher advancement rates in their ratings are more likely to accept when first offered. Consistent with expectations, however, is the fact that those with a lower unemployment rate in their home of record are more likely to accept when first eligible rather than during a later phase. The differences in the means for these variables between the two groups are significant at the .01 level.

2. FISCAL 1992 "TAKERS" ONLY

Of the 34,916 individuals who were eligible for early separation during fiscal 1992, 9.8 percent (or 3,439) elected to "take" a separation bonus. Of these takers, 72.7 percent, (or 2,501), made their decision during the first phase they were eligible rather than waiting for a later eligibility phase. Table 8 lists the means for the relevant variables for both samples and t-tests of differences in the means between the two groups.

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TABLE 8

MEANS OF EXPLANATORY VARIABLES:
FIRST PHASE ELIGIBLE TAKERS VS. LATER TAKERS,
FISCAL 1992

VARIABLE	TOOK FISCAL 1992		
	FIRST PHASE	OTHER PHASE	T-VALUE
MINORITY (%)	.160	.203	-2.9660***
GRADE (% E-6)	.598	.530	3.6059***
NONGRAD (%)	.198	.195	.1871
HSGRAD (%)	.773	.771	.0791
MARRIED (%)	.765	.764	.0945
CHILD (number)	2.142	2.190	-.8143
MALE (%)	.856	.869	-.9642
YOS (years)	12.633	13.107	-6.2407***
MILSPS (%)	.069	0.060	.9529
AFQT (score)	61.556	58.559	3.9412***
HITECH (%)	.242	.213	1.7948*
ADVRATE (% X 100)	19.534	18.118	2.1804**
UNRATE (% X 100)	7.158	7.258	-1.5663
SAMPLE SIZE	2506	940	N/A

Source: Derived from data provided by the Defense Manpower
Data Center, 1993.
***,(**),(*) indicate significance at .01, .05 and .10 level

When the sailors who accepted the program during the
initial phase of eligibility are subtracted from the total
eligible population, 32,415 persons remain. Of this number,
15,798 were only eligible during the final (fourth) phase of
fiscal 1992 and thus, were not eligible to take during a later
phase that year. Therefore, 16,612 sailors were eligible for
more than one phase during fiscal 1992. Of this group, 5.7

percent (940 of 16,612) accepted during a phase other than that in which they were initially eligible.

Significant statistical differences, at various levels of significance, exist between these two population subgroups for six of the independent variables: MINORITY, GRADE, YOS, AFQT, HITECH and ADVRATE. A higher proportion of minorities accept in a later round, and those who select in a later round have higher YOS. On the other hand, persons in a higher paygrade, with higher AFQT scores, serving in a highly technical rating or in a rating with a better advancement rate tend to separate when first eligible.

3. FISCAL 1993 "TAKERS" ONLY

In all, 24,174 Navy enlisted personnel were eligible for the VSI and SSB programs during fiscal 1993. Of these eligibles, 11.7 percent (2,824) chose to leave the Navy voluntarily through this program. Of individuals who opted to select either VSI or SSB during fiscal 1993, 91.9 percent (2,595 out of 2,824) did so when first eligible this fiscal year.

Of this group, 12,345 were VSI and SSB eligible for the first time during fiscal 1993, with a 13.9 percent take rate (1,718 of 12,345). Of the 1,718 takers, an astounding 97.7 percent (1,671) did so the initial phase eligible. Only 47 persons who were eligible for the first time during the fiscal 1993 program offering, who were eligible for more than

one phase, accepted a separation during a later phase. Table 9 lists the means for the relevant variables for both samples and t-tests of differences in the means between the two groups. None of the differences in characteristics of this group are statistically significant.

TABLE 9

MEANS OF EXPLANATORY VARIABLES:
FIRST PHASE ELIGIBLE TAKERS VS. OTHER TAKERS,
FISCAL 1993 ELIGIBILITY ONLY

VARIABLE	TOOK FISCAL 1993		
	FIRST PHASE	OTHER PHASE	T-VALUE
MINORITY (%)	.118	.064	1.1496
GRADE (% E-6)	.472	.362	1.4888
NONGRAD (%)	.106	.064	.9290
HSGRAD (%)	.868	.872	-.0917
MARRIED (%)	.770	.723	.7502
CHILD (number)	1.962	1.872	.4110
MALE (%)	.912	.872	.9418
YOS (years)	10.512	9.969	1.3541
MILSPS (%)	.057	.064	-.1850
AFQT (score)	67.858	67.574	.9210
HITECH (%)	.433	.362	.9768
ADVRATE (% X 100)	5.932	6.027	-.1428
UNRATE (% X 100)	7.303	7.249	.2688
SAMPLE SIZE	1671	47	N/A

Source: Derived from data provided by the Defense Manpower Data Center, 1993.

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When the 1,671 persons who accepted the program when first eligible and the 2,926 who were only eligible during one phase are removed from this group, 7,748 persons remain eligible for more than one phase during fiscal 1993. Only 0.61 percent of these sailors voluntarily separated from the Navy during a later eligible phase.

4. FISCAL 1993 TAKERS WHO WERE ALSO ELIGIBLE IN FISCAL 1992

This final group of takers includes 11,829 individuals eligible for the voluntary separation program in fiscal 1992, did not elect to separate at that time, and were eligible again at some point in fiscal 1993. Of these personnel, 9.4 percent (or 1,106) decided to accept either VSI or SSB during one of the three fiscal 1993 phases. Like the other take populations previously discussed, a majority (83.54 percent, or 924 of 1,106 takers) of these individuals chose to accept the voluntary separation bonus when first eligible.

When the sailors who accepted the program during the initial phase of eligibility of fiscal 1993 are subtracted from this total eligible population, 10,905 persons remain. Of this number, 683 were only eligible during one of the phases during fiscal 1993 and were not eligible to take during a later phase that year. This leaves 10,222 persons eligible for more than one phase during fiscal 1993. 1.8% of this group (182 of 10,222) accepted during a phase other than that during which they were initially eligible. It appears that

the overall percentage of individuals taking the separation bonus after being eligible during a previous fiscal year is 4.5 percentage points lower than the percentage of those accepting who were not eligible during a previous period. As was the case with every group, the vast majority of takers did so when first eligible. When individuals were eligible during fiscal 1992 and fiscal 1993, though, this percentage was the lowest of any of the groups examined. A complete listing of explanatory variables, means, and t-scores follows in Table 10.

The independent variables GRADE, CHILD, YOS and HITECH all have statistically significant differences in means between the two subgroups. Individuals in lower paygrades, who have less time in service and fewer children are more, rather than less, likely to take the bonus when first offered. In addition, those in highly-technical ratings are also more likely to take the bonus during initial eligibility.

TABLE 10

MEANS OF EXPLANATORY VARIABLES:
FIRST PHASE ELIGIBLE TAKERS VS. LATER PHASE TAKERS,
FISCAL 1992 AND 1993

VARIABLE	TAKERS		
	FIRST PHASE	OTHER PHASE	T-VALUE
MINORITY (%)	.181	.176	.1575
GRADE (% E-6)	.578	.654	-1.9052*
NONGRAD (%)	.119	.115	.1397
HSGRAD (%)	.854	.874	-.6948
MARRIED (%)	.752	.758	-.1736
CHILD (number)	2.038	2.341	-2.5142**
MALE (%)	.900	.896	.1980
YOS (years)	11.258	11.774	-3.0377**
MILSPS (%)	.063	.071	-.0352
AFQT (score)	67.079	67.709	-.3957
HITECH (%)	.448	.379	1.7145*
ADVRATE (% X 100)	4.548	4.739	-.6743
UNRATE (% X 100)	7.398	7.492	-.8675
N	924	182	N/A

Source: Derived from data provided by the Defense Manpower
Data Center, 1993.
**, * indicate significance at .05 and .10 level

C.   BINOMIAL ANALYSIS

This section explores the results of the logit models on
all four of the "stacked" data sets previously developed: the
combined set containing all take opportunities for both fiscal
1992 and 1993, the data set comprised of opportunities during

fiscal 1992 only, the set containing only the opportunities present during fiscal 1993, and, finally, the stacked data set that holds only fiscal 1993 opportunities that correspond to individuals also eligible during fiscal 1992.

The results of the logit model are discussed below for each of the models corresponding to these data sets. It must be kept in mind that the "take" probability in these models refers to the decision to take in one of what may be several phases for which an individual is eligible. Thus, the size of these coefficients may be much smaller than in other studies of VSI and SSB acceptance behavior, as it is concerned with acceptance "opportunities" as opposed to specific individual decisions. This difference in data set composition drastically increases the number of observations while holding constant the number of take decisions, thus reducing the take probability.

Following the discussion of the logit model is an analysis of the marginal probabilities associated with each of the independent variables used in the model. This analysis, using the "notional person" technique, provides an estimate of the independent effects of each of these variables on the take decision.

1. COMBINED FISCAL YEAR TAKE OPPORTUNITIES

a. BINARY LOGIT MODEL

The first data set contains 115,060 observations. These observations represent all of the "opportunities" that individuals had to accept the separation bonus during fiscal 1992 and 1993. Out of these opportunities, there were 6,216 takers, resulting in a take rate of 5.4 percent. In the logit model associated with this data set, the combined variable PHSE67 (representing phases 6 and 7 in fiscal 1993) is the omitted condition. Table 11 presents the results of the logit model for this data set. This table displays the estimated logit coefficients and, for ease of interpretation, converted coefficients. The conversions represent the effect of a one-unit increase of an explanatory variable on the probability of accepting either the VSI or SSB, holding all other variables constant at their mean value.[7]

All but two of the explanatory variables, MILSPS and PHSE2, are statistically significant. The direction of all the coefficients agree with the results obtained by Mehay and Kirby with the exception of ADVRATE. Aside from the fact that the impact of this variable is extremely small (a 1-percent increase in the advancement rate causes a 0.1 percent

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[7]This procedure is valid only for individuals with attributes corresponding to the independent variables at the mean, but is a good approximation for the change in acceptance probability for all observations, except for individuals with values near the upper or lower limits of the variable values.

change in the probability of acceptance), the wide variance in the values for this variable both within individual years and between fiscal 1992 and fiscal 1993 (along with the inclusion of the PHSE variables) could explain the disparity. The remainder of the variables have signs that agree with the original hypotheses.

Four of the five PHSE variables are statistically significant. Of those that are significant, only PHSE1 is positive. This indicates that individuals are 3.6 percent more likely to accept VSI or SSB in the first phase they are eligible than they are in the sixth or seventh phase of eligibility, all other factors held constant. In addition, the negative coefficients on PHSE3, PHSE4 and PHSE5 suggest that, holding all other explanatory variables equal, individuals are less likely to accept the separation bonus during the third, fourth and fifth phases of eligibility than in the sixth or seventh phase.

TABLE 11

LOGIT COEFFICIENTS OF "TAKE" MODEL, ALL ELIGIBLES, FISCAL 1992 AND 1993

INDEPENDENT VARIABLE	LOGIT COEFFICIENT	CHANGE IN ACCEPTANCE PROBABILITY*
MINORITY	-.565***	-.023
GRADE	-.407***	-.020
NONGRAD	.523***	.027
HSGRAD	.203***	.010
MARRIED	-.160***	-.008
CHILD	.049***	.002
MALE	-.332***	-.016
YOS	-.145***	-.008
MILSPS	.006	.0004
AFQT	.003***	.0002
HITECH	.372***	.020
ADVRATE	.021***	.001
UNRATE	-.033***	-.002
PHSE1	.954***	.036
PHSE2	.392	.001
PHSE3	-1.120***	-.035
PHSE4	-.806**	-.028
PHSE5	-.663*	-.023
CONSTANT	-1.394	—
CHI-SQUARE (likelihood test)	4274.549	—
CONCORDANCE RATIO^b	.730	—

Source: Derived from data provided by the Defense Manpower Data Center, 1993.

NOTE:

* Based on estimates from a linear probability model

^b Concordance ratio is a measure of the predictive ability of the model

*** p< =.01; ** p< =.05; * p< =.10

Sample size is 115,060 observations

b. NOTIONAL PERSON ANALYSIS

The primary notional person for the first data set has the following attributes: white, paygrade E-6, high school graduate, married with 2.2 children, male, 12.62 years in the service, an AFQT score in the 61st percentile, in a non-technical rating that has an advancement rate of 10.1 percent, and from a state with an unemployment rate of 7.34 percent. This notional person has a probability of acceptance in phase 6 or phase 7 of 2.5 percent. A complete listing of the marginal probabilities associated with this notional person and a similar individual as an E-5, with changes in probabilities resulting from changing personal and organizational characteristics, is included in Table 12.

It appears that the E-5 notional person has a 1.1 percent higher probability of accepting the separation bonus in phase six or seven than does the E-6 notional person. For both of these notional people, the probability of program acceptance is most affected by the variables PHSE1 (from among the phase variables) and MALE (of the remainder of the variables). The probability that program acceptance will be in the first phase of eligibility rather than in the sixth or seventh phase increases the overall acceptance probability by 5.3 percent for the E-5 and by 3.6 percent for the E-6 notional persons.

TABLE 12

ACCEPTANCE PROBABILITIES BASED ON NOTIONAL PERSON CONCEPT, WITH PROBABILITIES RESULTING FROM UNIT CHANGES IN EXPLANATORY VARIABLES, FOR DIFFERENT NOTIONAL PERSONS, FISCAL 1992 AND FISCAL 1993 TAKE OPPORTUNITIES

NOTIONAL PERSON: WHITE, E-6, H.S. GRAD, MARRIED, 2.16 CHILDREN, MALE, 12.62 YOS, NON-MILITARY SPOUSE, AFQT OF 60.98, NON-TECH RATING, 10.13 percent ADVANCEMENT RATE, 7.34 percent UNEMPLOYMENT RATE

OVERALL ACCEPTANCE PROBABILITY = 0.025

CHANGE IN VARIABLE	CHANGE IN PROBABILITY
MINORITY	-0.011
SINGLE	+0.012
FEMALE	+0.009
EXTRA YEAR OF SERVICE	-0.004
10 POINT AFQT INCREASE	NO CHANGE
HIGHLY TECHNICAL RATING	+0.010
PHSE1	+0.036
PHSE2	+0.011

NOTIONAL PERSON: WHITE, E-5, H.S. GRAD, MARRIED, 2.16 CHILDREN, MALE, 12.62 YOS, NON-MILITARY SPOUSE, AFQT OF 60.98, NON-TECH RATING, 10.13 percent ADVANCEMENT RATE, 7.34 percent UNEMPLOYMENT RATE

OVERALL ACCEPTANCE PROBABILITY = 0.036

CHANGE IN VARIABLE	CHANGE IN PROBABILITY
MINORITY	-0.015
SINGLE	+0.007
FEMALE	+0.014
EXTRA YEAR OF SERVICE	-0.040
10 POINT AFQT INCREASE	+0.001
HIGHLY TECHNICAL RATING	+0.016
PHSE1	+0.053
PHSE2	+0.017

Source: Derived from data provided by the Defense Manpower Data Center, 1993.

2. FISCAL 1992 TAKE OPPORTUNITIES

This data set contains 43,398 observations, representing the "opportunities" available for eligible individuals to accept the separation bonus during fiscal 1992. There were 3,434 takers in this data set, resulting in an overall take rate of 7.9 percent. In this logit model, PHSE4, the last phase available, is the omitted condition. Table 13 presents the results of the logit model for this data set, with the estimated coefficients, converted coefficients, and levels of significance.

Three of the variables are not significant in this model. In addition to MILSPS (also not significant in the previous model), HSGRAD and PHSE3 are not significant in the acceptance model for fiscal 1992. The variable HITECH has an especially large effect on the acceptance probability, as individuals in a highly technical rating are 13.6 percent more likely to accept either VSI or SSB than are those in less technical ratings. On the other hand, marriage, or increases in the number of children, longevity, AFQT, and advancement and unemployment rates, all other things equal, affect the probability of acceptance by less than 1 percent. As in the previous model, the signs of the coefficients of all the explanatory variables, except ADVRATE, agree with the hypothesized signs.

TABLE 13

LOGIT COEFFICIENTS OF "TAKE" MODEL, ALL ELIGIBLES, FISCAL 1992

INDEPENDENT VARIABLE	LOGIT COEFFICIENT	CHANGE IN ACCEPTANCE PROBABILITY*
MINORITY	-.673***	-.037
GRADE	-.510***	-.036
NONGRAD	.394***	.028
HSGRAD	.108	.007
MARRIED	-.131**	-.009
CHILD	.052***	.004
MALE	-.324***	-.022
YOS	-.010***	-.005
MILSPS	.059	.005
AFQT	.004***	.0003
HITECH	1.214***	.136
ADVRATE	.007***	.001
UNRATE	-.087***	-.006
PHSE1	2.260***	.088
PHSE2	1.619***	.040
PHSE3	.664	.008
CONSTANT	-1.394	—
CHI-SQUARE (likelihood test)	2344.880	—
CONCORDANCE RATIO[b]	.726	—

Source: Derived from data provided by the Defense Manpower Data Center, 1993.
NOTES:
* Based on estimates from a linear probability model
[b] Concordance ratio is a measure of the predictive ability of the model
*** $p < = .01$; ** $p < = .05$

Of the PHSE variables, only PHSE1 and PHSE2 are statistically significant. These variables represent the first and second "take" opportunities for each individual, respectively. According to the results of this model, the

change in acceptance probability is 8.8 percent higher for individuals during the first phase of eligibility over the fourth phase. However, the acceptance probability is only 4 percent greater for the second phase as opposed to the fourth phase.

3. FISCAL 1993 TAKE OPPORTUNITIES

Enlisted Navy personnel who were eligible for VSI and SSB in fiscal 1993 only experienced 24,118 opportunities to take the separation bonus. The 1,672 takers in this data set produced a take rate of 6.9 percent. In this logit model, PHSE3, the last phase available during fiscal 1993, is the omitted condition. Table 14 presents the results of the logit model for this data set, with the estimated logit coefficients, converted coefficients, and levels of significance.

Three of the variables are not significant in this model. In addition to MILSPS, (also not significant in the previous model), MARRIED and AFQT are not significant in explaining the acceptance probability of eligible individuals during fiscal 1993. None of the non-phase variables have a large effect on the acceptance probability, and only three of these variables--MINORITY, NONGRAD and HITECH--change this probability by more than 3.0 percent points. Unlike the previous two models, the signs of the coefficients of both ADVRATE and UNRATE disagree with the hypothesized signs. This

positive effect of increasing unemployment rates on the acceptance probability is barely significant at the .10 level and is extremely small (0.2 percent increase in acceptance probability per unit increase in the unemployment rate).

TABLE 14

LOGIT COEFFICIENTS OF "TAKE" MODEL, ALL ELIGIBLES, FISCAL 1993

INDEPENDENT VARIABLE	LOGIT COEFFICIENT	CHANGE IN ACCEPTANCE PROBABILITY*
MINORITY	-.657***	-.031
GRADE	-.096***	-.004
NONGRAD	.684***	.038
HSGRAD	.327**	.019
MARRIED	-.124	-.007
CHILD	.058**	.002
MALE	-.238**	-.013
YOS	-.227***	-.013
MILSPS	-.161	-.008
AFQT	.0005	.00004
HITECH	.551***	.037
ADVRATE	.020***	.001
UNRATE	.039*	.002
PHSE1	4.723***	.140
PHSE2	1.328***	.017
CONSTANT	-4.710	—
CHI-SQUARE (likelihood test)	2155.393	—
CONCORDANCE RATIO[b]	.836	—

Source: Derived from data provided by the Defense Manpower Data Center, 1993.
NOTE:
* Based on estimates from a linear probability model
[b] Concordance ratio is a measure of the predictive ability of the model
*** $p < = .01$; ** $p < = .05$; * $p < = .10$

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Both PHSE1 and PHSE2 are statistically significant at the .01 level. The coefficients for these variables imply that there is a 14 percent increase in the probability of acceptance of VSI or SSB in the first phase eligible as opposed to the third phase, for individuals first of eligibility during fiscal 1993. There is a 1.7 percent increase in this probability with the variable PHSE2.

4. FISCAL 1993 TAKE OPPORTUNITIES OF INDIVIDUALS ALSO ELIGIBLE IN FISCAL 1992

This data set contains 30,226 observations that represent the take "opportunities" available to individuals previously eligible in fiscal 1992, who are also eligible to accept the separation bonus during fiscal 1993. Of these twice-eligible personnel, 1,106 opted to take the separation bonus, with a take rate of 3.7 percent. In this logit model, as in the previous model, PHSE3, the last available phase, is the omitted condition. Table 15 presents the results of the logit model for this data set, with estimated logit coefficients, converted coefficients, and levels of significance.

The coefficients of three of the variables, MALE, MILSPS and HITECH, are not statistically significant in explaining the acceptance probability in this model. Again, none of the non-phase variables display a large effect on the acceptance probability. NONGRAD has the largest effect on the acceptance probability of these variables, with non-high

school graduates 1.9 percent more likely to separate voluntarily. Unlike the three previous models, only the sign of the coefficient of UNRATE disagrees with the hypothesized signs.

Of the PHSE variables, PHSE1 and PHSE2 are statistically significant. These variables represent the first and second "take" opportunities for each individual, respectively. According to the results of this model, an individual who was eligible during the previous fiscal year is 6.3 percent more likely to accept the voluntary separation program during the first eligible phase of the following fiscal year than in the last eligible phase. Surprisingly, the acceptance probability decreases by 1 percentage point for the second phase as opposed to the third phase.

TABLE 15

LOGIT COEFFICIENTS OF "TAKE" MODEL, ONLY ELIGIBLE BOTH FISCAL 1992 AND 1993

INDEPENDENT VARIABLE	LOGIT COEFFICIENT	CHANGE IN ACCEPTANCE PROBABILITY*
MINORITY	-.315***	-.009
GRADE	-.328***	-.013
NONGRAD	.599***	.019
HSGRAD	.379**	.012
MARRIED	-.258***	-.009
CHILD	.084***	.003
MALE	-.215	-.006
YOS	-.273***	-.008
MILSPS	.108	.004
AFQT	.009***	.0003
HITECH	.142	.004
ADVRATE	-.023***	-.001
UNRATE	.085***	.003
PHSE1	1.693***	.063
PHSE2	-1.170***	-.010
CONSTANT	-1.963	—
CHI-SQUARE (likelihood test)	1374.582	—
CONCORDANCE RATIO^b	.905	—

Source: Derived from data provided by the Defense Manpower Data Center, 1993.
NOTE:
* Based on estimates from a linear probability model
^b Concordance ratio is a measure of the predictive ability of the model
*** $p < .01$; ** $p < .05$

D. MULTINOMIAL LOGIT ANALYSIS

This section discusses the results of the multinomial logit models on the four "stacked" data sets developed for this study. Tables 16 through 19 present the results of these

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models for both the relative probability of program acceptance during the first phase an individual is eligible, compared to not taking the program at all, and on the relative probability of taking the incentive during a later period of eligibility, also compared to not taking it at all. Rather than focusing on the importance of the different phases of eligibility on the take decision, this section should provide some insight on the potential differences in the effects of individual explanatory variables on the decision to accept the separation bonus during a specific phase, as opposed to accepting the bonus at all.

1. COMBINED FISCAL YEAR TAKE OPPORTUNITIES

The results obtained when the multivariate model is run on the combined data set are presented in Table 16. All of the coefficients are statistically significant except for MILSPS and UNRATE in both equations. The signs of the coefficients agree with expectations, with the exception (as was the case with the binary logit) of ADVRATE. For the coefficients that are statistically significant, the signs are the same for the first and second equations, which indicates that the explanatory variables have similar effects on the phase-dependent acceptance decision. The magnitude of the variables differs somewhat between the two equations, but the differences are minor.

TABLE 16

**MULTINOMIAL LOGIT RESULTS SHOWING RELATIVE PROBABILITY OF
TAKING IN FIRST OR LATER PHASE ELIGIBLE
COMPARED TO NOT TAKING AT ALL,
ALL ELIGIBLES, FISCAL 1992 AND 1993**

VARIABLE	P_1/P_3 [a]	P_2/P_3 [b]
MINORITY	-0.7178***	-0.3794***
GRADE	-0.5006***	-0.3073***
NONGRAD	0.5932***	0.5408***
HSGRAD	0.2324***	0.2895***
MARRIED	-0.1112**	-0.3105***
CHILD	0.0408**	0.0909***
MALE	-0.3694***	-0.3088***
YOS	-0.1934***	-0.0901***
MILSPS	0.0153	0.0686
AFQT	0.0036***	0.0023***
HITECH	0.2988***	0.4278***
ADVRATE	0.0306***	0.0119***
UNRATE	-0.0481***	0.0107
SAMPLE SIZE	115,060	

Source: Derived from data developed by the Defense Manpower
Data Center, 1993.
NOTES:
   [a] P_1/P_3 is the relative probability of taking VSI or SSB
during the first eligible phase, compared to not taking the
bonus at all.
   [b] P_2/P_3 is the relative probability of taking VSI or SSB
during any other eligible phase, compared to not taking the
bonus at all.
   *** $p<=.01$; ** $p<=.05$;

The variable MINORITY has the largest relative effect

on the decision to take the separation bonus when first

eligible. In addition, its effect on the decision to take in

the initial phase of eligibility is nearly twice as large as on the "other" response, suggesting that minorities are half as likely to accept VSI or SSB when first offered as opposed to taking the bonus during a later phase. The remainder of the variables are much more similar in magnitude between responses. The fact that the differences between the estimated coefficients are very small suggests that the simple binomial logit model provides an adequate representation of the take decision-making process.

2. FISCAL 1992 TAKE OPPORTUNITIES

The results obtained when the multivariate model is run on the fiscal 1992 data set are presented in Table 17. The coefficients for MILSPS and HSGRAD are not statistically significant for either equation. This is also true for the second equation *for YOS and AFQT.* The signs of the coefficients agree with those hypothesized with the exception, again, of ADVRATE. Of the coefficients that are statistically significant, the signs between the first and second equations are in agreement.

Two of the independent variables, HITECH and MINORITY, have the largest relative effect on the decision to take the separation bonus when first eligible. There is little difference in the size of these or any other of the coefficients between the two equations. This lack of

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differences reinforces the legitimacy of the simple binary logit as providing a sufficient model for this process.

TABLE 17

MULTINOMIAL LOGIT RESULTS SHOWING RELATIVE PROBABILITY
OF TAKING IN FIRST OR LATER PHASE ELIGIBLE,
COMPARED TO NOT TAKING AT ALL,
ALL ELIGIBLES, FISCAL 1992 ONLY

VARIABLE	P_1/P_3[a]	P_2/P_3[b]
MINORITY	-0.7398***	-0.5881***
GRADE	-0.3342***	-0.7431***
NONGRAD	0.4772***	0.2362*
HSGRAD	0.1872	0.0543
MARRIED	-0.1381**	-0.1841***
CHILD	0.0568***	0.0638***
MALE	-0.3386***	-0.2749***
YOS	-0.1668***	0.0006
MILSPS	0.1029	0.0404
AFQT	0.0059***	0.0007
HITECH	1.3309***	1.3357***
ADVRATE	0.0081***	0.0095***
UNRATE	-0.0980***	-0.0694***
SAMPLE SIZE	43,398	

Source: Derived from data developed by the Defense Manpower Data Center, 1993.
NOTES:
[a] P_1/P_3 is the relative probability of taking VSI or SSB during the first eligible phase, compared to not taking the bonus at all.
[b] P_2/P_3 is the relative probability of taking VSI or SSB during any other eligible phase, compared to not taking the bonus at all.
*** p<=.01; ** p<=.05; * p<=.10

3. FISCAL 1993 TAKE OPPORTUNITIES

Table 18 lists the results of the multinomial model when run on the data set consisting of take opportunities for individuals eligible during fiscal 1993 only. Of the 13 explanatory variables used with the model for this data set, only MINORITY, GRADE, MALE and YOS are statistically significant in both equations. The signs of these coefficients agree with expectations, with the exception (as was the case with the logit) of ADVRATE. For the four coefficients that are statistically significant, the signs are the same for the first and second equations.

The coefficient of the independent variable MINORITY, for the second equation, has the greatest magnitude of any of the multinomial coefficients thus far. It indicates that, of those eligible for VSI and SSB in fiscal 1993, minorities are almost three times as likely to accept the program during a "later" phase as they are during the first phase in which they are eligible. This same effect applies to men and persons in paygrade E-6. However, the magnitude of those coefficients is less than half that of MINORITY.

The effects of the variables for fiscal 1992 and fiscal 1993 seem to be different. First, only the independent variables MINORITY and GRADE are statistically significant for both equations in both year-groups. Also, in fiscal 1992, there is no noticeable difference in magnitude between equations. This implies that the individual variables are of

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little consequence as to the timing of the take decision for persons eligible during fiscal 1992 only. This is somewhat in conflict with the fiscal 1993 effects of MINORITY, GRADE and MALE, as discussed above.

TABLE 18

MULTINOMIAL LOGIT RESULTS SHOWING RELATIVE PROBABILITY OF TAKING IN FIRST OR LATER PHASE ELIGIBLE, COMPARED TO NOT TAKING AT ALL, ALL ELIGIBLES, FISCAL 1993 ONLY

VARIABLE	P_1/P_3[a]	P_2/P_3[b]
MINORITY	-0.6956***	-1.5645***
GRADE	-0.1070**	-0.5655***
NONGRAD	0.7474***	-0.4080
HSGRAD	0.3665**	-0.5107
MARRIED	-0.1043	-0.4331
CHILD	0.0597**	0.1153
MALE	-0.1851*	-0.6188*
YOS	-0.1914***	-0.3138***
MILSPS	-0.1723	-0.0700
AFQT	-0.0018	-0.0033
HITECH	0.7136***	0.2765
ADVRATE	0.0151**	0.0344
UNRATE	0.0423**	0.0143
SAMPLE SIZE	24,118	

Source: Derived from data developed by the Defense Manpower Data Center, 1993.
NOTES:
[a] P_1/P_3 is the relative probability of taking VSI or SSB during the first eligible phase, compared to not taking the bonus at all.
[b] P_2/P_3 is the relative probability of taking VSI or SSB during any other eligible phase, compared to not taking the bonus at all.
*** $p <= .01$; ** $p <= .05$; * $p <= .10$

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4. FISCAL 1993 TAKE OPPORTUNITIES OF INDIVIDUALS ALSO ELIGIBLE IN FISCAL 1992

The results obtained when the multinomial model was run on the opportunities corresponding to personnel eligible during both fiscal 1992 and fiscal 1993 are included in Table 19. The coefficients for MINORITY, NONGRAD, MARRIED, CHILD, YOS, AFQT and UNRATE are statistically significant for both equations. The signs of all of the coefficients agree with those hypothesized. Of the coefficients that are statistically significant for both equations, the signs between the first and second equations are in agreement.

The coefficient of the variable NONGRAD appears to hold the greatest importance in this data set. Individuals who have not graduated from high school are twice as likely to accept the voluntary separation program during a later phase relative to when first eligible. This appears to be the only coefficient of consequence for this set of results.

TABLE 19

**MULTINOMIAL LOGIT RESULTS SHOWING RELATIVE PROBABILITY
OF TAKING IN FIRST OR LATER PHASE ELIGIBLE,
COMPARED TO NOT TAKING AT ALL,
THOSE ELIGIBLE BOTH FISCAL 1992 AND FISCAL 1993**

VARIABLE	P_1/P_3 [a]	P_2/P_3 [b]
MINORITY	-0.3155***	-0.3445***
GRADE	-0.3147***	-0.1682
NONGRAD	0.5633**	1.1156***
HSGRAD	0.2823	1.1211***
MARRIED	-0.1926*	-0.5528***
CHILD	0.0532*	0.2308***
MALE	-0.1785	-0.4272***
YOS	-0.2901***	-0.1646***
MILSPS	0.0617	0.3417*
AFQT	0.0074***	0.0124***
HITECH	0.2705***	-0.1416
ADVRATE	-0.0227**	-0.0001
UNRATE	0.0793***	0.1546***
SAMPLE SIZE	30,226	

Source: Derived from data developed by the Defense Manpower
Data Center, 1993.
NOTES:

[a] P_1/P_3 is the relative probability of taking VSI or SSB
during the first eligible phase, compared to not taking the
bonus at all.

[b] P_2/P_3 is the relative probability of taking VSI or SSB
during any other eligible phase, compared to not taking the
bonus at all.

*** $p<=.01$; ** $p<=.05$; * $p<=.10$

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

This study attempts to gain some insight into the factors that explain the timing and process of VSI and SSB acceptance decisions. It is felt that this information will be useful in determining the size of and criteria for future program offerings.

The preliminary data analysis, consisting of "take" percentages, mean characteristics, and the statistical significance of the differences of means, provided some meaningful information. The take rates for all eligible sailors were 9.8 percent in fiscal 1992 and 11.7 percent in fiscal 1993. The fiscal 1993 data were then divided into two parts: individuals who were not eligible in fiscal 1993 and those who were previously eligible. Individuals eligible for the first time accepted VSI or SSB 13.9 percent of the time, while those getting a "second chance" took advantage of the program at a rate of 9.4 percent.

The vast majority of "takers" in every group analyzed accepted VSI or SSB during the initial phase in which they were eligible. For example, 72.7 percent of the fiscal 1992 takers made their decision during the initial phase of eligibility. The initial phase take-rate for individuals

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first eligible during fiscal 1993 jumped to 97.7 percent, while those previously eligible in fiscal 1992 accepted at a rate of 83.5 percent.

These percentages suggest an increasing trend toward accepting VSI or SSB the first time offered, as the overall take-rate rose by over 4 percentage points for persons first eligible for the program in fiscal 1993 over fiscal 1992. This increase in the overall take rate could indicate an increasing "comfort level" or familiarity with the program, between the first and second years of the program. The large increase in the initial phase take-rate from fiscal 1992 to fiscal 1993 (from 72.7 percent up to 97.7 percent) likewise reflects an increased familiarity with the program specifics on the part of eligible sailors, who may also have used the time available between phases to review their options.

Another interesting finding of this preliminary analysis concerns the take rate of those who do not make their program decision in the first phase of eligibility. In fiscal 1992, 5.7 percent of the individuals eligible for more than one phase took the separation bonus during a later phase. In fiscal 1993, this number dropped to 0.6 percent for persons in their first year of eligibility, and to 1.8 percent for those who were also eligible during fiscal 1992. Obviously, previously-eligible individuals already demonstrated a tendency to not accept the separation bonus, and the much lower "later" phase take-rate was to be anticipated. Reasons

for the lower "later" take-rates of individuals eligible only during fiscal 1993 are less clear. It is possible that this strong bias away from "later" acceptance decisions is due to information concerning the following year's preliminary eligibility criteria. This pre-offering information could allow these sailors to anticipate eligibility and make up their mind prior to the actual offering.

The characteristics of persons accepting the program during the initial phase of eligibility differ from those of persons accepting during a later phase. Generally speaking, though, individual characteristics that drive overall program acceptance also control the timing of the acceptance decisions. For example, minorities are much less likely to accept the VSI and SSB programs, and when they do accept, they are more likely to do so during a later phase.

The results from the bivariate analysis is a bit less illuminating. The effects of the individual characteristics agree with those obtained by the Mehay-Kirby study. The coefficients of the individual PHSE variables confirm the conclusions reached in the previous paragraphs: personnel are more likely to accept VSI and SSB during their initial phase of eligibility than in any later phase. At the same time, the bivariate results indicate that individuals who are initially eligible in a fiscal year (i.e., all eligibles in fiscal 1992 and persons eligible only in fiscal 1993) are also more likely to take the program in the second phase rather than in a later

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phase. Individuals who were eligible during fiscal 1992 as well as fiscal 1993, on the other hand, were less likely to accept as the number of take opportunities increased, when compared to the final two phases.

The multinomial logit analysis contributed very little to understanding the timing of the acceptance decision. There is no difference between the estimated coefficients for the two responses, which suggests that the simple binomial logit provides an adequate representation of the take decision-making process.

B. RECOMMENDATIONS

Based on this study, the following recommendations are offered:

- The apparent tendency of "newly-eligible" personnel to take at a higher rate than those eligible during a second fiscal year must be kept in mind when establishing eligibility criteria for future fiscal years.

- The vast majority of individuals accepting this program in the initial phase of eligibility may prove to be of interest as the eligibility criteria are adjusted for subsequent phases.

- Further study should be conducted using the latest available data. Updated information on both fiscal 1992 and fiscal 1993 became available too late to be of use in this study and may prove to be of significance.

APPENDIX A: VSI AND SSB PROGRAM ELIGIBILITY CRITERIA

10JAN92 - ALNAV announcing FY92 participation in VSI/SSB programs

Benefit programs were originally designed as indicated below. The FY93 Defense Authorization Act equalized the non-pecuniary benefit packages between all the separation programs. The benefit packages were then made retroactive, so that personnel who opted to voluntarily separate under VSI received the same benefits as those who chose SSB, regardless of the timing of the program acceptance. [Ref. 11:p. 93]

TRANSITION ASSISTANCE BENEFIT PACKAGES

	VSI	SSB	INVOL SEP
Pre-Separation Counseling	X	X	X
Employment Assistance	X	X	X
Relocation Assistance (Overseas)	X	X	X
Transition Health Care (CHAMPUS and In-house) Up to 120 days after SEP	(X)	X	X
Two-Year Commissary and Exchange Privileges	(X)	X	X
Extended Use of DoDDS Schools (Overseas only and if DEPNS have completed 11th grade at SEP)	(X)	X	X

Ten Days Permissive TDY and Excess Leave for Relocation Transition	(X)	X	X
Priority Reserve and National Guard Affiliation Within One Year of Separation	(X)	X	X
Extended Use of Military Housing (Up To 180 Days, with rental charge)	(X)	(X)	X
Montgomery GI Bill Enrollment Opportunity	(X)	(X)	X

(X) Benefits added in FY93 Authorization Act. [Ref. 11:pp. 93-95]

13 JAN 92 FIRST Phase fiscal 1992 announced
* 1 FEB - 15 FEB 92 *

RATING	YOS	YOS	NOTES
ABE1	14	16	
AE1	15	16	
AE2	15	16	
AK2	15	16	NEC 2824 NOT ELIGIBLE
AMS2	15	16	
AO2	13	16	
AT2	15	16	NEC 6628, 6650, 6689 NOT ELIGIBLE
AW1	14	16	NEC 7821 ONLY
BM1	14	16	NEC 0161, 0167, 0215, 0216 NOT ELIGIBLE
BM2	12	16	NEC 0161, 0167, 0215, 0216 NOT ELIGIBLE
DC1	15	16	
DC2	13	16	
DK1	15	16	
DK2	13	16	
DM1	14	16	
DM2	13	16	
DP1	14	16	
DP2	12	16	
DS1	14	16	
DS2	13	16	
DT1	15	16	NEC 0000, 8707 ONLY
DT2	14	16	NEC 0000, 8707 ONLY
EM(SW)1	15	16	NEC 4613-16, 4621, 4631-32, 4666, 4668-69, 4671-73, 4707 NOT ELIGIBLE
EM(SW)2	12	16	NEC 4613-16, 4621, 4631-32, 4666, 4668-69, 4671-73, 4707 NOT ELIGIBLE
ET(SSN)1	15	16	
ET(SWS)1	15	16	
ET(SWS)2	12	16	
FTB1	15	16	
FTB2	12	16	
GMG1	15	16	NEC 0878, 0879 NOT ELIGIBLE
GMG2	11	16	NEC 0878, 0879 NOT ELIGIBLE
GMM1	15	16	NEC 0981 NOT ELIGIBLE
GMM2	10	16	NEC 0981 NOT ELIGIBLE
HM1	15	16	NEC 0000, 8404 ONLY
HM2	13	16	NEC 0000, 8404 ONLY
IC(SS)1	15	16	
IC(SS)2	15	16	
IM1	15	16	NEC 1801 NOT ELIGIBLE
IM2	13	16	NEC 1801, 1820-21 NOT ELIGIBLE
JO1	15	16	
JO2	13	16	

LI1	15	16	
LI2	13	16	
MM(SS)1	15	16	
MM(SS)2	15	16	
MN1	14	16	
MN2	12	16	
MS2	14	16	
NC1	15	16	
OM1	15	16	
OM2	13	16	NEC 1801, 1820-21, 1918 NOT ELIGIBLE
PC1	15	16	
PH1	15	16	
PH2	14	16	
PN1	15	16	
PN2	13	16	
PR2	13	16	
QM(SW)1	15	16	NEC 0161, 0167, 0215-16 NOT ELIGIBLE
QM(SW)2	13	16	NEC 0161, 0167, 0215-16 NOT ELIGIBLE
RM1	15	16	NEC 2313, 2318-19, 2346 NOT ELIGIBLE
RM2	13	16	NEC 2313, 2318-19, 2346 NOT ELIGIBLE
RP1	15	16	
RP2	14	16	
SH2	15	16	
SK1	14	16	NEC 2824 NOT ELIGIBLE
SM1	15	16	
SM2	13	16	
STS1	14	16	NEC 0418, 0419 NOT ELIGIBLE
WT1	14	16	
WT2	11	16	
YN1	15	16	
YN2	12	16	

29 FEB 92 - SECOND Phase Fiscal 1992 announced

* 29 FEB - 1 APR 92 *

RATING	YOS	YOS	NOTES
ABE1	14	16	
AE1	14	16	
AE2	14	16	
AK2	13	16	NEC 2824 NOT ELIGIBLE
AMS2	13	16	
AO2	12	16	
AT2	11	16	NEC 6628, 6650, 6689 NOT ELIGIBLE
AT1	12	16	NEC 6628, 6650, 6689 NOT ELIGIBLE
AW1	14	16	NEC 7821 ONLY
AZ2	14	16	
BM1	12	16	NEC 0161, 0167, 0215, 0216 NOT ELIGIBLE
BM2	11	16	NEC 0161, 0167, 0215, 0216 NOT ELIGIBLE
DC1	15	16	
DC2	13	16	
DK1	13	16	
DK2	13	16	
DM1	12	16	
DM2	12	16	
DP1	12	16	
DP2	11	16	
DS1	12	16	
DS2	11	16	
DT1	15	16	NEC 0000, 8707 ONLY
DT2	14	16	NEC 0000, 8707 ONLY
EM(SW)1	11	16	NEC 4613-16, 4621, 4631-32, 4666, 4668-69, 4671-73, 4707 NOT ELIGIBLE
EM(SW)2	11	16	NEC 4613-16, 4621, 4631-32, 4666, 4668-69, 4671-73, 4707 NOT ELIGIBLE
ET(SS)1	12	17	
ET(SS)2	14	17	
ET(SWS)1	12	16	
ET(SWS)2	11	16	
EW2	13	16	
FC2	13	16	
FTB1	12	16	
FTB2	11	16	
GMG1	13	16	NEC 0878, 0879 NOT ELIGIBLE
GMG2	11	16	NEC 0878, 0879 NOT ELIGIBLE
GMM1	13	16	NEC 0981 NOT ELIGIBLE
GMM2	11	16	NEC 0981 NOT ELIGIBLE
HM1	15	16	NEC 0000, 8404 ONLY

HM2	13	16	NEC 0000, 8404 ONLY
IC(SS)1	13	16	
IC(SS)2	12	16	
IM1	12	16	NEC 1801, 1820-21 NOT ELIGIBLE
IM2	11	16	NEC 1801, 1820-21 NOT ELIGIBLE
JO1	12	16	
JO2	11	16	
LI1	13	16	
LI2	12	16	
MM(SS)1	13	16	
MM(SS)2	12	16	
MM(SW)1	14	16	
MM(SW)2	14	16	
MN1	13	16	
MN2	11	16	
MS2	12	16	
MS1	14	16	
MT1	14	16	
MT2	12	16	
NC1	13	16	
OM1	12	16	NEC 1801, 1820-21, 1918 NOT ELIGIBLE
OM2	11	16	NEC 1801, 1820-21, 1918 NOT ELIGIBLE
PC1	12	16	
PC2	13	16	
PH1	12	16	
PH2	11	16	
PN1	12	16	
PN2	11	16	
PR2	11	16	
QM1(SW)	15	16	NEC 0161, 0167, 0215-16 NOT ELIGIBLE
QM2(SW)	12	16	NEC 0161, 0167, 0215-16 NOT ELIGIBLE
RM1(SW)	13	16	
RM2(SW)	11	16	
RP1	12	16	
RP2	11	16	
SH2	12	17	
SH1	13	17	
SK1	14	16	NEC 2824 NOT ELIGIBLE
SM1	13	16	
SM2	11	16	
STS1	12	16	NEC 0418, 0419 NOT ELIGIBLE
STS2	12	16	NEC 0418, 0419 NOT ELIGIBLE
WT1	11	17	

WT2	11	17
YN1	13	16
YN2	11	16

Highlighted entries are used to denote changes from the previous phase.

10 APR 92 - THIRD Phase Fiscal 1992 announced

* 10 APR - 20 MAY 92 *

RATING	YOS	YOS	NOTES
ABE1	10	17	
AE1	14	17	NOTE 1.
AE2	10	17	NOTE 1.
AK1	13	17	NEC 2824 NOT ELIGIBLE
AK2	10	17	NEC 2824 NOT ELIGIBLE
AMS1	12	17	NOTE 1.
AMS2	10	17	NOTE 1.
AO1	12	17	NOTE 1.
AO2	10	17	NOTE 1.
AT2	10	17	NOTE 1. NEC 6628, 6644, 6650, 6689 **5** NOT ELIGIBLE
AT1	10	17	NOTE 1. NEC 6628, 6633, 6650, 6 6 8 9 , 6695 NOT ELIGIBLE
AW1	12	17	NEC 7821 ONLY
AZ2	12	17	
BM1	10	17	NEC 0161, 0167, 0215, 0216 NOT ELIGIBLE
BM2	10	17	NEC 0161, 0167, 0215, 0216 NOT ELIGIBLE
DC1	14	17	
DC2	12	17	
DK1	12	17	
DK2	10	17	
DM1	10	17	
DM2	10	17	
DP1	10	17	
DP2	10	17	
DS1	10	17	
DS2	10	17	
DT1	14	17	NEC 8753 AND 8765 NOT ELIGIBLE
DT2	14	17	NEC 8753 AND 8765 NOT ELIGIBLE
EM1	11	17	SURFACE COMPONENT ONLY. NEC 4626, 4632, 4671-73, 4707 NOT ELIGIBLE
EM2	10	17	SURFACE COMPONENT ONLY. NEC 4 6 2 6 , 4632, 4671-73, 4707 NOT ELIGIBLE
ET(SS)1	10	17	
ET(SS)2	10	17	
ET(SWS)1	10	17	
ET(SWS)2	10	17	
EW2	10	17	
FC2	10	17	
FTB1	10	17	NEC 3307 NOT ELIGIBLE
FTB2	10	17	NEC 3307 NOT ELIGIBLE

GMG1	10	17	NEC 0878, 0879 NOT ELIGIBLE
GMG2	10	17	NEC 0878, 0879 NOT ELIGIBLE
GMM1	10	17	NEC 0981 NOT ELIGIBLE
GMM2	10	17	NEC 0981 NOT ELIGIBLE
HM1	13	17	NEC 0000, 8404 ONLY
HM2	12	17	NEC 0000, 8404 ONLY
IC(SS)1	12	17	
IC(SS)2	10	17	
IM1	10	17	NEC 1801, 1820-21 NOT ELIGIBLE
IM2	10	17	NEC 1801, 1820-21 NOT ELIGIBLE
JO1	10	17	
JO2	10	17	
LI1	10	17	
LI2	10	17	
MM(SS)1	12	17	
MM(SS)2	10	17	
MM(SW)1	10	17	
MM(SW)2	10	17	
MN1	12	17	
MN2	11	17	
MS2	10	17	SURFACE COMPONENT ONLY
MS1	12	17	SURFACE COMPONENT ONLY
MT1	10	17	NEC 3317, 3319 NOT ELIGIBLE
MT2	10	17	NEC 3317, 3319 NOT ELIGIBLE
NC1	12	17	
OM1	10	17	NEC 1801, 1820-21, 1918 NOT ELIGIBLE
OM2	10	17	NEC 1801, 1820-21, 1918 NOT ELIGIBLE
PC1	12	17	
PC2	10	17	
PH1	10	17	
PH2	10	17	
PN1	10	17	
PN2	10	17	
PR2	10	17	
QM1	12	17	SURFACE COMPONENT ONLY. NEC 0 1 6 1 , 0167, 0215-16 NOT ELIGIBLE
QM2	10	17	SURFACE COMPONENT ONLY. NEC 0 1 6 1 , 0167, 0215-16 NOT ELIGIBLE
RM1	10	17	SURFACE COMPONENT ONLY.
RM2	10	17	SURFACE COMPONENT ONLY.
RP1	10	17	
RP2	10	17	
SH2	10	17	
SH1	12	17	
SK1	12	17	SURFACE COMPONENT ONLY. NEC 2824 NOT ELIGIBLE
SK2	12	17	SURFACE COMPONENT ONLY. NEC 2824 NOT ELIGIBLE
SM1	10	17	

SM2	10	17	
STS1	10	17	NEC 0418, 0419 NOT ELIGIBLE
STS2	10	17	NEC 0418, 0419 NOT ELIGIBLE
WT1	10	17	
WT2	10	17	
YN1	12	17	
YN2	10	17	

NOTE 1. INELIGIBLE AIRCREW NECS: 8203, 8215, 8226, 8235-38, 8251-52, 8262, 8284.

Highlighted entries are used to denote changes from the previous phase.

05 JUN 92 - FOURTH Phase Fiscal 1992 announced

* 05 JUN - 30 JUN 92 *

RATING	YOS	YOS	NOTES
ABE1	10	17	
AD2	10	17	
AE1	12	17	NOTE 1.
AE2	10	17	NOTE 1.
AK1	13	17	NEC 2824 NOT ELIGIBLE
AK2	10	17	NEC 2824 NOT ELIGIBLE
AMS1	12	17	NOTE 1. NEC 7222, 8305, 8331 NOT ELIGIBLE
AMS2	10	17	NOTE 1. NEC 7222, 8305, 8331 NOT ELIGIBLE
AO1	12	17	NOTE 1.
AO2	10	17	NOTE 1.
AT1	10	17	NOTE 1. NEC 6628, 6633, 6650, 6659, 6689, 6695 NOT ELIGIBLE
AT2	10	17	NOTE 1. NEC 6628, 6633, 6650, 6659, 6689, 6695 NOT ELIGIBLE
AW1	10	17	NEC 7815, 7825-27, 7841, 7846, 7873, 7876 NOT ELIGIBLE
AW2	13	17	NEC 7815, 7825-27, 7841, 7846, 7873, 7876 NOT ELIGIBLE
AZ1	11	17	
AZ2	11	17	
BM1	10	17	NEC 0161, 0167, 0215, 0216 NOT ELIGIBLE
BM2	10	17	NEC 0161, 0167, 0215, 0216 NOT ELIGIBLE
DC1	14	17	
DC2	12	17	
DK1	10	17	
DK2	10	17	
DM1	10	17	
DM2	10	17	
DP1	10	17	
DP2	10	17	
DS1	10	17	
DS2	10	17	
DT1	14	17	NEC 8753 AND 8765 NOT ELIGIBLE
DT2	13	17	NEC 8753 AND 8765 NOT ELIGIBLE
EM1(SW)	10	17	NEC 4707 NOT ELIGIBLE
EM2(SW)	10	17	NEC 4707 NOT ELIGIBLE
ET1	10	17	NEC 14TG, 1420, 1428, 1450 NOT ELIGIBLE
ET2	10	17	NEC 14TG, 1420, 1428, 1450 NOT ELIGIBLE
EW1	10	17	NEC 1734 NOT ELIGIBLE

EW2	10	17	NEC 1734 NOT ELIGIBLE
FC1	10	17	NEC 1102-08, 1114-15, 1118-19, 1121, 1127,1143-44 NOT ELIGIBLE
FC2	10	17	NEC 1102-08, 1114-15, 1118-19, 1121, 1127,1143-44 NOT ELIGIBLE
FTB1	10	17	
FTB2	10	17	
GMG1	10	17	NEC 0878, 0879 NOT ELIGIBLE
GMG2	10	17	NEC 0878, 0879 NOT ELIGIBLE
GMM1	10	17	NEC 0981 NOT ELIGIBLE
GMM2	10	17	NEC 0981 NOT ELIGIBLE
HM1	13	17	NEC OOOO, 8404 ONLY
HM2	12	17	NEC OOOO, 8404 ONLY
IC1	10	17	NEC 4709, 4711-12, 4721, 4745, 4747 NOT ELIGIBLE
IC2	10	17	NEC 4709, 4711-12, 4721, 4745, 4747 NOT ELIGIBLE
IM1	10	17	NEC 1821 NOT ELIGIBLE
IM2	10	17	NEC 1820-21 NOT ELIGIBLE
JO1	10	17	
JO2	10	17	
LI1	10	17	
LI2	10	17	
MM1	10	17	
MM2	10	17	
MN1	10	17	
MN2	10	17	
MS1	10	17	SURFACE COMPONENT ONLY
MS2	10	17	SURFACE COMPONENT ONLY
MT1	10	17	
MT2	10	17	
NC1	12	17	
OM1	10	17	NEC 1821, 1918 NOT ELIGIBLE
OM2	10	17	NEC 1820-21, 1918 NOT ELIGIBLE
PC1	10	17	
PC2	10	17	
PH1	10	17	
PH2	10	17	
PN1	10	17	
PN2	10	17	
PR1	10	17	NEC 7352,7353 NOT ELIGIBLE
PR2	10	17	NEC 7352,7353 NOT ELIGIBLE
QM1	10	17	SURFACE COMPONENT ONLY. NEC 0161, 0167, 0215-16 NOT ELIGIBLE
QM2	10	17	SURFACE COMPONENT ONLY. NEC 0161, 0167, 0215-16 NOT ELIGIBLE
RM1	10	17	SURFACE COMPONENT ONLY.
RM2	10	17	SURFACE COMPONENT ONLY.
RP1	10	17	
RP2	10	17	
SH1	10	17	NEC 3111 NOT ELIGIBLE

SH2	10	17	**NEC 3111 NOT ELIGIBLE**
SK1	10	17	SURFACE COMPONENT ONLY. NEC 2824 NOT ELIGIBLE
SK2	10	17	SURFACE COMPONENT ONLY. NEC 2824 NOT ELIGIBLE
SM1	10	17	
SM2	10	17	
STG2	10	17	**NEC 0401, 0407, 0410, 0414-17, 0428, 0430, 0439, 0455, 0488, 0490 NOT ELIGIBLE**
STS1	10	17	NEC 0418, 0419, 0422 NOT ELIGIBLE
STS2	10	17	NEC 0418, 0419, 0422 NOT ELIGIBLE
WT1	10	17	
WT2	10	17	
YN1	10	17	**SURFACE COMPONENT ONLY. NEC 2514 NOT ELIGIBLE**
YN2	10	17	**SURFACE COMPONENT ONLY. NEC 2514 NOT ELIGIBLE**

NOTE 1.   INELIGIBLE AIRCREW NECS: 8203, 8215, 8226, 8235-38, 8251-52, 8262, 8284.

Highlighted entries are used to denote changes from the previous phase.

29 SEP 92   FIRST Phase fiscal 1993 announced

* 1 OCT - 30 OCT 92 *

RATING	YOS	YOS	NOTES
AT2	9	17	NEC 6619, 6628, 6633, 6650, 6652, 6653, 6658, 6659, 6688, 6689, 6694, 6695, 8262 NOT ELIGIBLE
EM1	9	17	NEC 4707 AND NUCLEAR QUALIFIED NOT ELIGIBLE
EM2	9	17	NEC 4707 AND NUCLEAR QUALIFIED NOT ELIGIBLE
ET1	8	17	NEC 14TG, 14TA, 1420, 1428, 1450, 3323, 3327 AND NUCLEAR QUALIFIED NOT ELIGIBLE
ET2	12	16	NEC 14TG, 14TA, 1420, 1428, 1450, 3323, 3327 AND NUCLEAR QUALIFIED NOT ELIGIBLE
FTG2	8	17	NEC 1174-82, 1301-11 NOT ELIGIBLE
IC1(SS)	8	17	
IC2(SS)	8	17	
MM1	8	17	SURFACE COMPONENT ONLY. NEC 4259, 4296 AND NUCLEAR QUALIFIED NOT ELIGIBLE
MM2	8	17	SURFACE COMPONENT ONLY. NEC 4259, 4296 AND NUCLEAR QUALIFIED NOT ELIGIBLE
RM1	8	17	SURFACE COMPONENT ONLY. NEC 8237 NOT ELIGIBLE
RM2	8	17	SURFACE COMPONENT ONLY. NEC 8237 NOT ELIGIBLE
STS2	9	17	NEC 0418, 0419, 0422 NOT ELIGIBLE
WT1	8	17	
WT2	8	17	

09 NOV 92 - SECOND Phase fiscal 1993 announced

* 09 NOV - 30 NOV 92 *

RATING	YOS	YOS	NOTES
AE1	10	17	
AE2	10	17	
AT1	9	17	NEC 6619, 6628, 6633, 6650, 6652, 6653, 6658, 6659, 6663, 6688, 6689, 6694, 6695, 8262 NOT ELIGIBLE
AT2	9	17	NEC 6619, 6628, 6633, 6650, 6652, 6653, 6658, 6659, 6663, 6688, 6689, 6694, 6695, 8262 NOT ELIGIBLE
BT2	15	17	NEC 4503 NOT ELIGIBLE
CTM1	9	17	NEC 9238, 9247-49, 9280-85, 9287 NOT ELIGIBLE
CTM2	9	17	NEC 9238, 9247-49, 9280-85, 9287 NOT ELIGIBLE
EA1	12	17	
EMC	14	17	NEC 4707 AND NUCLEAR QUALIFIED NOT ELIGIBLE
EM1	9	17	NEC 4707, 4761 AND NUCLEAR QUALIFIED NOT ELIGIBLE
EM2	9	17	NEC 4707, 4761 AND NUCLEAR QUALIFIED NOT ELIGIBLE
EN1	12	17	NEC 4310, 4311, 4314, 4316, 4329, 4331, 4333, 4335, 4339, 4355, 4386, 4296 NOT ELIGIBLE
EN2	12	17	NEC 4310, 4311, 4314, 4316, 4329, 4331, 4333, 4335, 4339, 4355, 4386, 4296 NOT ELIGIBLE
ETC	14	17	NEC 1420, 1427, 1428, 1450, AND NUCLEAR QUALIFIED NOT ELIGIBLE
ET1	8	17	NEC 1420, 1427, 1428, 1450, AND NUCLEAR QUALIFIED NOT ELIGIBLE
ET2	12	16	NEC 1420, 1427, 1428, 1450, AND NUCLEAR QUALIFIED NOT ELIGIBLE
ETC(SWS)	12	17	NEC 3323, 3327, 3328 NOT ELIGIBLE
ET1(SWS)	8	17	NEC 3323, 3327, 3328 NOT ELIGIBLE
ET2(SWS)	8	17	NEC 3323, 3327, 3328 NOT ELIGIBLE
EWC	14	17	NEC 1734 NOT ELIGIBLE
EW1	9	17	NEC 1734 NOT ELIGIBLE
EW2	15	17	NEC 1734 NOT ELIGIBLE
FC1	9	17	NEC 1102-08, 1114, 1115, 1118, 1119, 1121, 1127, 1130, 1143, 1144, 1157 NOT ELIGIBLE
FTBC	12	17	NEC 3305 AND 3307 NOT ELIGIBLE
FTB1	8	17	NEC 3305 AND 3307 NOT ELIGIBLE
FTB2	8	17	NEC 3305 AND 3307 NOT ELIGIBLE
FTGC	14	17	NEC 1174-82, 1196, 1301-11, 1312, 1313, 1320 NOT ELIGIBLE

FTG1	**8**	**17**	**NEC 1174-82, 1196, 1301-11, 1312, 1313, 1320 NOT ELIGIBLE**
FTG2	8	17	NEC 1174-82, 1196, 1301-11, 1312, 1313, 1320 NOT ELIGIBLE
ICC(SS)	**12**	**17**	
IC1(SS)	8	17	
IC2(SS)	8	17	
IMC	**12**	**17**	
MMC	**8**	**17**	**SURFACE COMPONENT ONLY. NEC 4295, 4296 AND NUCLEAR QUALIFIED NOT ELIGIBLE**
MM1	8	17	SURFACE COMPONENT ONLY. NEC 4295, 4296 AND NUCLEAR QUALIFIED NOT ELIGIBLE
MM2	8	17	SURFACE COMPONENT ONLY. NEC 4259, 4296 AND NUCLEAR QUALIFIED NOT ELIGIBLE
MTC	**12**	**17**	**NEC 3310, 3311, 3317, 3319 NOT ELIGIBLE**
MT1	9	17	NEC 3310, 3311, 3317, 3319 NOT ELIGIBLE
MT2	9	17	NEC 3310, 3311, 3317, 3319 NOT ELIGIBLE
OMC	**12**	**17**	
OTA1	10	17	
OTA2	15	17	
RMC	14	17	SURFACE COMPONENT ONLY.
RM1	8	17	SURFACE COMPONENT ONLY. NEC 8237 NOT ELIGIBLE
RM2	8	17	SURFACE COMPONENT ONLY. NEC 8237 NOT ELIGIBLE
STSC	**12**	**17**	**NEC 0418, 0419, 0425 NOT ELIGIBLE**
STS1	**9**	**17**	**NEC 0418, 0419, 0423-25 NOT ELIGIBLE**
STS2	9	17	NEC 0418, 0419, 0423-25 NOT ELIGIBLE
WTC	**12**	**17**	
WT1	8	17	
WT2	8	17	

Highlighted entries are used to denote changes from the previous phase.

29 DEC 92 - THIRD Phase Fiscal 1993 announced

* 29 DEC 92 - 31 JAN 93 *

RATING	YOS	YOS	NOTES
AEC	14	17	
AE1	9	17	
AE2	10	17	
ATC	14	17	NEC 6617, 6628, 6650,6653, 6689, 6695, NOT ELIGIBLE
AT1	9	17	NEC 6619, 6628, 6633, 6650, 6652, 6653, 6658, 6659, 6663, 6688, 6 6 8 9 , 6694, 6695, 8262 NOT ELIGIBLE
AT2	9	17	NEC 6619, 6628, 6633, 6650, 6652, 6653, 6658, 6659, 6663, 6688, 6 6 8 9 , 6694, 6695, 8262 NOT ELIGIBLE
BT2	15	17	NEC 4503 NOT ELIGIBLE
CTMC	14	17	NEC 9238, 9247-49, 9280-85, 9287 NOT ELIGIBLE
CTM1	9	17	NEC 9238, 9247-49, 9280-85, 9287 NOT ELIGIBLE
CTM2	8	17	NEC 9238, 9247-49, 9280-85, 9287 NOT ELIGIBLE
EA1	11	17	NEC 5931 AND 5932 NOT ELIGIBLE
EO1	13	17	NEC 5931 AND 5932 NOT ELIGIBLE
EMC	14	17	NEC 4707 AND NUCLEAR QUALIFIED NOT ELIGIBLE
EM1	8	17	NEC 4707, 4761 AND NUCLEAR QUALIFIED NOT ELIGIBLE
EM2	8	17	NEC 4707, 4761 AND NUCLEAR QUALIFIED NOT ELIGIBLE
EN1	10	17	NEC 4310, 4311, 4314, 4316, 4329, 4331, 4333, 4335, 4339, 4355, 4 3 8 6 , 4296 NOT ELIGIBLE
EN2	10	17	NEC 4310, 4311, 4314, 4316, 4329, 4331, 4333, 4335, 4339, 4355, 4 3 8 6 , 4296 NOT ELIGIBLE
ETC	14	17	NEC 1420, 1427, 1428, 1450, AND NUCLEAR QUALIFIED NOT ELIGIBLE
ET1	8	17	NEC 1420, 1427, 1428, 1450, AND NUCLEAR QUALIFIED NOT ELIGIBLE
ET2	12	16	NEC 1420, 1427, 1428, 1450, AND NUCLEAR QUALIFIED NOT ELIGIBLE
ETC(SWS)	12	17	NEC 3323, 3327, 3328 NOT ELIGIBLE
ET1(SWS)	8	17	NEC 3323, 3327, 3328 NOT ELIGIBLE
ET2(SWS)	8	17	NEC 3323, 3327, 3328 NOT ELIGIBLE
EWC	14	17	NEC 1734 NOT ELIGIBLE
EW1	9	17	NEC 1734 NOT ELIGIBLE
EW2	15	17	NEC 1734 NOT ELIGIBLE

FC1	9	17	NEC 1102-08, 1114, 1115, 1118, 1119, 1121, 1127, 1130, 1143, 1144, 1157 NOT ELIGIBLE
FTBC	12	17	NEC 3305 AND 3307 NOT ELIGIBLE
FTB1	8	17	NEC 3305 AND 3307 NOT ELIGIBLE
FTB2	8	17	NEC 3305 AND 3307 NOT ELIGIBLE
FTGC	14	17	NEC 1174-82, 1196, 1301-11, 1312, 1313, 1320 NOT ELIGIBLE
FTG1	8	17	NEC 1174-82, 1196, 1301-11, 1312, 1313, 1320 NOT ELIGIBLE
FTG2	8	17	NEC 1174-82, 1196, 1301-11, 1312, 1313, 1320 NOT ELIGIBLE
ICC(SS)	12	17	
IC1(SS)	8	17	
IC2(SS)	8	17	
IMC	12	17	
MMC	8	17	SURFACE COMPONENT ONLY. NEC 4295, 4296 AND NUCLEAR QUALIFIED NOT ELIGIBLE
MM1	8	17	SURFACE COMPONENT ONLY. NEC 4295, 4296 AND NUCLEAR QUALIFIED NOT ELIGIBLE
MM2	8	17	SURFACE COMPONENT ONLY. NEC 4259, 4296 AND NUCLEAR QUALIFIED NOT ELIGIBLE
MR2	12	17	
MTC	12	17	NEC 3310, 3311, 3317, 3319 NOT ELIGIBLE
MT1	8	17	NEC 3310, 3311, 3317, 3319 NOT ELIGIBLE
MT2	8	17	NEC 3310, 3311, 3317, 3319 NOT ELIGIBLE
OMC	12	17	
OTA1	10	17	
OTA2	15	17	
QMC(SS)	14	17	
QM1(SS)	10	17	
RMC	14	17	SURFACE COMPONENT ONLY.
RM1	8	17	SURFACE COMPONENT ONLY. NEC 2319, 8237 NOT ELIGIBLE
RM2	8	17	SURFACE COMPONENT ONLY. NEC 2319, 8237 NOT ELIGIBLE
STSC	12	17	NEC 0418, 0419, 0425 NOT ELIGIBLE
STS1	9	17	NEC 0418, 0419, 0423-25 NOT ELIGIBLE
STS2	9	17	NEC 0418, 0419, 0423-25 NOT ELIGIBLE

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WTC        12        17
WT1         8        17
WT2         8        17
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NOTE 1.   INELIGIBLE AIRCREW NECS: 8203, 8215, 8226, 8235-38,
8251-52, 8262, 8284.

Highlighted entries are used to denote changes from the previous
phase.

***CODING FOR INDEPENDENT VARIABLES

```
IF RACE NE 1 THEN MINORITY=1;
            ELSE MINORITY=0;

IF PG=6 THEN GRADE=1;
        ELSE GRADE=0;

*DELETING INVALID AFQT SCORES;
     IF AFQT>10;

*CODING FOR EDUCATIONAL CERTIFICATION;
     IF EDCERT < 15 THEN NONGRAD=1; ELSE NONGRAD=0;
     IF EDCERT=15 THEN HSGRAD=1; ELSE HSGRAD=0;

     IF MS=2 THEN MARRIED=1;
             ELSE MARRIED=0;

     IF DEPS=1 OR DEPS=0 THEN CHILD=0;
                    ELSE CHILD=(DEPS-1);

IF SEX=1 THEN MALE=1;
         ELSE MALE=0;

IF SMS=0 THEN MILSPS=0;
         ELSE MILSPS=1;

PRATE=SUBSTR (PMOS,1,3);
  IF PRATE IN ('AE' 'AT' 'DS' 'ET' 'EW' 'FTB' 'MT' 'STG' 'STS')
            THEN HITECH=1;
            ELSE HITECH=0;

***CHANGE HOR VARIABLE TO UNRATE2 VARIABLE;
IF TX1=1 THEN DO;

IF HOR =01 THEN UNRATE2 =  7.5;
IF HOR =02 THEN UNRATE2 =  7.8;
IF HOR =03 THEN UNRATE2 =  4.2;
IF HOR =04 THEN UNRATE2 =  7.0;
IF HOR =05 THEN UNRATE2 =  6.6;
IF HOR =06 THEN UNRATE2 =  9.5;
IF HOR =08 THEN UNRATE2 =  5.5;
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HOR =09 THEN UNRATE2 =   7.1;
HOR =10 THEN UNRATE2 =   5.4;
HOR =11 THEN UNRATE2 =   8.3;
HOR =12 THEN UNRATE2 =   9.4;
HOR =13 THEN UNRATE2 =   7.3;
HOR =14 THEN UNRATE2 =   2.8;
HOR =15 THEN UNRATE2 =   4.2;
HOR =16 THEN UNRATE2 =   5.7;
HOR =17 THEN UNRATE2 =   6.5;
HOR =18 THEN UNRATE2 =   5.9;
HOR =19 THEN UNRATE2 =   3.6;
HOR =20 THEN UNRATE2 =   4.1;
HOR =21 THEN UNRATE2 =   6.9;
HOR =22 THEN UNRATE2 =   8.0;
HOR =23 THEN UNRATE2 =   5.6;
HOR =24 THEN UNRATE2 =   6.6;
HOR =25 THEN UNRATE2 =   8.0;
HOR =26 THEN UNRATE2 =   8.5;
HOR =27 THEN UNRATE2 =   4.5;
HOR =28 THEN UNRATE2 =   9.2;
HOR =29 THEN UNRATE2 =   6.2;
HOR =30 THEN UNRATE2 =   6.0;
HOR =31 THEN UNRATE2 =   3.3;
HOR =32 THEN UNRATE2 =   6.8;
HOR =33 THEN UNRATE2 =   6.9;
HOR =34 THEN UNRATE2 =   9.1;
HOR =35 THEN UNRATE2 =   6.8;
HOR =36 THEN UNRATE2 =   8.2;
HOR =37 THEN UNRATE2 =   5.8;
HOR =38 THEN UNRATE2 =   4.6;
HOR =39 THEN UNRATE2 =   6.9;
HOR =40 THEN UNRATE2 =   6.2;
HOR =41 THEN UNRATE2 =   6.7;
HOR =42 THEN UNRATE2 =   7.5;
HOR =43 THEN UNRATE2 =  14.9;
HOR =44 THEN UNRATE2 =   9.2;
HOR =45 THEN UNRATE2 =   6.1;
HOR =46 THEN UNRATE2 =   2.8;
HOR =47 THEN UNRATE2 =   6.2;
HOR =48 THEN UNRATE2 =   6.7;
HOR =49 THEN UNRATE2 =   5.3;
HOR =50 THEN UNRATE2 =   5.7;
HOR =51 THEN UNRATE2 =   6.1;
HOR =53 THEN UNRATE2 =   6.3;
HOR =54 THEN UNRATE2 =  11.0;
HOR =55 THEN UNRATE2 =   4.7;
HOR =56 THEN UNRATE2 =   4.4;
HOR =168 THEN UNRATE2 =  8.1;
HOR =0 OR HOR=. OR HOR=3 OR HOR=7 OR HOR=52 OR HOR=135
HOR=137 OR HOR=166 OR HOR=168 OR HOR=186 OR HOR=222 THEN DELETE;
D;
```

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******FY 92 ANNUAL UNEMPLOYMENT RATES*******;
IF TX2=1 THEN DO;
        IF HOR=01 THEN UNRATE3=7.3;
        IF HOR=02 THEN UNRATE3=9.1;
        IF HOR=03 THEN UNRATE3=4.5;
        IF HOR=04 THEN UNRATE3=7.4;
        IF HOR=05 THEN UNRATE3=7.2;
        IF HOR=06 THEN UNRATE3=9.1;
        IF HOR=08 THEN UNRATE3=5.9;
        IF HOR=09 THEN UNRATE3=7.5;
        IF HOR=10 THEN UNRATE3=5.3;
        IF HOR=11 THEN UNRATE3=8.4;
        IF HOR=12 THEN UNRATE3=8.2;
        IF HOR=13 THEN UNRATE3=6.9;
        IF HOR=14 THEN UNRATE3=2.8;
        IF HOR=15 THEN UNRATE3=4.5;
        IF HOR=16 THEN UNRATE3=6.5;
        IF HOR=17 THEN UNRATE3=7.5;
        IF HOR=18 THEN UNRATE3=6.5;
        IF HOR=19 THEN UNRATE3=4.6;
        IF HOR=20 THEN UNRATE3=4.2;
        IF HOR=21 THEN UNRATE3=6.9;
        IF HOR=22 THEN UNRATE3=8.1;
        IF HOR=23 THEN UNRATE3=7.1;
        IF HOR=24 THEN UNRATE3=6.6;
        IF HOR=25 THEN UNRATE3=8.5;
        IF HOR=26 THEN UNRATE3=8.8;
        IF HOR=27 THEN UNRATE3=5.1;
        IF HOR=28 THEN UNRATE3=8.1;
        IF HOR=29 THEN UNRATE3=5.7;
        IF HOR=30 THEN UNRATE3=6.7;
        IF HOR=31 THEN UNRATE3=3.0;
        IF HOR=32 THEN UNRATE3=6.6;
        IF HOR=33 THEN UNRATE3=7.5;
        IF HOR=34 THEN UNRATE3=8.4;
        IF HOR=35 THEN UNRATE3=6.8;
        IF HOR=36 THEN UNRATE3=8.5;
        IF HOR=37 THEN UNRATE3=5.9;
        IF HOR=38 THEN UNRATE3=4.9;
        IF HOR=39 THEN UNRATE3=7.2;
        IF HOR=40 THEN UNRATE3=5.7;
        IF HOR=41 THEN UNRATE3=7.5;
        IF HOR=42 THEN UNRATE3=7.5;
        IF HOR=43 THEN UNRATE3=14.9;
        IF HOR=44 THEN UNRATE3=8.9;
        IF HOR=45 THEN UNRATE3=6.2;
        IF HOR=46 THEN UNRATE3=3.1;
        IF HOR=47 THEN UNRATE3=6.4;
        IF HOR=48 THEN UNRATE3=7.5;
        IF HOR=49 THEN UNRATE3=4.9;
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       IF HOR=50 THEN UNRATE3=6.6;
       IF HOR=51 THEN UNRATE3=6.4;
       IF HOR=53 THEN UNRATE3=7.5;
       IF HOR=54 THEN UNRATE3=11.3;
       IF HOR=55 THEN UNRATE3=5.1;
       IF HOR=56 THEN UNRATE3=5.6;
       IF HOR=168 THEN UNRATE3=8.1;
IF HOR =0 OR HOR=. OR HOR=3 OR HOR=7 OR HOR=52 OR HOR=135
 OR HOR=137 OR HOR=166 OR HOR=168 OR HOR=186 OR HOR=222 THEN DELETE;
END;
****** CREATE ADVANCEMENT OPPORT VAR BY RATING  ******;
****** PERS 22 MARCH 1992 ADVANCEMENT FIGURES ****;
    **********FOR E-5 TO E-6**********;
IF TX1=1 THEN DO;

IF PRATE =: 'AD' AND PG=5 THEN ADVRATE2 = 1.99;
IF PRATE =: 'AE' AND PG=5 THEN ADVRATE2 = 1.99;
IF PRATE =: 'AK' AND PG=5 THEN ADVRATE2 = 2.51;
IF PRATE =:'AMS' AND PG=5 THEN ADVRATE2 = 4.77;
IF PRATE =:'AO' AND PG=5 THEN ADVRATE2 = 5.08;
IF PRATE =:'AT' AND PG=5 THEN ADVRATE2 = 5.08;
IF PRATE =:'AW' AND PG=5 THEN ADVRATE2 = 3.02;
IF PRATE =:'AZ' AND PG=5 THEN ADVRATE2 = 5.36;
IF PRATE =:'BM' AND PG=5 THEN ADVRATE2 = 5.36;
IF PRATE =:'DC' AND PG=5 THEN ADVRATE2 = 77.14;
IF PRATE =:'DK' AND PG=5 THEN ADVRATE2 = 4.77;
IF PRATE =:'DM' AND PG=5 THEN ADVRATE2 = 7.46;
IF PRATE =:'DP' AND PG=5 THEN ADVRATE2 = 10.98;
IF PRATE =:'DS' AND PG=5 THEN ADVRATE2 = 10.98;
IF PRATE =:'DT' AND PG=5 THEN ADVRATE2 = 12.69;
IF PRATE =:'EM' AND PG=5 THEN ADVRATE2 = 2.17;
IF PRATE =:'ET' AND PG=5 THEN ADVRATE2 = 2.17;
IF PRATE =:'EW' AND PG=5 THEN ADVRATE2 = 2.17;
IF PRATE =:'FC' AND PG=5 THEN ADVRATE2 = 20.35;
IF PRATE =:'FTB' AND PG=5 THEN ADVRATE2 = 14.41;
IF PRATE =:'GMG' AND PG=5 THEN ADVRATE2 = 14.41;
IF PRATE =:'GMM' AND PG=5 THEN ADVRATE2 = 40.99;
IF PRATE =:'HM' AND PG=5 THEN ADVRATE2 = 9.31;
IF PRATE =:'IC' AND PG=5 THEN ADVRATE2 = 2.07;
IF PRATE =:'IM' AND PG=5 THEN ADVRATE2 = 4.17;
IF PRATE =:'JO' AND PG=5 THEN ADVRATE2 = 38.60;
IF PRATE =:'LI' AND PG=5 THEN ADVRATE2 = 38.60;
IF PRATE =:'MM' AND PG=5 THEN ADVRATE2 = 28.16;
IF PRATE =:'MN' AND PG=5 THEN ADVRATE2 = 4.55;
IF PRATE =:'MS' AND PG=5 THEN ADVRATE2 = 5.80;
IF PRATE =:'MT' AND PG=5 THEN ADVRATE2 = 5.80;
IF PRATE =:'OM' AND PG=5 THEN ADVRATE2 = 3.574;
IF PRATE =:'PC' AND PG=5 THEN ADVRATE2 = 4.76;
IF PRATE =:'PH' AND PG=5 THEN ADVRATE2 = 4.76;
IF PRATE =:'PN' AND PG=5 THEN ADVRATE2 = 7.27;
IF PRATE =:'PR' AND PG=5 THEN ADVRATE2 = 7.27;
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IF PRATE =:'QM' AND PG=5 THEN ADVRATE2 = 8.30;
IF PRATE =:'RM' AND PG=5 THEN ADVRATE2 = 1.98;
IF PRATE =:'RP' AND PG=5 THEN ADVRATE2 = 1.98;
IF PRATE =:'SH' AND PG=5 THEN ADVRATE2 = 15.34;
IF PRATE =:'SK' AND PG=5 THEN ADVRATE2 = 5.83;
IF PRATE =:'SM' AND PG=5 THEN ADVRATE2 = 5.08;
IF PRATE =:'STG' AND PG=5 THEN ADVRATE2 = 5.08;
IF PRATE =:'STS' AND PG=5 THEN ADVRATE2 = 5.08;
IF PRATE =:'WT' AND PG=5 THEN ADVRATE2 = 2.00;
IF PRATE =:'YN' AND PG=5 THEN ADVRATE2 = 5.15;

*****E-6 ADVRATE FIGURES ARE FY92 FROM BUPERS/MEHAY****;
IF PRATE =: 'ABE' AND PG=6 THEN ADVRATE2 = 1.99;
IF PRATE =: 'AE' AND PG=6 THEN ADVRATE2 = 1.99;
IF PRATE =: 'AK' AND PG=6 THEN ADVRATE2 = 2.51;
IF PRATE =:'AMS' AND PG=6 THEN ADVRATE2 = 4.77;
IF PRATE =:'AO' AND PG=6 THEN ADVRATE2 = 5.08;
IF PRATE =:'AT' AND PG=6 THEN ADVRATE2 = 5.08;
IF PRATE =:'AW' AND PG=6 THEN ADVRATE2 = 3.02;
IF PRATE =:'AZ' AND PG=6 THEN ADVRATE2 = 5.36;
IF PRATE =:'BM' AND PG=6 THEN ADVRATE2 = 5.36;
IF PRATE =:'DC' AND PG=6 THEN ADVRATE2 = 77.14;
IF PRATE =:'DK' AND PG=6 THEN ADVRATE2 = 4.77;
IF PRATE =:'DM' AND PG=6 THEN ADVRATE2 = 7.46;
IF PRATE =:'DP' AND PG=6 THEN ADVRATE2 = 10.98;
IF PRATE =:'DS' AND PG=6 THEN ADVRATE2 = 10.98;
IF PRATE =:'DT' AND PG=6 THEN ADVRATE2 = 12.69;
IF PRATE =:'EM' AND PG=6 THEN ADVRATE2 = 2.17;
IF PRATE =:'ET' AND PG=6 THEN ADVRATE2 = 2.17;
IF PRATE =:'EW' AND PG=6 THEN ADVRATE2 = 2.17;
IF PRATE =:'FC' AND PG=6 THEN ADVRATE2 = 20.35;
IF PRATE =:'FTB' AND PG=6 THEN ADVRATE2 = 14.41;
IF PRATE =:'GMG' AND PG=6 THEN ADVRATE2 = 14.41;
IF PRATE =:'GMM' AND PG=6 THEN ADVRATE2 = 40.99;
IF PRATE =:'HM' AND PG=6 THEN ADVRATE2 = 9.31;
IF PRATE =:'IC' AND PG=6 THEN ADVRATE2 = 2.07;
IF PRATE =:'IM' AND PG=6 THEN ADVRATE2 = 4.17;
IF PRATE =:'JO' AND PG=6 THEN ADVRATE2 = 38.60;
IF PRATE =:'LI' AND PG=6 THEN ADVRATE2 = 38.60;
IF PRATE =:'MM' AND PG=6 THEN ADVRATE2 = 28.16;
IF PRATE =:'MN' AND PG=6 THEN ADVRATE2 = 4.55;
IF PRATE =:'MS' AND PG=6 THEN ADVRATE2 = 5.80;
IF PRATE =:'MT' AND PG=6 THEN ADVRATE2 = 5.80;
IF PRATE =:'OM' AND PG=6 THEN ADVRATE2 = 3.574;
IF PRATE =:'PC' AND PG=6 THEN ADVRATE2 = 4.76;
IF PRATE =:'PH' AND PG=6 THEN ADVRATE2 = 4.76;
IF PRATE =:'PN' AND PG=6 THEN ADVRATE2 = 7.27;
IF PRATE =:'PR' AND PG=6 THEN ADVRATE2 = 7.27;
IF PRATE =:'QM' AND PG=6 THEN ADVRATE2 = 8.30;
IF PRATE =:'RM' AND PG=6 THEN ADVRATE2 = 1.98;
IF PRATE =:'RP' AND PG=6 THEN ADVRATE2 = 1.98;
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IF PRATE =:'SH' AND PG=6 THEN ADVRATE2 = 15.34;
IF PRATE =:'SK' AND PG=6 THEN ADVRATE2 = 5.83;
IF PRATE =:'SM' AND PG=6 THEN ADVRATE2 = 5.08;
IF PRATE =:'STG' AND PG=6 THEN ADVRATE2 = 5.08;
IF PRATE =:'STS' AND PG=6 THEN ADVRATE2 = 5.08;
IF PRATE =:'WT' AND PG=6 THEN ADVRATE2 = 2.00;
IF PRATE =:'YN' AND PG=6 THEN ADVRATE2 = 5.15;

IF PRATE =: 'ABE' AND PG=6 THEN ADVRATE2 = 8.46;
IF PRATE =: 'AE' AND PG=6 THEN ADVRATE2 = 10.00;
IF PRATE =: 'AK' AND PG=6 THEN ADVRATE2 = 21.05;
IF PRATE =:'AMS' AND PG=6 THEN ADVRATE2 = 25.80;
IF PRATE =:'AO' AND PG=6 THEN ADVRATE2 = 13.21;
IF PRATE =:'AT' AND PG=6 THEN ADVRATE2 = 18.34;
IF PRATE =:'AW' AND PG=6 THEN ADVRATE2 = 6.00;
IF PRATE =:'AZ' AND PG=6 THEN ADVRATE2 = 17.10;
IF PRATE =:'BM' AND PG=6 THEN ADVRATE2 = 42.11;
IF PRATE =:'DC' AND PG=6 THEN ADVRATE2 = 15.98;
IF PRATE =:'DK' AND PG=6 THEN ADVRATE2 = 7.60;
IF PRATE =:'DM' AND PG=6 THEN ADVRATE2 = 11.76;
IF PRATE =:'DP' AND PG=6 THEN ADVRATE2 = 13.72;
IF PRATE =:'DS' AND PG=6 THEN ADVRATE2 = 15.10;
IF PRATE =:'DT' AND PG=6 THEN ADVRATE2 = 27.78;
IF PRATE =:'EM' AND PG=6 THEN ADVRATE2 = 13.42;
IF PRATE =:'ET' AND PG=6 THEN ADVRATE2 = 53.06;
IF PRATE =:'EW' AND PG=6 THEN ADVRATE2 = 22.22;
IF PRATE =:'FC' AND PG=6 THEN ADVRATE2 = 15.74;
IF PRATE =:'FTB' AND PG=6 THEN ADVRATE2 = 20.00;
IF PRATE =:'GMG' AND PG=6 THEN ADVRATE2 = 16.29;
IF PRATE =:'GMM' AND PG=6 THEN ADVRATE2 = 16.29;
IF PRATE =:'HM' AND PG=6 THEN ADVRATE2 = 25.05;
IF PRATE =:'IC' AND PG=6 THEN ADVRATE2 = 24.48;
IF PRATE =:'IM' AND PG=6 THEN ADVRATE2 = 10.00;
IF PRATE =:'JO' AND PG=6 THEN ADVRATE2 = 17.50;
IF PRATE =:'LI' AND PG=6 THEN ADVRATE2 = 25.71;
IF PRATE =:'MM' AND PG=6 THEN ADVRATE2 = 39.20;
IF PRATE =:'MN' AND PG=6 THEN ADVRATE2 = 64.71;
IF PRATE =:'MS' AND PG=6 THEN ADVRATE2 = 31.20;
IF PRATE =:'MT' AND PG=6 THEN ADVRATE2 = 13.73;
IF PRATE =:'NC' AND PG=6 THEN ADVRATE2 = 100.00;
IF PRATE =:'OM' AND PG=6 THEN ADVRATE2 = 11.43;
IF PRATE =:'PC' AND PG=6 THEN ADVRATE2 = 19.67;
IF PRATE =:'PH' AND PG=6 THEN ADVRATE2 = 8.14;
IF PRATE =:'PN' AND PG=6 THEN ADVRATE2 = 15.75;
IF PRATE =:'PR' AND PG=6 THEN ADVRATE2 = 18.68;
IF PRATE =:'QM' AND PG=6 THEN ADVRATE2 = 59.13;
IF PRATE =:'RM' AND PG=6 THEN ADVRATE2 = 37.51;
IF PRATE =:'RP' AND PG=6 THEN ADVRATE2 = 14.55;
IF PRATE =:'SH' AND PG=6 THEN ADVRATE2 = 29.37;
IF PRATE =:'SK' AND PG=6 THEN ADVRATE2 = 18.10;
IF PRATE =:'SM' AND PG=6 THEN ADVRATE2 = 10.17;
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IF PRATE =:'STS' AND PG=6 THEN ADVRATE2 = 17.79;
IF PRATE =:'WT' AND PG=6 THEN ADVRATE2 = 7.55;
IF PRATE =:'YN' AND PG=6 THEN ADVRATE2 = 19.55;

END;
******FY93 ADVANCEMENT FIGURES ARE FROM SEP92 CYCLE****;
******FROM JUNE 92 E-7 BOARD, AND FROM      E-8 BOARD***;

IF TX2=1 THEN DO;

IF PRATE=:'AT' AND PG=5 THEN ADVRATE3=7.01;
IF PRATE=:'EM' AND PG=6 THEN ADVRATE3=8.03;
IF PRATE=:'EM' AND PG=5 THEN ADVRATE3=2.05;
IF PRATE=:'FTG' AND PG=5 THEN ADVRATE3=18.82;
IF PRATE=:'IC' AND PG=5 THEN ADVRATE3=2.16;
IF PRATE=:'IC' AND PG=6 THEN ADVRATE3=13.31;

IF PRATE=:'MM' AND PG=5 THEN ADVRATE3=9.91;
IF PRATE=:'MM' AND PG=6 THEN ADVRATE3=2.05;
IF PRATE=:'RM' AND PG=5 THEN ADVRATE3=2.11;
IF PRATE=:'RM' AND PG=6 THEN ADVRATE3=1.93;
IF PRATE=:'STS' AND PG=5 THEN ADVRATE3=3.92;
IF PRATE=:'WT' AND PG=5 THEN ADVRATE3=1.89;
IF PRATE=:'WT' AND PG=6 THEN ADVRATE3=1.72;
IF PRATE=:'AE' AND PG=6 THEN ADVRATE3=6.81;

IF PRATE=:'AE' AND PG=5 THEN ADVRATE3=2.03;
IF PRATE=:'AT' AND PG=6 THEN ADVRATE3=11.28;
IF PRATE=:'BT' AND PG=5 THEN ADVRATE3=1.97;
IF PRATE=:'CTM' AND PG=6 THEN ADVRATE3=14.08;
IF PRATE=:'EA' AND PG=6 THEN ADVRATE3=7.14;
IF PRATE=:'EM' AND PG=7 THEN ADVRATE3=4.96;

IF PRATE=:'EN' AND PG=5 THEN ADVRATE3=2.17;
IF PRATE=:'EN' AND PG=6 THEN ADVRATE3=13.74;
IF PRATE=:'ET' AND PG=7 THEN ADVRATE3=5.00;
IF PRATE=:'ET' AND PG=6 THEN ADVRATE3=2.08;
IF PRATE=:'ET' AND PG=5 THEN ADVRATE3=9.93;
IF PRATE=:'EW' AND PG=7 THEN ADVRATE3=8.46;
IF PRATE=:'EW' AND PG=6 THEN ADVRATE3=10.04;
IF PRATE=:'EW' AND PG=5 THEN ADVRATE3=2.00;

IF PRATE=:'FC' AND PG=6 THEN ADVRATE3=2.00;
IF PRATE=:'FTB' AND PG=7 THEN ADVRATE3=7.77;
IF PRATE=:'FTB' AND PG=6 THEN ADVRATE3=3.41;
IF PRATE=:'FTB' AND PG=5 THEN ADVRATE3=2.23;
IF PRATE=:'FTG' AND PG=7 THEN ADVRATE3=7.77;
IF PRATE=:'FTG' AND PG=6 THEN ADVRATE3=21.28;
IF PRATE=:'FTG' AND PG=5 THEN ADVRATE3=18.82;
IF PRATE=:'IC' AND PG=7 THEN ADVRATE3=5.63;
IF PRATE=:'IC' AND PG=6 THEN ADVRATE3=13.31;
```

```
IF PRATE=:'IC' AND PG=5 THEN ADVRATE3=2.16;

IF PRATE=:'IM' AND PG=7 THEN ADVRATE3=10.34;
IF PRATE=:'MM' AND PG=7 THEN ADVRATE3=6.94;
IF PRATE=:'MT' AND PG=7 THEN ADVRATE3=2.37;
IF PRATE=:'MT' AND PG=6 THEN ADVRATE3=10.37;
IF PRATE=:'MT' AND PG=5 THEN ADVRATE3=2.05;
IF PRATE=:'OM' AND PG=7 THEN ADVRATE3=3.57;
IF PRATE=:'OTA' AND PG=6 THEN ADVRATE3=13.04;
IF PRATE=:'OTA' AND PG=5 THEN ADVRATE3=18.35;
IF PRATE=:'BM' AND PG=7 THEN ADVRATE3=4.98;
IF PRATE=:'STS' AND PG=7 THEN ADVRATE3=7.10;
IF PRATE=:'STS' AND PG=6 THEN ADVRATE3=2.33;
IF PRATE=:'WT' AND PG=7 THEN ADVRATE3=2.67;
IF PRATE=:'WT' AND PG=6 THEN ADVRATE3=1.72;
IF PRATE=:'WT' AND PG=5 THEN ADVRATE3=1.89;

IF PRATE=:'AE' AND PG=7 THEN ADVRATE3=7.59;
IF PRATE=:'AT' AND PG=7 THEN ADVRATE3=4.74;
IF PRATE=:'CTM' AND PG=7 THEN ADVRATE3=9.09;
IF PRATE=:'CTM' AND PG=6 THEN ADVRATE3=14.08;
IF PRATE=:'CTM' AND PG=5 THEN ADVRATE3=2.30;
IF PRATE=:'EO' AND PG=6 THEN ADVRATE3=0.74;
IF PRATE=:'FC' AND PG=6 THEN ADVRATE3=2.00;
IF PRATE=:'RM' AND PG=7 THEN ADVRATE3=3.29;
IF PRATE=:'QM' AND PG=6 THEN ADVRATE3=2.43;
IF PRATE=:'QM' AND PG=7 THEN ADVRATE3=2.24;
IF PRATE=:'MR' AND PG=5 THEN ADVRATE3=5.80;
END;
*****END OF VARIABLE CODING*****;
```

```
***CODING USED TO "CLEAN UP" DATA***


IF OA92 NE 0 THEN DO;
   IF OPHASE5=. THEN OPHASE5=0;
   IF OPHASE6=. THEN OPHASE6=0;
   IF OPHASE7=. THEN OPHASE7=0;
   IF APHASE93=. THEN APHASE93=0;
END;

IF OA93 NE 0 THEN DO;
   IF OPHASE1=. THEN OPHASE1=0;
   IF OPHASE2=. THEN OPHASE2=0;
   IF OPHASE3=. THEN OPHASE3=0;
   IF OPHASE4=. THEN OPHASE4=0;
   IF APHASE92=. THEN APHASE92=0;
END;

      OA=(OPHASE1*100000000)+
         (OPHASE2*10000000) +
         (OPHASE3*1000000)   +
         (OPHASE4*100000)    +
         (APHASE92*10000)    +
         (OPHASE5*1000)      +
         (OPHASE6*100)       +
         (OPHASE7*10)        +
         (APHASE93*1);

   IF APHASE92=8 OR APHASE92=0 THEN NOTAKE92=1;
      ELSE TAKE92=1;
   IF APHASE93=9 OR APHASE93=0 THEN NOTAKE93=1;
      ELSE TAKE93=1;

IF TX1=1 THEN DO;

   TIME=(365*BASDYR)+(30*BASDMO)+BASDDAY;
   FILEDAY=(365*92)+181;
   YOS=(FILEDAY-TIME)/365;

UNRATE=UNRATE2;
ADVRATE=ADVRATE2;
END;

IF TX2=1 THEN DO;
   TIME=(365*BASDYR)+(30*BASDMO)+BASDDAY;
   FILEDAY=(365*93)+31;
   YOS=(FILEDAY-TIME)/365;

UNRATE=UNRATE3;
ADVRATE=ADVRATE3;
END;
```

```
IF PG<5 THEN DELETE;
IF YOS<6 THEN DELETE;
IF YOS>18 THEN DELETE;

IF OA=0 THEN DELETE;
IF OA=6 THEN DELETE;
IF OA=445679 THEN DELETE;
IF OA=3035679 THEN DELETE;
IF OA=3030679 THEN DELETE;
IF OA=3440079 THEN DELETE;
IF OA=3445679 THEN DELETE;
IF OA=20020679 THEN DELETE;
IF OA=20025679 THEN DELETE;
IF OA=23035679 THEN DELETE;
```

```
***CODING USED FOR MEANS AND T-TESTS FOR STATISTICAL SIGNIFICANCE***

IF OA=77 OR OA=606 OR OA=5005 OR OA=440000 OR OA=3030000 OR OA=20020000
    OR OA=100010000 THEN DO;
    ALL_1ST=1; END; ELSE DO; ALL_1ST=0;
END;


IF OA=100010000 OR OA=20020000 OR OA=3030000 OR OA=440000 THEN DO;
    FIRST_92=1; END;  ELSE DO;  FIRST_92=0;
END;


IF OA=5005 OR OA=606 OR OA=77 THEN DO;
    FIRST_93=1; END;  ELSE DO;  FIRST_93=0;
END;


IF ALL_1ST=0 THEN DO;
IF (APHASE92=1 OR APHASE92=2 OR APHASE92=3 OR APHASE92=4
OR APHASE93=5 OR APHASE93=6 OR APHASE93=7) THEN DO;
    ALL_OTH=1; END;
    ELSE DO; ALL_OTH=0;
END;
END;


IF FIRST_92=0 THEN DO;
IF (APHASE92=1 OR APHASE92=2 OR APHASE92=3 OR APHASE92=4) THEN DO;
    OTHER_92=1; END;
    ELSE DO; OTHER_92=0;
END;
END;


IF FIRST_93=0 THEN DO;
IF (APHASE93=5 OR APHASE93=6 OR APHASE93=7) THEN DO;
    OTHER_93=1; END;
    ELSE DO; OTHER_93=0;
END;
END;


IF (TX1=1 AND TX2=1) THEN DO;
    IF OA93=5005 OR OA93=606 OR OA93=77 THEN DO;
    FST_9293=1; END;
    ELSE DO; FST_9293=0;
END;
END;


IF FST_9293=0 THEN DO;
    IF APHASE93=6 OR APHASE93=7 THEN OTH_9293=1;
    ELSE DO; OTH_9293=0;
END; END;

DATA ALLONE;
    SET ONE;
```

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```
IF ALL_1ST=1;

PROC MEANS DATA=ALLONE;
     VAR MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE;
TITLE 'MEANS OF FIRST TIME ELIGIBLE TAKERS--92 AND 93';
DATA ALLOTH;
     SET ONE;

IF ALL_OTH=1;
PROC MEANS DATA=ALLOTH;
     VAR MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE;
TITLE 'MEANS OF OTHER TAKERS--92 AND 93';

DATA FIRST92;
     SET ONE;

IF FIRST_92=1;
PROC MEANS DATA=FIRST92;
     VAR MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE;
TITLE 'MEANS OF FIRST TIME ELIGIBLE TAKERS--92';

DATA OTHER92;
     SET ONE;


IF OTHER_92=1;
PROC MEANS DATA=OTHER92;
     VAR MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE;
TITLE 'MEANS OF OTHER TAKERS--92';

DATA FIRST93;
     SET ONE;

IF FIRST_93=1;
PROC MEANS DATA=FIRST93;
     VAR MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE;
TITLE 'MEANS OF FIRST TIME ELIGIBLE TAKERS--93';

DATA OTHER93;
     SET ONE;

IF OTHER_93=1;
PROC MEANS DATA=OTHER93;
     VAR MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE;
```

```
TITLE 'MEANS OF OTHER TAKERS--93';

DATA FRST9293;
     SET ONE;
IF FST_9293=1;

PROC MEANS DATA=FRST9293;
     VAR MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE;
TITLE 'MEANS OF FIRST TIME ELIGIBLE TAKERS-ELIG BOTH 92 & 93';

DATA OTH9293;
     SET ONE;
IF OTH_9293=1;
PROC MEANS DATA=OTH9293;
     VAR MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE;
TITLE 'MEANS OF OTHER TAKERS-ELIG BOTH 92 & 93';

DATA SIG_TEST;
     SET ONE;
IF ALL_1ST=1 THEN SIG_ALL=1;
   ELSE IF ALL_OTH=1 THEN SIG_ALL=2;
   ELSE SIG_ALL=.;

IF FIRST_92=1 THEN SIG_92=1;
   ELSE IF OTHER_92=1 THEN SIG_92=2;
   ELSE SIG_92=.;

IF FIRST_93=1 THEN SIG_93=1;
   ELSE IF OTHER_93=1 THEN SIG_93=2;
   ELSE SIG_93=.;

IF FST_9293=1 THEN SIG_9293=1;
   ELSE IF OTH_9293=1 THEN SIG_9293=2;
   ELSE SIG_9293=.;

PROC TTEST DATA=SIG_TEST;
     CLASS SIG_ALL;
     VAR MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE;
TITLE 'SIGNIFICANCE TESTING FOR ALL TAKERS';

PROC TTEST DATA=SIG_TEST;
     CLASS SIG_92;
     VAR MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE;
TITLE 'SIGNIFICANCE TESTING FOR FISCAL 92 TAKERS';

PROC TTEST DATA=SIG_TEST;
     CLASS SIG_93;
```

```
    VAR MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
    MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE;
TLE 'SIGNIFICANCE TESTING FOR FISCAL 93 TAKERS';

OC TTEST DATA=SIG_TEST;
    CLASS SIG_9293;
    VAR MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
    MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE;
TLE 'SIGNIFICANCE TESTING FOR ELIG FISCAL 92 & 93 TAKERS';
```

```
***PROGRAMMING DEVELOPED TO "STACK" VARIABLES

DATA PHASE1;
     SET ONE;

IF OA GE 100010000;
PH=1;

PHSE1=1; PHSE2=0; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;

IF APHASE92=1 THEN TAKE=0; ELSE TAKE=1;
**********************************************;
DATA PHASE2;
     SET ONE;

IF OA GE 20020000;
IF APHASE92=1 THEN DELETE;
PH=2;

IF OA GE 100010000 THEN DO;
   PHSE1=0; PHSE2=1; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
END;

IF OA GE 20020000 AND OA LT 100010000 THEN DO;
PHSE1=1; PHSE2=0; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
END;
IF APHASE92=2 THEN TAKE=0; ELSE TAKE=1;
**********************************************;

DATA PHASE3;
     SET ONE;

IF OA GE 3030000;
IF APHASE92=1 OR APHASE92=2 THEN DELETE;
PH=3;

IF OA GE 100010000 THEN DO;
   PHSE1=0; PHSE2=0; PHSE3=1; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
END;

IF OA GE 20020000 AND OA LT 100010000 THEN DO;
   PHSE1=0; PHSE2=1; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
END;

IF OA GE 3030000 AND OA LT 20020000 THEN DO;
PHSE1=1; PHSE2=0; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
END;

IF APHASE92=3 THEN TAKE=0; ELSE TAKE=1;
**********************************************;
```

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```
.TA PHASE4;
    SET ONE;

' OA GE 440000;
' APHASE92=1 OR APHASE92=2 OR APHASE92=3 THEN DELETE;
|=4;

' OA GE 100010000 THEN DO;
  PHSE1=0; PHSE2=0; PHSE3=0; PHSE4=1; PHSE5=0; PHSE6=0; PHSE7=0;
'D;

' OA GE 20020000 AND OA LT 100010000 THEN DO;
  PHSE1=0; PHSE2=0; PHSE3=1; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
'D;

' OA (  J030000 AND OA LT 20020000 THEN DO;
  PHSE1=0; PHSE2=1; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
'D;

' OA GE 440000 AND OA LT 3030000 THEN DO;
|SE1=1; PHSE2=0; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
'D;

' APHASE92=4 THEN TAKE=0; ELSE TAKE=1;
'**********************************************;

.TA PHASE5;
    SET ONE;

' OA GE 5005;
' OA=123480000 OR OA=23480000 OR OA=3480000 OR OA=480000
  THEN DELETE;
' APHASE92=1 OR APHASE92=2 OR APHASE92=3 OR APHASE92=4 THEN DELETE;
|=5;

' OA GE 100010000 THEN DO;
 PHSE1=0; PHSE2=0; PHSE3=0; PHSE4=0; PHSE5=1; PHSE6=0; PHSE7=0;
D;

  OA GE 20020000 AND OA LT 100010000 THEN DO;
 PHSE1=0; PHSE2=0; PHSE3=0; PHSE4=1; PHSE5=0; PHSE6=0; PHSE7=0;
D;

  OA GE 3030000 AND OA LT 20020000 THEN DO;
 PHSE1=0; PHSE2=0; PHSE3=1; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
D;

  OA GE 440000 AND OA LT 3030000 THEN DO;
 PHSE1=0; PHSE2=1; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
D;
```

```
IF OA GE 5005 AND OA LT 440000 THEN DO;
PHSE1=1; PHSE2=0; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
END;

IF APHASE93=5 THEN TAKE=0; ELSE TAKE=1;
*******************************************;

DATA PHASE6;
     SET ONE;

IF OA GE 606;
IF OA=5009 OR OA=480079 OR OA=480609 OR OA=485009 OR OA=3480079
   OR OA=3480609 OR OA=23480079
OR OA=123480000 OR OA=23480000 OR OA=3480000 OR OA=480000
   OR OA=23480609 OR OA=123480609 OR OA=123480079 THEN DELETE;
IF APHASE92=1 OR APHASE92=2 OR APHASE92=3 OR APHASE92=4
   OR APHASE93=5 THEN DELETE;
PH=6;

IF OA GE 100010000 THEN DO;
   PHSE1=0; PHSE2=0; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=1; PHSE7=0;
END;

IF OA GE 20020000 AND OA LT 100010000 THEN DO;
   PHSE1=0; PHSE2=0; PHSE3=0; PHSE4=0; PHSE5=1; PHSE6=0; PHSE7=0;
END;

IF OA GE 3030000 AND OA LT 20020000 THEN DO;
   PHSE1=0; PHSE2=0; PHSE3=0; PHSE4=1; PHSE5=0; PHSE6=0; PHSE7=0;
END;

IF OA GE 440000 AND OA LT 3030000 THEN DO;
   PHSE1=0; PHSE2=0; PHSE3=1; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
END;

IF OA GE 5005 AND OA LT 440000 THEN DO;
   PHSE1=0; PHSE2=1; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
END;

IF OA GE 606 AND OA LT 5005 THEN DO;
PHSE1=1; PHSE2=0; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
END;

IF APHASE93=6 THEN TAKE=0; ELSE TAKE=1;
*******************************************;

DATA PHASE7;
     SET ONE;

IF OA GE 77;
IF OA=609 OR OA=5009 OR OA=5609 OR OA=480079 OR OA=480609
```

```
      OR OA=480679 OR OA=485009 OR OA=485609 OR OA=3480079
      OR OA=3480609 OR OA=3480679 OR OA=3485609 OR OA=23480079
      OR OA=123480000 OR OA=23480000 OR OA=3480000 OR OA=480000
      OR OA=23480609 OR OA=23480679 OR OA=23485609 OR
      OA=123480679 OR OA=123480609 OR OA=123480079 THEN DELETE;
IF APHASE92=1 OR APHASE92=2 OR APHASE92=3 OR APHASE92=4
   OR APHASE93=5 OR APHASE93=6 THEN DELETE;

PH=7;

IF OA GE 100010000 THEN DO;
   PHSE1=0; PHSE2=0; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=1;
END;

IF OA GE 20020000 AND OA LT 100010000 THEN DO;
   PHSE1=0; PHSE2=0; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=1; PHSE7=0;
END;

IF OA GE 3030000 AND OA LT 20020000 THEN DO;
   PHSE1=0; PHSE2=0; PHSE3=0; PHSE4=0; PHSE5=1; PHSE6=0; PHSE7=0;
END;

IF OA GE 440000 AND OA LT 3030000 THEN DO;
   PHSE1=0; PHSE2=0; PHSE3=0; PHSE4=1; PHSE5=0; PHSE6=0; PHSE7=0;
END;

IF OA GE 5005 AND OA LT 440000 THEN DO;
   PHSE1=0; PHSE2=0; PHSE3=1; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
END;

IF OA GE 606 AND OA LT 5005 THEN DO;
   PHSE1=0; PHSE2=1; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
END;

IF OA GE 77 AND OA LT 606 THEN DO;
PHSE1=1; PHSE2=0; PHSE3=0; PHSE4=0; PHSE5=0; PHSE6=0; PHSE7=0;
END;

IF APHASE93=7 THEN TAKE=0; ELSE TAKE=1;
**************************************;

DATA ALL7;
     SET PHASE1 PHASE2 PHASE3 PHASE4 PHASE5 PHASE6 PHASE7;
IF PHSE6=1 OR PHSE7=1 THEN PHSE67=1; ELSE PHSE67=0;
IF TAKE=0 THEN TAKER=1; ELSE TAKER=0;
```

***PROGRAMMING FOR SIMPLE BINARY LOGIT AND LINEAR PROBABIILITY MODEL

```
PROC FREQ DATA=ONE;
     TABLES OA;

PROC MEANS DATA=ONE;
     VAR MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE;

PROC LOGISTIC DATA=ALL7 MAXITER=50;
     MODEL TAKE = MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE PHSE1 PHSE2 PHSE3
     PHSE4 PHSE5;

     PROC REG DATA=ALL7;
     MODEL TAKER = MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE PHSE1 PHSE2 PHSE3
     PHSE4 PHSE5;
```

.

***PROGRAMMING FOR NOTIONAL PERSON RESULTS

```
DATA TWO;
INPUT MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
      MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE
      PHSE1 PHSE2 PHSE3 PHSE4 PHSE5;

KEEPME=1;
CARDS;
0 1 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
1 1 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 0 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 1 1 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 1 0 0 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 1 0 1 0 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 1 0 1 1 3.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 1 0 1 1 2.16 0 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 1 0 1 1 2.16 1 13.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 1 0 1 1 2.16 1 12.62 1 60.98 0 10.13 7.34 0 0 0 0 0
0 1 0 1 1 2.16 1 12.62 0 70.98 0 10.13 7.34 0 0 0 0 0
0 1 0 1 1 2.16 1 12.62 0 60.98 1 10.13 7.34 0 0 0 0 0
0 1 0 1 1 2.16 1 12.62 0 60.98 0 11.13 7.34 0 0 0 0 0
0 1 0 1 1 2.16 1 12.62 0 60.98 0 10.13 8.34 0 0 0 0 0
0 1 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 1 0 0 0 0
0 1 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 1 0 0 0
0 1 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 1 0 0
0 1 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 1 0
0 1 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 1


0 0 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
1 0 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 1 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 0 1 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 0 0 0 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 0 0 1 0 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 0 0 1 1 3.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 0 0 1 1 2.16 0 12.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 0 0 1 1 2.16 1 13.62 0 60.98 0 10.13 7.34 0 0 0 0 0
0 0 0 1 1 2.16 1 12.62 1 60.98 0 10.13 7.34 0 0 0 0 0
0 0 0 1 1 2.16 1 12.62 0 70.98 0 10.13 7.34 0 0 0 0 0
0 0 0 1 1 2.16 1 12.62 0 60.98 1 10.13 7.34 0 0 0 0 0
0 0 0 1 1 2.16 1 12.62 0 60.98 0 11.13 7.34 0 0 0 0 0
0 0 0 1 1 2.16 1 12.62 0 60.98 0 10.13 8.34 0 0 0 0 0
0 0 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 1 0 0 0 0
0 0 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 1 0 0 0
0 0 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 1 0 0
0 0 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 1 0
0 0 0 1 1 2.16 1 12.62 0 60.98 0 10.13 7.34 0 0 0 0 1
;
```

```
DATA THREE;
  SET ALL7 TWO;

PROC LOGISTIC;
     MODEL TAKE = MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE
     PHSE1 PHSE2 PHSE3 PHSE4 PHSE5;

 OUTPUT OUT=MARGPROB P=YHAT;

DATA FOUR;
SET MARGPROB;
IF KEEPME=1;

PROC PRINT;
     VAR YHAT MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE
     PHSE1 PHSE2 PHSE3 PHSE4 PHSE5;
TITLE 'PREDICTED PROBABILITIES FOR ALL ELIGIBLES';
```

```
***PROGRAMMING FOR MULTINOMIAL LOGIT MODELS

DATA ALL7;
     SET PHASE1 PHASE2 PHASE3 PHASE4 PHASE5 PHASE6 PHASE7;

IF TAKE=0 THEN TAKER=1; ELSE TAKER=0;

IF OA=77 OR OA=606 OR OA=5005 OR OA=440000 OR OA=3030000 OR OA=20020000
   OR OA=100010000 THEN DO;
   ALL_1ST=1; END; ELSE DO; ALL_1ST=0;
END;

IF ALL_1ST=0 THEN DO;
IF (APHASE92=1 OR APHASE92=2 OR APHASE92=3 OR APHASE92=4
OR APHASE93=5 OR APHASE93=6 OR APHASE93=7) THEN DO;
   ALL_OTH=1; END;
   ELSE DO; ALL_OTH=0;
END;
END;

IF ALL_1ST=1 THEN MULTI=1;
   ELSE IF ALL_OTH=1 THEN MULTI=2;
   ELSE IF ALL_OTH=0 THEN MULTI=3;

PROC FREQ DATA=ALL7;
     TABLES OA;

PROC MEANS DATA=ALL7;
     VAR TAKE MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE2 UNRATE2 PHSE1 PHSE2 PHSE3
     PHSE4 PHSE5 PHSE6 PHSE7 PHSE67;

PROC CATMOD DATA=ALL7;
     RESPONSE LOGITS;
     DIRECT MINORITY GRADE NONGRAD HSGRAD MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE;
     MODEL MULTI = MINORITY GRADE NONGRAD HSGRAD  MARRIED CHILD
     MALE YOS MILSPS AFQT HITECH ADVRATE UNRATE/
     COVB ML NOPROFILE NOGLS;
```

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