# NAVAL POSTGRADUATE SCHOOL
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# THESIS

**AN ANALYSIS OF FACTORS THAT INFLUENCE ENLISTMENT DECISIONS IN THE U.S. ARMY**

by

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March 1998

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The purpose of this thesis is to analyze factors that influence decisions to enlist in the U.S. Army. This thesis uses 1997 New Recruit Survey data from the Army Recruiting Command and examines new recruits who contracted between October 1, 1996 and September 30, 1997, but had not yet entered basic training. This study employs cross-tabulations and a Multi-Nomial Logit model, using PROC CATMOD, to analyze the data. The results show that recruits who differ in gender, ethnicity, past status, educational expectations, years of service, and contact initiation are influenced to enlist by different factors. Educational incentives, especially the Army's College Fund, and self-development, including "to do something I can be proud of," are given as the most important reasons to enlist. Recruiters and friends are the most influential sources of information about the Army, and TV advertisements are the most influential sources in the mass media. Key barriers to enlistment are the perceptions that service in the military is a serious obstacle to educational progress, followed by military life, and conflicting interests. Immediate family members, especially parents, are key influencers in the enlistment decision. The results suggest that the Army should strive to improve its image and service environment, as well as continue to sustain enlistment incentives and resources at an adequate level.

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**AN ANALYSIS OF FACTORS THAT INFLUENCE ENLISTMENT DECISIONS IN THE U.S. ARMY**

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Submitted in partial fulfillment
of the requirements for the degree of

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## ABSTRACT

The purpose of this thesis is to analyze factors that influence decisions to enlist in the U.S. Army. This thesis uses 1997 New Recruit Survey data from the Army Recruiting Command and examines new recruits who contracted between October 1, 1996 and September 30, 1997, but had not yet entered basic training. This study employs cross-tabulations and a Multi-Nomial Logit model, using PROC CATMOD, to analyze the data. The results show that recruits who differ in gender, ethnicity, past status, educational expectations, years of service, and contact initiation are influenced to enlist by different factors. Educational incentives, especially the Army's College Fund, and self-development, including "to do something I can be proud of," are given as the most important reasons to enlist. Recruiters and friends are the most influential sources of information about the Army, and TV advertisements are the most influential source in the mass media. Key barriers to enlistment are the perceptions that service in the military is a serious obstacle to educational progress, followed by military life, and conflicting interests. Immediate family members, especially parents, are key influencers on the enlistment decision. The results suggest that the Army should strive to improve its image and service environment, as well as continue to sustain enlistment incentives and resources at an adequate level.

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# I. INTRODUCTION

Since the advent of the All-Volunteer Force (AVF), there have been continuous debates and doubts about its efficiency, effectiveness, and equitability. Despite such lingering concerns, a major conference, held at the U.S. Naval Academy to commemorate two decades of the AVF, declared the all-volunteer system a complete success. The Department of Defense (DoD) has been successful in meeting recruiting goals, increasing retention, and improving the overall quality of the force. This success results from vigorous recruiting efforts, additional recruiting resources provided by Congress, increased military pay and compensation, and higher youth unemployment (Gilroy et al., 1996, p. 68). The successes have been particularly remarkable for the Army.

We can learn the following lessons from the early years of the AVF: (1) various changes in the economy and the youth labor force affect the military's ability to recruit and retain high quality personnel; (2) pay and benefits, especially educational assistance, are good recruiting and retention incentives; (3) adequate recruiting and advertising resources are important; (4) it is essential to track youth attitudes and propensities toward the military and then use this information in recruiting programs; (5) there are ways to better select, assign and train new recruits; and so on. (Gilroy et al., 1996, p. 68)

The AVF is now in its third decade. The military is currently confronting various challenges, such as force downsizing, a reduction in both budget and recruiting resources, the decline in youth population and propensity to enlist, continued economic recovery, and a change in people's perception of the military due to the collapse of the Soviet Union. Therefore, it is more important now than ever before for both DoD and the services to continue attracting high-quality, motivated youth into the military to maintain a high-quality, combat-ready force.

The present situation of the U.S. armed forces may reflect the future of the Korean Army, which is currently facing the same challenges. It also is possible that the North and South Korea will become unified suddenly or over a period of years. If this occurs,

maintaining the military through the draft system will lose its justification. Thus, this is a good time for the Korean Army to learn from the United States' experience with the AVF.

## A. PURPOSE AND OBJECTIVES

The purpose of this thesis is to analyze factors that influence the decisions of young people to enlist in the U.S. Army.

The objectives of this thesis are as follows:

1. To examine the factors that influence the decision to enlist.
2. To determine the relationship between the above factors and demographic variables (e.g., gender, race).
3. To evaluate the effect of the Army's current enlistment incentives and related resources of the Army on enlistment decisions.
4. To determine statistical differences between the effects of various factors on the decision to enlist.
5. To develop a vision of the future Korean Army.

## B. SCOPE AND LIMITATIONS

### 1. Scope

This thesis focuses on finding the factors that influence the decision to enlist in the U.S. Army. This analysis examines new recruits who contracted between October 1, 1996 and September 30, 1997, but before they go to basic training. Specifically, the research tries to determine the important reasons for enlisting, the effect of enlistment incentives and resources, key barriers to and key influencers for enlisting.

### 2. Limitations

The main limitation of this thesis is potential bias from analyzing data. The data used focus on new recruits who have already decided to join the Army, and exclude those who do not want to enlist. Therefore, the responses to the survey questions are more likely to be favorable to the Army. This may cause the key findings to be overestimated.

## C. SUMMARY OF CHAPTERS

Chapter II contains general background information on the AVF and a discussion of key issues related to this thesis. Chapter III offers a review of previous studies. Chapter IV describes the data and methodology used in this study. Chapter V presents the data analysis and empirical results of the model employed. Chapter VI provides conclusions and recommendations based on the study.

# II. BACKGROUND

## A. ALL-VOLUNTEER FORCE

After intense national debate, the United States ended conscription in June 1973. The Vietnam War clearly served to dramatize the draft issue and, indeed, acted as a catalyst for the debate. However, the root cause was a growing concern about the inequity of the Selective Service draft. (Scowcroft, 1982, p. 163)

The equity issue was twofold: the burden of conscription and the selective way that this burden was applied. Individuals subjected to the draft were forced to bear a burden that other members of society were able to avoid. The specific burdens were many, including low pay, risk to life and limb, personal hardship, arduous working conditions, and disruption in their personal and working lives, among others. The issue of inequity arose because of the selective way that these burdens were applied. As the numbers of young men reaching military age each year increased substantially during the 1960s, a smaller and smaller proportion was required to serve. As a result, the vast majority of military-age youth would never have to serve. For every young man forced to serve, three or four would not. Thus, no matter how fair or equitable the selection process could be made in an *ex ante* sense, such as a random lottery, there was no escaping the fact that a selective service draft would be inequitable *ex post*--i.e., to those unfortunate enough to be drafted. (Scowcroft, 1982, p. 163)

With the decision to abolish military conscription, the United States took on a monumental task: raising an armed force of three million by strictly volunteer means. A key concern was whether the services could enlist enough young men and women without incurring exorbitant additional costs and without compromising the quality and, therefore, the effectiveness of the armed forces. (Binkin, 1984, p. vii)

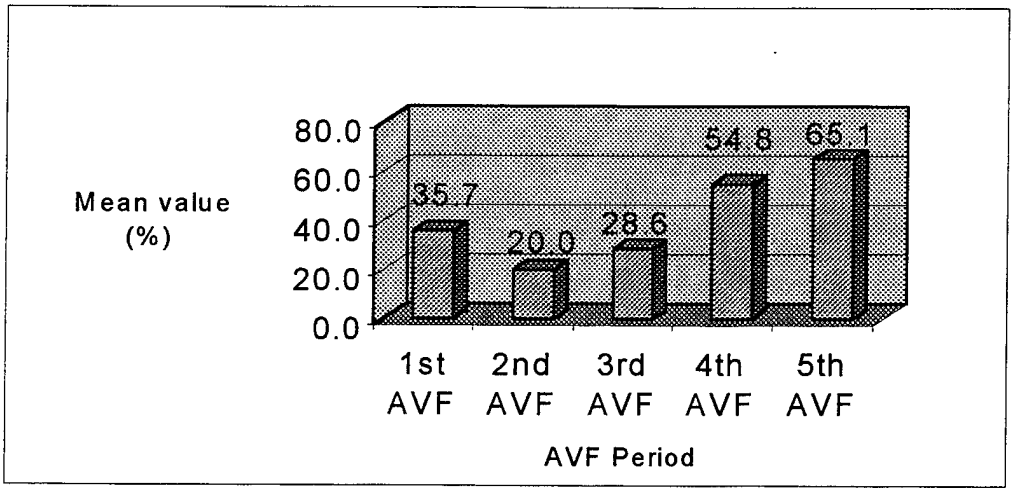
The President's Commission on an All-Volunteer Armed Force (or Gates Commission) had set out the blueprint for the AVF rooted in economic behavior. It assumed that by making entry-level military compensation competitive with civilian wages, sufficient numbers of high-quality personnel would be attracted to military service, that the

racial composition of the force would not be significantly altered, and that the people brought into the military could be molded into an effective fighting force. In 1973, the American economy was in trouble, youth unemployment was high, and entry-level military pay was roughly competitive with civilian wages, thanks to increases granted during the last years of conscription. In the absence of employment alternatives, the AVF appeared to be an immediate success. (Segal, 1989, p. 38)

According to Thurman (Gilroy et al., 1986, p. 56), the eras of the AVF can be denoted as follows:

- 1st AVF: 1973-1976, Era ending with the demise of the GI bill.
- 2nd AVF: 1976-1979, Era ending with the failure of all the services to achieve recruiting goals.
- 3rd AVF: 1979-1983, Era comprising the upswing in pay comparability, the arrival of the Army College Fund.
- 4th AVF: 1983-1991, Era ending with when Desert Storm was won and force reduction began.
- 5th AVF: 1991-present, Era characterizing by a reduction in forces, numerous regional threats, peace keeping missions, a lower recruiting missions, reduced recruiting resources, and a paucity of advertising.

Figure 1 shows the trend of high-quality recruits over the AVF periods. Table 1 shows the summary of each AVF period based on the previous studies.




Source: Derived from Gilroy et al., 1996.

**Figure 1. Distribution of High-Quality Recruits in the Army over Time**

A high-quality recruit is defined as one who has obtained a high school diploma and attained a percentile score of 50 or above on the Armed Forces Qualification Test (AFQT) (Gilroy et al., 1996, p. 72).

**Table 1. Summary of the All-Volunteer Army Periods**

| Period | Characteristic | Evaluation |
|---|---|---|
| 1st AVF | • Advent of AVF: high uncertainty<br>• High entry level pay<br>• Sufficient recruiting resources/ budget<br>• GI Bill: major recruit incentive<br>• Expanding youth population<br>• High youth unemployment rate | • Success in meeting recruiting goal: both quantity and quality<br>• High quality recruit -Mean: 35.7 percent |
| 2nd AVF | • Overconfidence in AVF<br>• Lower relative military pay<br>• Ending GI Bill→ VEAP<br>• Reduction in recruiting resources<br>• Growing national economy<br>• Low youth unemployment rate | • 17,000 short of manpower objectives<br>• Accession quality dropped -Mean: 20.0 percent |
| 3rd AVF | • Recovery from the failure in 2nd AVF<br>• Recovery of relative pay level<br>• Basic benefit of VEAP increase, ACF<br>• Increase in resources: advertising<br>• Youth population decline<br>• High unemployment rate | • Recovery of high quality, an increase through the period -Mean: 32.4 percent<br>• An increase in the Army awareness from advertising: "Be All You Can Be" |
| 4th AVF | • Cold war tension decline, ending with Desert Storm<br>• High entry level civilian wage<br>• Recruiting resources increase<br>• Youth population drop<br>• Low youth unemployment rate | • Substantial increase in high-quality recruits (48.3 percent in FY 83 to 71.3 in FY 91) |
| 5th AVF | • Numerous regional threats<br>• Force downsizing→ budget cut<br>• A reduction in recruiting resources<br>• Youth propensity to enlist decline<br>• Strong recovery of national economy | • Stable recruit quality (over 60 percent)<br>• New challenge in recruiting |

Source: Derived from Gilroy et al., 1996, and Eitelberg and Mehay, 1994.

Figure 1 and Table 1 show that the percentage of high-quality recruits in the Army has increased over the AVF periods from 35.7 percent in the 1st AVF to 65.1 percent in the 5th AVF. Table 1 and Figure 1 also indicate that the success of the AVF depends on how to adopt an effective policy and provide sufficient resources to cope with a frequently changing recruiting environment.

## B. ENLISTMENT SCREENING

### 1. Enlistment Standards

The following are the basic eligibility criteria for enlistment into the armed forces (Kirby and Thie, 1996, pp. 65-66):

- Age: between 17 and 35 years.
- Citizenship: U.S. citizen or permanent resident.
- Education: possession of a high school diploma desired but not mandatory; non-graduates may be accepted provided their AFQT score is 31 or higher.
- Aptitude: persons scoring in Category V are illegible to enlist by law (10 U.S.C. 520 AND DoD Directive 1145.1). The number of Category IV enlistees cannot exceed 20 percent of the total number of enlistees.
- Physical fitness: free of contagious and infectious diseases; free of medical conditions or physical defects that would require excessive time lost from duty or might likely result in separation for medical unfitness; medically capable of satisfactorily completing training; adaptable to the military environment; medically capable of performing duties without aggravation of existing medical conditions or physical defects.
- Dependency status: cannot enlist married individuals with more than two dependents under 18, or unmarried individuals with custody of dependents under 18, without a waiver.
- Moral character: disqualification on this basis encompasses individuals under judicial restraint, with significant criminal records, or displaying antisocial or other problematic behavior.

## 2. Aptitude Screen

The primary components of the aptitude screen are the Armed Services Vocational Aptitude Battery (ASVAB) and the AFQT.

### *a. The Armed Services Vocational Aptitude Battery (ASVAB)*

All of the Services use the ASVAB for screening enlistees and for occupational assignment. By combining selection and classification, the Services are able to improve the matching of applicants with available job positions and to allow job guarantees for those qualified. (Kirby and Thie, 1996, p. 63)

The current ASVAB consists of 10 subtasts as follows (Laurence et al., 1991, p.9):

| | |
|---|---|
| Word Knowledge (WK) | Coding Speed (CS) |
| Paragraph Comprehension (PC) | General Science (GS) |
| Arithmetic Reasoning (AR) | Auto And Shop Information (AS) |
| Mathematics Knowledge (MK) | Mechanical Comprehension (MC) |
| Numerical Operations (NO) | Electronics Information (EI) |

The WK, PC, AR, and MK subtests are combined as the AFQT to determine an applicant's enlistment eligibility. The services combine subtests of the ASVAB to form aptitude composites intended to predict success in job training. These composites determine qualification for a large number of skill-training courses, and each service sets its own standards for entry into specific skills. (Kirby and Thie, 1996, pp. 63-64)

### *b. The Armed Forces Qualification Test (AFQT)*

The AFQT measures both the individual's general cognitive ability to absorb military training within a reasonable length of time and his or her potential performance or aptitude in the service, if qualified on the tests. AFQT scores are reported as percentiles ranging from 1 to 99, and these scores are traditionally combined into categories (see Table 2). (Kirby and Thie, 1996, pp. 63-64)

**Table 2. Definition of AFQT Categories**

| AFQT Category | AFQT Percentile Score | Level of Trainability |
|---|---|---|
| I | 93-99 | Well above average |
| II | 65-92 | Above average |
| IIIA | 50-64 | Average |
| IIIB | 31-49 | Average |
| IV | 10-30 | Below average |
| V | 1-9 | Well below average |

Source: Kirby and Thie, 1996.

### 3. Education Screen

As Table 3 shows, the Services divide an individual applicant's education credentials into three tiers for screening purposes. Tier 1 applicants are the most desirable, based on their higher likelihood of completing a first-term of enlistment. Scores on the AFQT are typically combined with education status in determining enlistment eligibility. Applicants in Tier 1, for example, can normally qualify for enlistment with a lower score on the AFQT than can applicants in either of the other education tiers.

**Table 3. DoD Education Credentials**

| Classification | Education credentials |
|---|---|
| Tier 1 | Regular high school graduates, adult diploma holders, and non-graduates with at least 15 hours of college credit. |
| Tier 2 | Alternative credential holders, including those with a General Educational Development (GED) certificate of high school equivalency. |
| Tier 3 | Those with no education credentials |

Source: Office of the Assistant Secretary of Defense, 1997.

## C. CURRENT INCENTIVES

### 1. Monetary Incentives

#### *a. Pay*

Basic pay is the primary method of compensating members of the armed forces and is based on pay grade and length of service. Sustaining a competitive rate of pay between military salaries and the civilian sector is an important factor. Table 4 shows the basic pay of Army enlistees as of fiscal year 1998.

**Table 4. Army Active Duty Starting Pay, FY 1998**

| Private (less than 4 months) | Private (over 4 months) | Private E-2 | Private 1st Class E-3 | Specialist E-4 | Sergeant E-5 |
|---|---|---|---|---|---|
| $ 833.4 | $ 900.9 | $1010.1 | $1049.7 | $1113.6 | $11194.3 |

Note: Effective 1 Jan 97
Source: US Army 1998 Recruiter Guide, Army Recruiting Command.

#### *b. Enlistment Bonuses*

The purpose of the enlistment bonus is to induce a person to enlist for service in a critical military specialty (Kirby and Thie, 1996, p. 131).

Bonuses are offered for an enlistment of three or more years of active Army duty and six or more years in the Army Reserve. Applicants must have a high school diploma and score 50 or higher on the AFQT. Applicants must also satisfy any other special requirements for training in selected Military Occupational Specialties (MOSs). The bonuses, which are available in 83 of the service's more than 250 specialties, range in value from $1,000 to the new maximum payment of $12,000 as of 1998. (Army Recruiting Command, p. M-2)

#### *c. Reenlistment Bonuses*

The purpose of this bonus is to keep personnel in critical skills in military service and to maintain adequate levels of experienced and qualified personnel in the

armed forces. To qualify for bonus benefits, a member must serve continuously or reenlist immediately (although a non-qualifying break in service of 24 hours to four months has been allowed). (Kirby and Thie, 1996, p. 131)

#### *d. Retirement Pay*

The military has three concurrent retirement systems. For those who entered service prior to 1981, the pension formula is 0.025*YOS*final-year basic pay, where YOS is years of service, and the pension is inflation-protected. For those entering between 1981 and 1986, the retirement system is the same, except that the formula is based on the average of the individual's highest three years' basic pay instead of the final year's basic pay. Finally, for those entering after 1986, the retirement system uses two formulas. For those who separate before age 62, the formula is (0.4+0.035*[YOS-20])*highest three years' basic pay, and the cost of living adjustment equals the consumer price index (CPI) minus one percentage point. At age 62, the formula reverts to 0.025*YOS*highest three years' basic pay, and the pension is fully adjusted to reflect inflation. After age 62, the CPI-minus-one-percentage-point rule begins again. (Asch, 1993, pp. 61-62)

#### *e. Others*

Active-duty members receive a number of other benefits such as basic allowance for quarters, basic allowance for subsistence, and a federal income tax advantage. Also, beyond the base level of military compensation, a number of additional allowances and benefits are specifically structured to recognize the distinctive nature of the military: Variable Housing Allowance (VHA), Station Housing Allowance (SHA), and so on. (Kirby and Thie, 1996, pp. 123-126)

### 2. Educational Incentives

#### *a. Army College Fund (ACF)*

The objective of the ACF is to increase the quality and quantity of Army recruits. Soldiers who enlist into the Delayed Entry Program (DEP) after March 7, 1997, and who enlist for the ACF, can receive up to $40,000 for college. The ACF provides

$40,000 for a four-year enlistment, $33,000 for a three-year enlistment, and $26,500 for a two-year enlistment. (Army Recruiting Command Web Site, 1998)

*b. Montgomery GI Bill*

This has the same incentives as the Army College Fund. Applicants must have completed at least two years of active duty. All soldiers participating in the program contribute $1,200 in their first year ($100 per month). As of 1998, soldiers with two years of active duty receive a total benefit of $12,865.68 for college, while those with three to six years receive $15,834.60. (Army Recruiting Command, p. E-1)

*c. Loan Repayment Program*

This program, also intended to attract high-quality recruits, allows those who enlist for at least three years to pay off college debts they incurred as civilians. Soldiers can qualify to have their loans repaid at the rate of one-third of the loan for each year of active duty served, up to a maximum loan payment of $65,000 as of 1998. (Army Recruiting Command Web Site, 1998)

*d. Others*

In addition, soldiers can earn college credit at accredited colleges and universities while they serve in the Army. This program aims to attract persons who have dropped out of their educational programs. The Army also offers Tuition Assistance up to 75 percent for 15 semester hours of collegiate coursework annually. (Army Recruiting Command, p. E-1)

**3. Non-Monetary Incentives**

*a. Skill Training*

The Army offers training in more than 200 different occupational specialties. As the Army becomes more technologically advanced, so does the training soldiers receive in their MOSs. High-tech training makes soldiers more marketable in an information-based society. Much of their training is either directly transferable to a civilian career, or it builds character traits for which employers are looking. So, "wherever a soldier wants to go in life, he or she can get there from the Army." (Army Recruiting Command Web Site, 1998)

### *b. Two-Year Enlistment Option*

This is an incentive to recruits who are not sure about military life. The Army offers this option to qualified candidates in selected MOSs in a variety of Career Management Fields (CMFs). In selected MOSs, applicants must be a high school diploma graduate and score 50 or higher on the AFQT. The two-year enlistment period begins after graduation from MOS training. (Army Recruiting Command, p. T-1)

### *c. Others*

Soldiers are also offered an additional benefits, such as health care benefits, the use of recreational facilities, the post exchange and the commissary, 30 days paid vacation, and so on. The Army also emphasizes opportunities for travel and adventure in various missions and training.

## D. RECRUITING RESOURCES

### 1. Advertising

Advertising is one of the primary recruiting tools used by DoD and the military services to meet recruiting goals. DoD's advertising budgets increased through the mid-1980s. In particular, between FY 1980 and FY 1986, advertising expenditures for active enlisted recruiting grew from $149.3 million to $180.7 million, an increase of 21 percent in constant 1994 dollars. (GAO Report, 1994, p. 15)

Since 1989, recruiting advertising budgets have been cut in half; only recently has DoD begun to reverse that fall (over $89 million for FY 1995) (DoD Annual Report FY 1995, Appendix G, p. G-4).

According to an Army Recruiting Program press briefing on March 4, 1997, the advertising budget for FY 1997 started out at $71 million (U.S. Army News Release on WWW).

Table 5 shows the services' FY 1996 and FY 1997 recruiting and advertising investment for each recruit who reported to basic training. Among the services, the Army invests the most money in advertising.

**Table 5. Recruiting and Advertising Investment Per Recruit, by Service: FY 1996 and FY 1997**

| Service | FY 1996 | FY 1997 | Advertising in FY 1997 |
|---|---|---|---|
| Army | $8,310 | $7,354 | $775 |
| Navy | 6,636 | 6,297 | 687 |
| Marine Corps | 5,165 | 4,923 | 559 |
| Air Force | 3,740 | 3,934 | 349 |
| DoD | 7,187 | 6,704 | 673 |

Source: GAO/NASAID-98-58, 1998.

The figures in Table 5 include the costs of advertising, leasing facilities, joint advertising and market research, recruiter cars, supplies, recruiter and support personnel salaries, recruit bonuses, and college fund expenses.

2. **Recruiters**

According to the Army Recruiting Command home page on the WWW (Feb 19, 1998), the organization is divided into five regions or brigades and then into 41 battalions. The battalions are divided into 238 companies, which are organized into 1,570 offices or stations typically staffed by two to four recruiters.

As the recruiting goal declines, the recruiting force is also reduced. In 1993, 25 percent of the recruiting force has been reduced, and another thousand recruiters were eliminated in 1996. (Gilroy et al., 1996, p. 63)

Success or failure as an Army recruiter depends on the number of enlistment contracts obtained relative to the monthly quotas or missions. On average, a full-production recruiter is supposed to achieve, at minimum, two contracts per month. Typically, a recruiter's monthly mission for male high school graduates and seniors scoring in the highest half of the AFQT is one contract. (Gilroy, 1987, p. 127)

The Army offers incentive awards to encourage individual recruiters to increase contracts. Recruiters can receive various incentive awards associated with point production, such as the Silver Recruiter Badge, Gold Stars, the Gold Recruiter Badge, Sapphire Stars, the Recruiter Ring, and the Glen E. Morrell Award.

## E. TREND IN YOUTH PROPENSITY TO ENLIST

Since 1975, DoD has annually conducted the Youth Attitude Tracking Study (YATS), a computer-assisted telephone interview of a nationally representative sample of 10,000 young men and women. Enlistment propensity is based on the percentage of youth who state they plan to definitely or probably enlist in the next few years. This survey provides information on the propensity, attitudes, and motivations of young people toward military service. (DoD Annual Report FY 1997, Appendix G-7)

Table 6 is derived from DoD's annual report to the President and the Congress for FY 1995 and FY 1997, and the data in the table are combined from FY 1991 to FY 1996. Table 6 shows that young men's propensity to enlist in both military service and the Army has significantly changed in the last six years. In FY 1996, 27 percent of 16-21 year-old men expressed an enlistment propensity for at least one active duty Service, with 12 percent for the Army. This is a 7-percentage-point decline for all services and 5-percentage-point decline for the Army from the FY 1991 results. White males expressed a lower propensity to enlist in FY 1996 than in FY 1991. Similarly, the enlistment propensity of black men was 34 percent in FY 1996, down from 49 percent in FY 1991, while the propensity of Hispanics did not change much. The propensity of women has remained at approximately the same level over time. In FY 1996, the propensity of Hispanic females for the Army declined 5 percent from the FY 1991 results. (DoD Annual Report, FY1995 and FY1997)

**Table 6. Trends in Enlistment Propensity: Will Definitely or Probably Be Serving on Active Duty[1], FY 1991-1996**

| | | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|---|
| Service | Year | White | Black | Hispanic | Total[2] | White | Black | Hispanic | Total |
| **Army** | **1991** | 14 | 31 | 24 | **17** | 3 | 13 | 16 | 6 |
| | 1992 | 11 | 20 | 18 | 13 | 4 | 6 | 8 | 5 |
| | 1993 | 9 | 16 | 20 | 11 | 2 | 9 | 14 | 4 |
| | 1994 | 8 | 14 | 18 | 11 | 4 | 12 | 13 | 7 |
| | 1995 | 10 | 15 | 21 | 12 | 3 | 13 | 13 | 6 |
| | **1996** | 8 | 18 | 22 | **12** | 3 | 13 | 11 | 6 |
| **Active** | **1991** | 30 | 49 | 43 | **34** | 10 | 24 | 24 | 13 |
| Composite[3] | 1992 | 26 | 37 | 41 | 29 | 9 | 15 | 23 | 11 |
| | 1993 | 25 | 36 | 39 | 28 | 8 | 20 | 23 | 11 |
| | 1994 | 22 | 32 | 39 | 26 | 9 | 20 | 25 | 13 |
| | 1995 | 23 | 32 | 44 | 28 | 7 | 24 | 25 | 13 |
| | **1996** | 20 | 34 | 43 | **27** | 9 | 23 | 25 | 14 |

[1] Percent of 16-21 year-olds, by gender and race/ethnicity

[2] Asians, American Indians, and Alaskan Natives are included in total, but not counted as white, black, and Hispanic.

[3] Active composite propensity is the percent saying they will definitely or probably be in one or more of the services.

Source: DoD Annual Report to the President and the Congress, FY1995 and FY1997.

Table 7 shows common reasons for joining the military between FY 1991 and FY 1996. Reasons cited include educational funding, job training, duty to country, pay, travel, and development of self-discipline. As Table 7 shows, regardless of gender and race, educational funding is the main reason given to join the military. The 1996 YATS data show that 32 percent of men mentioned educational funding as a reason to join the military, an 8-percent increase from FY 1991 data. The importance of educational funding was also pronounced for women, with about 40 percent citing it as a reason to join in FY 1996. Moreover, the number of women associating college funds with military service is increasing over time. In FY 1996, 24 percent of men and 17 percent of women suggest military service would provide them with job training. Pay is mentioned about as frequently as duty to country; but, in FY 1996, both had decreased from FY 1991 data. Black youths are more likely to mention pay and less likely to mention duty to country as a reason for joining. (DoD Annual Report FY 1995 and FY 1997, Appendix G)

**Table 7. Common Reasons For Joining the Military[1], by Gender and Racial/Ethnic group, 1991-1996**

| | | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|---|
| Reason | Year | White | Black | Hispanic | Total[2] | White | Black | Hispanic | Total |
| Educational Funding | **1991** | **25** | **23** | **22** | **24** | **30** | **32** | **26** | **30** |
| | 1992 | 26 | 20 | 29 | 26 | 30 | 26 | 24 | 29 |
| | 1993 | 30 | 19 | 25 | 28 | 30 | 25 | 27 | 29 |
| | 1994 | 31 | 25 | 34 | 30 | 34 | 22 | 18 | 30 |
| | 1995 | 34 | 29 | 36 | 33 | 40 | 27 | 30 | 36 |
| | **1996** | **34** | **26** | **31** | **32** | **41** | **34** | **37** | **39** |
| Job Training | **1991** | **29** | **28** | **31** | **29** | **18** | **21** | **22** | **19** |
| | 1992 | 32 | 29 | 34 | 32 | 17 | 17 | 20 | 18 |
| | 1993 | 27 | 20 | 20 | 25 | 14 | 19 | 10 | 15 |
| | 1994 | 24 | 26 | 18 | 23 | 12 | 16 | 12 | 12 |
| | 1995 | 24 | 23 | 27 | 24 | 14 | 15 | 11 | 13 |
| | **1996** | **26** | **21** | **21** | **24** | **16** | **16** | **23** | **17** |
| Duty to Country | **1991** | **19** | **14** | **21** | **18** | **14** | **12** | **11** | **14** |
| | 1992 | 18 | 18 | 16 | 18 | 13 | 13 | 12 | 13 |
| | 1993 | 15 | 12 | 16 | 14 | 13 | 11 | 8 | 12 |
| | 1994 | 11 | 12 | 11 | 11 | 12 | 8 | 16 | 11 |
| | 1995 | 11 | 9 | 8 | 10 | 8 | 10 | 7 | 8 |
| | **1996** | **12** | **11** | **13** | **12** | **10** | **10** | **8** | **10** |
| Pay | **1991** | **15** | **21** | **10** | **15** | **10** | **19** | **10** | **12** |
| | 1992 | 13 | 17 | 8 | 13 | 12 | 11 | 8 | 11 |
| | 1993 | 11 | 8 | 8 | 10 | 11 | 8 | 6 | 10 |
| | 1994 | 12 | 21 | 8 | 13 | 10 | 17 | 13 | 11 |
| | 1995 | 11 | 14 | 11 | 12 | 10 | 8 | 7 | 9 |
| | **1996** | **10** | **16** | **11** | **11** | **8** | **14** | **8** | **9** |
| Travel | **1991** | **7** | **11** | **5** | **7** | **6** | **6** | **6** | **6** |
| | 1992 | 6 | 11 | 5 | 7 | 8 | 6 | 9 | 7 |
| | 1993 | 6 | 7 | 11 | 6 | 5 | 4 | 2 | 5 |
| | 1994 | 6 | 8 | 2 | 5 | 4 | 10 | 2 | 4 |
| | 1995 | 6 | 8 | 5 | 6 | 7 | 12 | 9 | 8 |
| | **1996** | **7** | **11** | **9** | **8** | **6** | **6** | **6** | **6** |
| Develop Self-discipline | **1991** | **5** | **7** | **5** | **5** | **4** | **1** | **0** | **3** |
| | 1992 | 4 | 3 | 7 | 4 | 2 | 1 | 0 | 2 |
| | 1993 | 5 | 8 | 2 | 5 | 2 | 1 | 1 | 2 |
| | 1994 | 4 | 2 | 3 | 4 | 3 | 3 | 0 | 2 |
| | 1995 | 5 | 4 | 5 | 5 | 4 | 1 | 4 | 3 |
| | **1996** | **5** | **4** | **5** | **5** | **4** | **0** | **2** | **3** |

[1] Percent of 16-21 year-olds, by gender and race/ethnicity

[2] Asians, American Indians, and Alaskan Natives are included in total, but not counted as white, black, and Hispanic.

Source: DoD Annual Report to the President and the Congress, FY95 & FY97.

Table 8 shows the percentage of common barriers to joining the military. Both young men and young women mentioned "military lifestyle" as a reason for not enlisting. More women than men mentioned lifestyle, and the trend increased from 16 percent in FY 1991 to 21 percent in FY 1996. Whites, more frequently than persons in other racial/ethnic groups, mentioned conflicting interests and the long commitment. Blacks, regardless of gender, more frequently mentioned the danger of military life as a barrier to enlistment. Family obligations are more important for women and Hispanics than for men and persons in other racial/ethnic groups. The trend remains high over time. (DoD Annual Report, FY 1995 and FY 1997)

Previous research by RAND shows that there is a strong relationship between youths' stated propensity to join the military in surveys and their actual eventual enlistment decisions. Persons stating positive enlistment intentions are more likely to enlist than are those stating negative intentions (Orvis et al., 1992, pp. 51-53).

## Table 8. Common Barriers for Joining the Military[1], by Racial/Ethnic Group and Gender, 1991-1996

| | | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|---|
| Service | Year | White | Black | Hispanic | Total[2] | White | Black | Hispanic | Total |
| Military style | **1991** | **16** | **11** | **9** | **15** | **17** | **12** | **7** | **16** |
| | 1992 | 13 | 13 | 15 | 13 | 19 | 9 | 9 | 16 |
| | 1993 | 14 | 9 | 14 | 13 | 14 | 14 | 18 | 15 |
| | 1994 | 13 | 11 | 10 | 12 | 14 | 11 | 10 | 13 |
| | 1995 | 13 | 15 | 12 | 13 | 19 | 20 | 26 | 21 |
| | **1996** | **18** | **18** | **7** | **16** | **19** | **20** | **26** | **21** |
| Other interests | **1991** | **13** | **6** | **14** | **12** | **12** | **8** | **2** | **11** |
| | 1992 | 13 | 6 | 12 | 12 | 9 | 10 | 7 | 9 |
| | 1993 | 9 | 8 | 8 | 9 | 11 | 5 | 2 | 9 |
| | 1994 | 11 | 6 | 6 | 9 | 8 | 6 | 3 | 7 |
| | 1995 | 11 | 6 | 7 | 10 | 9 | 5 | 8 | 8 |
| | **1996** | **11** | **8** | **5** | **9** | **8** | **7** | **2** | **7** |
| Long Commi-tment | **1991** | **8** | **2** | **6** | **7** | **5** | **1** | **2** | **4** |
| | 1992 | 10 | 2 | 4 | 8 | 5 | 1 | 7 | 4 |
| | 1993 | 11 | 4 | 7 | 9 | 8 | 5 | 7 | 8 |
| | 1994 | 10 | 5 | 6 | 9 | 9 | 7 | 0 | 7 |
| | 1995 | 11 | 7 | 7 | 10 | 8 | 7 | 3 | 7 |
| | **1996** | **11** | **3** | **9** | **9** | **11** | **5** | **8** | **9** |
| Danger | **1991** | **6** | **17** | **5** | **8** | **8** | **22** | **9** | **10** |
| | 1992 | 5 | 14 | 6 | 7 | 7 | 10 | 4 | 7 |
| | 1993 | 6 | 13 | 7 | 7 | 7 | 12 | 11 | 8 |
| | 1994 | 6 | 10 | 10 | 7 | 7 | 17 | 13 | 9 |
| | 1995 | 5 | 12 | 10 | 7 | 4 | 15 | 5 | 6 |
| | **1996** | **7** | **16** | **10** | **9** | **7** | **18** | **6** | **9** |
| Family obligation | **1991** | **7** | **5** | **13** | **7** | **12** | **18** | **19** | **14** |
| | 1992 | 8 | 7 | 14 | 8 | 13 | 16 | 13 | 14 |
| | 1993 | 7 | 4 | 8 | 7 | 16 | 17 | 16 | 16 |
| | 1994 | 5 | 4 | 6 | 5 | 14 | 9 | 19 | 13 |
| | 1995 | 5 | 2 | 11 | 6 | 13 | 11 | 20 | 13 |
| | **1996** | **6** | **4** | **12** | **7** | **12** | **13** | **17** | **13** |
| Against beliefs | **1991** | **3** | **7** | **5** | **4** | **7** | **7** | **7** | **7** |
| | 1992 | 5 | 11 | 6 | 6 | 6 | 8 | 9 | 7 |
| | 1993 | 4 | 6 | 4 | 4 | 5 | 7 | 7 | 6 |
| | 1994 | 5 | 9 | 6 | 6 | 6 | 8 | 8 | 7 |
| | 1995 | 4 | 7 | 3 | 4 | 5 | 4 | 3 | 5 |
| | **1996** | **4** | **9** | **3** | **5** | **5** | **5** | **4** | **5** |

[1] Percent of 16-21 year-olds, by gender and race/ ethnicity

[2] Asians, American Indians, and Alaskan Natives are included in total, but not counted as white, black, and Hispanic.

Source: DoD Annual Report to the President and the Congress, FY95 & FY97.

# III. LITERATURE REVIEW

## A. ENLISTMENT REASONS

Mirelson (1984) studied the most important influences on the decision to enlist in the Army. His sample consisted of 300 non-prior service recruits, who were required to rank and order ten important influences. According to the results (see Table 9), salary was the number one influence for 25.3 percent. The next most important influence was security, with 16 percent, followed by education, with 14.7 percent. Apparently, advertising had no influence on the enlistment decisions of these recruits. (Gray, 1987, p. 46)

**Table 9. Distribution of The Most Important Influence on Enlistment Decision in the Army, 1982**

| Rank | Influence | Number | Percentage |
|---|---|---|---|
| 1 | Salary | 76 | 25.3 |
| 2 | Security | 48 | 16.0 |
| 3 | Education | 44 | 14.7 |
| 4 | Experience | 42 | 14.0 |
| 5 | Benefits | 37 | 12.3 |
| 6 | Training | 30 | 10.0 |
| 7 | Travel | 13 | 4.3 |
| 8 | Adventure | 7 | 2.3 |
| 9 | Challenge | 3 | 0.1 |
| 10 | Advertising | 0 | 0.0 |
| Total | | 300 | 100.0 |

Source: Adapted from Gary, 1987.

Research conducted by the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) found that soldiers in a higher AFQT category who enlisted during FY 1982 (see Table 10) stated their reasons for joining to be money for college, followed by skill training. At the same time, while money for college ranked lower among soldiers in lower AFQT categories. (Bowman et al., 1983, pp. 271-273)

**Table 10. Percentage of Reasons for Enlisting: Male High School Graduates, 1982**

| Reason | 1st Sample | | | | 2nd Sample | | | |
|---|---|---|---|---|---|---|---|---|
| | AFQT Category | | | | AFQT Category | | | |
| | I & II | IIIA | IIIB | IV | I & II | IIIA | IIIB | IV |
| Skill Training | 23.3 | 20.8 | 26.5 | 20.2 | 28.0 | 35.3 | 39.3 | 34.7 |
| Unemployed | 8.7 | 9.5 | 9.9 | 12.3 | 7.8 | 10.4 | 11.1 | 13.1 |
| College Money | 25.5 | 15.0 | 8.7 | 6.7 | 36.3 | 21.4 | 12.3 | 8.4 |
| Serve Country | 9.4 | 9.3 | 6.2 | 10.6 | 7.8 | 9.7 | 11.7 | 12.1 |
| Prove Myself | 5.4 | 5.1 | 6.5 | 6.2 | 7.8 | 8.2 | 8.9 | 9.6 |

Source: Bowman et al., 1983.

Elig et al., (1984) examined a study conducted by ARI to determine what influenced the reasons to enlist. Table 11 exhibits the results, which show that the most-often-mentioned reasons to enlist were "the chance to better myself," "to get trained in a skill," and "money for a college education." "Getting money for college" increased from 7 percent in 1979 to 16 percent in 1983, but "to improve myself" and "to get skill training" decreased. (Gray, 1987, pp. 43-44)

**Table 11. Percentage of the Most Important Reasons to Enlist: 1979, 1982, and 1983**

| Which one of the these reasons is your most important reason for enlisting? | 1979 DoD Survey of April contracts | Survey of accessions | | | |
|---|---|---|---|---|---|
| | | Spring | | Summer | |
| | | 1982 | 1983 | 1982 | 1983 |
| Chance to better myself | 39 | 30 | 25 | N/A | N/A |
| To get trained in a skill | 26 | 22 | 19 | 35 | 30 |
| Money for a college education | 7 | 15 | 16 | 20 | 17 |
| To serve my country | 10 | 9 | 9 | 10 | 12 |
| I was unemployed | 4 | 10 | 9 | 10 | 10 |
| To prove that I can make it | 4 | 6 | 7 | 9 | 10 |
| To be away from home on my own | 5 | 4 | 5 | 5 | 7 |
| Earn more money | 1 | 2 | 7 | 4 | 6 |
| Travel | 4 | N/A | N/A | 4 | 4 |
| To get away from personal problems | 1 | 1 | 2 | 2 | 2 |
| Family problems | 0.5 | 1 | 1 | 1 | 2 |

Source: Gray, 1987.

Gray (1987) examined the relationship between recruit quality and military enlistment influences, using survey data of 1985 Army recruits from ARI. The analysis indicated that upper test-score recruits were more strongly influenced by educational benefits than by skill training and unemployment.

## B. ENLISTMENT INCENTIVES

Bachman and Blair (1975) stressed that the typical high school student planning for college tends to view military service as an unwise interruption of his or her educational development. The "college in exchange for service" formula is a means of attracting able individuals who can learn quickly, serve quickly, and then leave quickly to make room for other fresh recruits.

Hunter and Nelson (1982) noted that recruitment declined during late 1970s due to a reduction in economic incentives. Over this 1975-1979 period, pay for the military recruit fell relative to any civilian pay index measured, and a valuable educational benefit (GI Bill) was replaced by another far less valuable one (The Post Vietnam Era Veterans' Educational Assistance Program). Reduced financial incentives resulted in a 21-percent decline in recruits and a 25-percent of reduction in enlistment rates for male high school graduates between 1975 and 1979. (Scowcroft, 1982, p.101)

According to Binkin (1984), military pay declined by an estimated 10 percent relative to civilian pay between FY 1975 and 1979. The relative decline in military pay would have caused a 10-percent decline in the enlistment rates of high quality male recruits. Also, the conversion of the GI Bill to VEAP accounted for a decline of between 5 and 10 percent in high school graduate recruits (Binkin, 1984, pp. 10-12). This resulting is little bit lower than Hunter and Nelson's, but the loss of GI bill clearly yielded a major loss of benefits and resulted in a decline in enlistments.

Goldberg and Greenston (1986) found that pay has a very strong effect on enlistments. However, the effect varies considerably among the occupational codes. A one-percent increase in relative military pay would cause the supply to increase by 0.50 to 3.61. As for enlistment bonuses, the magnitude of a bonus is much smaller than that of

relative pay. This may imply that it is expensive to use bonuses to channel recruits. (Gilroy, 1986, p.79)

DoD and the Army undertook a two-year test, from July 1982 to June 1984, to determine the enlistment effects of expanding the bonus program. The RAND Corporation assisted DoD by designing the experiment and analyzing the data. The results show that the extended bonus program had striking effects on the number of high-quality enlistees attracted to priority skills and on the number of recruits signing up for longer terms. (Polich et al., 1986)

Warner (1990) determined that, between 1981 and 1986, the average present value of Army educational benefits increased by nearly 70 percent. According to an estimate of the effects of Army educational benefits, such a benefit increase would induce high-quality enlistments to rise by about 29 percent. Because actual enlistmentSnearly doubled over this period, more than one-quarter of the increase in the Army's high-quality enlistments apparently can be traced to increases in the Army's educational benefits.

Gilroy, Phillips and Blair (1990) examined the effects of the ACF on recruiting. They found that the elasticity of the effect was 0.14, and a 10-percent increase in the ACF would result in a 1.4-percent increase in enlistments.

Klerman and Karoly (1994) studied the magnitude of the potential for lowering the military pay of new recruits. The standard estimates imply that the elasticity of high-quality accessions with respect to first-term pay is about 1.5. This elasticity implies that a ten-percent increase in pay yields a 15-percent increase in high-quality recruits. At levels that low, it is possible that the elasticity is considerably higher; that is, a 15-percent cut in the pay table would yield a larger-than-30-percent cut in enlistments or a dramatic fall in the quality of enlistees. (Eitelberg and Mehay, 1994, p. 59)

Asch and Dertouzos (1994) analyzed the relative cost-effectiveness of enlistment bonuses and educational benefits. They found that educational benefits significantly expand enlistment supply and increase incentives for first-term completion. Relative to bonus programs, educational benefits enhance the flow of prior-service individuals into the military.

## C. RECRUITING RESOURCES

### 1. Advertising

According to Mirelson (1984), advertising was not considered an influence on enlistment (see Table 9). He cites a DoD Military Advertising Awareness Project conducted from 1977 to 1980, which determined that recruits frequently remembered parts of military advertisements, but that they had little influence on the decision to enlist. (Gray, 1987, p. 46)

Mirelson (1984) found that 35 percent of the recruits who saw or heard an Army advertisement before enlisting sought further information as a result of the advertisement. Of the sample, 21 percent had decided to seek information about the military prior to seeing or hearing an advertisement. (Gray, 1987, pp. 46-47)

Dertouzos et al., (1989) analyzed the effects of Army advertising on recruiting. They used an econometric analysis of information describing advertising patterns for a three-year period 1981 to 1984. The conclusion was that, in general, advertising expenditures in a given month have a significant and immediate effect on the number of high-quality enlistments in the Army. Moreover, advertising has a lagged effect, increasing enlistment for as long as six months, although the effect often dampens over time. The enlistment effect of advertising in a given month falls by about 42 percent each month after the advertising appears.

Table 12 provides elasticity estimates for advertising expenditures. For national advertising, all media appear to increase enlistment supply substantially. For example, a 100-percent increase in television advertising can be expected to increase high-quality enlistments by 2.31 percent. The enlistment increases as a result of doubling the national radio and magazine advertising budget would be 0.85 and 2.18 percent, respectively. For local advertising, increases in expenditures on daily newspaper advertising are significantly related to high-quality enlistments. However, neither high school newspapers nor local radio purchases had any discernible effect on enlistments. (Dertouzos et al., 1989, pp. 26-27)

**Table 12. Advertising Effectiveness: High-Quality Elasticity Estimate, 1989**

| Variable | Coefficient | Standard Error | T |
|---|---|---|---|
| **Local advertising** | | | |
| Daily newspapers | .0051 | .0021 | 2.38 |
| Weekly newspapers | .0029 | .0020 | 1.49 |
| Local radio | .0000 | .0021 | 0.00 |
| High school newspapers | -.0011 | .0026 | -0.44 |
| **National advertising** | | | |
| Network radio | .0085 | .0018 | 4.65 |
| Television | .0231 | .0044 | 5.29 |
| Magazine | .0218 | .0058 | 3.80 |

Source: Dertouzos et al., 1989.

The study also evaluated the short-run elasticities at the mean sample values, producing the marginal cost estimates and two-standard-deviation ranges (see Table 13). Statistical results indicated that national magazine and local newspaper purchases are the most cost-effective in promoting enlistments. National radio and network television also have a considerable effect. Over the range of the sample, however, electronic media appear to be somewhat less effective than print alternatives. Local radio has no measurable effect on short-run enlistments. (Dertouzos et al., 1989, pp. 28-30)

According to Kearl et al., (1990), a ten-percent increase in advertising expenditures would increase enlistments by 3,292.

Warner (1990) found that the Army is the only service for which advertising produces a considerably significant positive effect. The Army estimates implied that the 43-percent increase in Army advertising between 1981 and 1985 increased high-quality Army enlistments by 4.3 to 8.6 percent. The decrease in expenditures after 1985 reduced enlistments by 1.7 to 3.4 percent.

**Table 13. Marginal Advertising Costs of Obtaining High-Quality Enlistments within One Month, 1989**

| Variable | Point estimate | Confidence interval (two standard deviations) |
|---|---|---|
| **Local advertising** | | |
| Daily newspapers | $ 3,380 | $1,060-5,410 |
| Weekly newspapers | $ 1,680 | $ 720-infinite |
| Local radio | Infinite | $8,470-infinite |
| High school newspapers | Infinite | $1,030-infinite |
| **National advertising** | | |
| Network radio | $ 7,280 | $5,080-12,850 |
| Television | $10,120 | $7,345-16,720 |
| Magazine | $ 1,980 | $1,290-4,200 |

Source: Dertouzos et al., 1989.

### 2. Recruiter

Kearl et al., (1990) mentioned in their research that one can expect the number of recruiters to have a large and significant effect on the number of enlistments, since recruiters have direct and continual contact with prospective applicants and with recruits in the Delayed Entry Program (DEP). Their authors found that a 10-percent increase in the number of recruiters would increase enlistments by 5,258.

Orvis et al., (1996) examined the conversion of recruiting supply in their research. They found some decline in rates of both contact with youth and discussion with influencers from a recent YATS and Recruiter Survey. The evidence suggesting a decline in recruiter contacts with high school students is provided by recent trends in the high school ASVAB. Between school year 1987-1988 and school year 1993-1994, the total number of students testing declined from about 1.1 million per year to about 850,000 per year. These declines could have resulted from reductions in the number of recruiters and stations, which may have reduced the feasible number of visits to high schools.

Hosek et al., (1986) cited early studies indicating that adding one percent to the size of a service's recruiting force would increase high-quality male enlistments by perhaps a half of a percent. More recent estimates place the effect in the 0.7- to 0.8- percent range.

Based on these estimates, a 10-percent decline in high-quality male enlistments could be offset by a 13-percent increase in the number of recruiters. (Bowman et al., 1986, p. 200)

## D. KEY INFLUENCERS

Stephen (1977)analyzed the results of a two-year field study of the Army National Guard in Wisconsin that includes personal interviews with 812 guardsmen. In 68 percent of the cases where the Guard first made contact, a friend within the Guard or Reserves, rather than a recruiter or commander, made contact. Guard and Reserve friends are also mentioned by 54 percent of those who decided to wait a while before joining. The next most frequently mentioned source of influence among those who decided to wait was the immediate family, at 14 percent.

Thomas (1984) examined the effect of parents with military experience on enlistment. For all active-duty personnel, 58.3 percent had parents who had some service experience, and 12.5 percent had parents with more than ten years of military employment.

According to the study by Orvis et al. (1996), the percentage of youths reporting discussions with their father, mother, and friends is 21.3, 19.4, and 17.7 percent, respectively, in FY 95. They mentioned that it is possible that youths who talk to influencers get more negative advice about joining the military than they used to. This could reduce enlistment rates. (Orvis et al., 1996, pp. 24-25)

## E. SUMMARY

Generally, the following conclusions can be drown from previous research:

1. Money for college and skill training have been the two most important reasons to enlist, according to recruits. The first reason, money for college, has increased over time.
2. Among monetary benefits, educational benefits have generally had the most significant effect on enlistment.
3. Advertising and the role and number of recruiters have exercised a strong effect on enlistment.

4. Immediate family members, such as father and mother, and recruits' friends are key influencers in the decision to enlist or not to enlist.

The most important conclusion we can draw from these studies is that, in a continuously changing environment, the military needs to discover a timely and adequate mix of factors that influence the decision to enlist.

# IV. DATA AND METHODOLOGY

## A. DATA

This thesis uses the 1997 Army New Recruit Survey (NRS) data files obtained from Army Recruiting Command to analyze factors that influence the decisions of persons to enlist in the U.S. Army.

Army Recruiting Command conducts the NRS annually to measure attitudes toward and the perceived value of Army programs before applicants develop a strong opinion about Army life. This survey captures information close to the decision point. Army Recruiting Command mailed the survey to a stratified sample of new recruits. New recruits received the NRS one month after a contract date of between October 1, 1996 and September 30, 1997, but before they went to basic training.

For the purpose of this thesis, the NRS data are modified into three versions. The versions are explained in Table 14. Version 2 and Version 3 are employed to examine any differences among variables in those versions.

**Table 14. Description of the New Recruit Survey, by Data Version**

| Version | Description |
|---|---|
| Version 1 | All new recruits |
| Version 2 | New recruits who enlisted without incentives (recruits w/o) |
| Version 3 | New recruits including those who enlisted with incentives (recruits w/) |

Table 15 shows the sample size and demographic factors of each version that was developed for this study.

**Table 15. Description of the New Recruit Survey Versions, by Gender and Racial/Ethnic Group, 1997**

| Version | Sample Size | Gender | | Racial/Ethnic Group | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Male | Female | White | Asian | Black | Native | Hispanic |
| Version 1 | 8,312 | 6,315 | 1,997 | 6,165 | 128 | 1,490 | 48 | 481 |
| Version 2 | 5,932 | 4,430 | 1,502 | 4,217 | 96 | 1,201 | 41 | 377 |
| Version 3 | 2,380 | 1,885 | 495 | 1,948 | 32 | 289 | 7 | 104 |

## B. METHODOLOGY

This thesis uses cross-tabulations and Multi-Nomial Logit models to analyze the data. These methods are described below.

### 1. Cross-Tabulations

Cross-tabulations provide percentage calculations for various dimensional tables. This analysis focuses on key factors that influence the decision to enlist, which fall into several categories: the most important reasons to enlist; the effect of advertisements and recruiters; key influencers; key barriers to enlistment; and the impact of a change in enlistment incentives. Tables are summarized and explained by gender and race, using three versions of the data. However, since a particular cross tabulation table dose not control for the effect of variables not included in the table, the results derived from cross-tabulations may be misleading. Therefore, a Multi-Nomial Logit model is employed to cover the limitations of cross-tabulation analysis.

### 2. Multi-Nomial Logit Model

A Multi-Nomial Logit modeling is somewhat different from the Logistic Regression model, which requires binary dependent variables. The concept of Multi-Nomial Logit is that logits can be formed from contrasts of non-redundant category pairs whenever the dependent variable is three or more categories, and each logit is then modeled in a separate equation.

This thesis examines the factors that influence the decision to enlist by using maximum likelihood estimation of parameters with the analysis of generalized logits. The estimates were calculated using the PROC CATMOD procedure.

PROC CATMOD is a procedure for categorical data modeling. The procedure analyzes data that can be represented by a contingency table. It fits linear models to functions of response frequencies and can be used for linear modeling, log-linear modeling, logistic regression, and repeated measurement analysis. (SAS institute, 1990, p. 407) An important feature of PROC CATMOD is that one does not have to create indicator variables to handle qualitative explanatory variables (Stokes et al., 1995, p.205).

Since analyzing the factors that influence the decision to enlist is the purpose of the thesis, this study examines three main effects:

- Enlistment reasons as a function of certain measurable variables, such as gender, race, years of service, status before joining the Army, educational expectations, and contact initiation.
- Enlistment reasons as a function of three categories of information sources to identify the relationship between enlistment reasons and information sources.
- Each information source as a function of certain measurable variables, such as gender, race, years of service, status before joining the Army, educational expectations, and contact initiation.

The following are general procedures for running Multi-Nomial Logit with PROC CATMOD:

- Aggregate data for the most effective number of categories as a response variable.
- Screen independent variables using an analysis of variance.
- Run Multi-Nomial Logit with PROC CATMOD by using main effect variables.
- Interpret results with parameter estimates for each log of the odd ratio among response variables.
- Select sub-groups to examine the predicted probability of the model.

The Multi-Nomial Logit analysis in Chapter V includes more details about such issues as how to group response variables, describe independent variables, and interpret results.

# V. ANALYSIS OF DATA

## A. PRELIMINARY ANALYSIS

The preliminary analysis consists of descriptive statistics of the data. It examines variable frequencies and the relationships and statistical differences among key variables in each version through using cross-tabulations. Key findings include enlistment reasons, the effect of enlistment incentives, the perception of information sources, the effect of the recruiter, including contact initiation, barriers to enlistment, and key influencers.

### 1. Enlistment Reasons

Table 16 shows a comparison of the most important reasons for enlisting. In all, 20.2 percent of new recruits mentioned "money for college" as the most important reason to enlist, followed by "something I can be proud of " (20 percent), "trained in a skill" (12.7 percent), and "serve my country" (9.6 percent). It is surprising that "something I can be proud of" has almost the same percentage as "money for college." The research shows that recruits enlisting without incentives are looking for "something I can be proud of," while those enlisting with incentives are more interested in "money for college." The desire to serve one's country (9.6 percent) is still a motivator for young men, but reasons related to pay (3.9 percent) and unemployment (0.9 percent) do not appear to be important factors in deciding to enlist, and there is not a large difference among NRS versions.

Table 17 shows a comparison of the most important reasons between the three studies: this thesis; 1996 YATS; and Elig's (1984) study. "Money for college" is the most important motivation to enlist for both this study and in the 1996 YATS. A considerable percentage of actual enlistees are influenced by "something I can be proud of," which is not asked in the 1996 YATS. The percentage of "trained in a skill" and "more money" in the 1997 NRS data is much lower than in the 1996 YATS. Also, comparing the results with Elig's study, the percentage of "money for college" in this study is higher than in Elig's, while the percentage of "trained in a skill" is lower. These results imply that the current enhanced educational incentives leads youths to focus more on education benefits when deciding whether or not to enlist. There is little difference in the importance of "serve my country" between the three studies.

**Table 16. Percentage Distribution of Enlistment Reasons by New Recruit Survey Version, 1997**

| Most important reasons for enlisting | Total | Recruit w/o incentives | Recruit w/ incentives |
|---|---|---|---|
| Travel | 2.7 | 2.8 | 2.5 |
| Prove I can make it | 6.4 | 6.5 | 6.2 |
| Something I can be proud of | 20.0 | 20.4 | 19.0 |
| Money for college | 20.2 | 19.4 | 22.3 |
| Mgmt and leadership experience | 5.7 | 5.9 | 5.3 |
| More money | 3.9 | 4.0 | 3.7 |
| Trained in a skill | 12.7 | 12.7 | 12.8 |
| Family tradition | 1.7 | 1.6 | 1.9 |
| Away from home | 2.5 | 2.3 | 2.8 |
| Serve my country | 9.6 | 9.4 | 10.1 |
| Unemployed | 0.9 | 1.1 | 0.4 |
| High-tech environment | 2.1 | 2.1 | 2.1 |
| Other | 11.5 | 11.7 | 11.0 |
| Total | 100.0[1] | 100.0[1] | 100.0[1] |

[1] Each value is rounded.

Source: Derived from 1997 New Recruit Survey (NRS).

**Table 17. Percentage Comparison of the Five most important Reasons to enlist: 1997 NRS, 1996 YATS, and Elig's Study**

| Most important reason for enlisting | 1997 NRS | 1996 YATS | Elig's study[1] |
|---|---|---|---|
| Money for college | 20.2 | 32.0 | 17.0 |
| Trained in a skill | 12.7 | 24.0 | 26.5 |
| Something I can be proud of | 20.0 | N/A | N/A |
| More money (pay) | 3.9 | 11.0 | 4.75 |
| Serve my country | 9.6 | 12.0 | 10.0 |

[1] Mean percentile value derived from ARI survey results in Table 11.

Table 18 shows that "money for college" is a stronger incentive for women than it is for men, as well as a stronger incentive for black and Hispanic men than it is for white men. White men and women are more likely to mention "trained in a skill" and "serve my country" than are blacks and Hispanics. Blacks are less likely than others to be motivated by "serve my country." For "something I can be proud of," there is no

difference with regard to either gender or racial/ethnic group, with the exception of Hispanic women (about 8 percent higher).

**Table 18. Percentage Comparison of the Four Most Important Reasons to Enlist by New Recruit Survey Version, Gender and Racial/Ethnic Group, 1997**

| Most important reason for enlisting | | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | White | Black | Hispanic | Total | White | Black | Hispanic | Total |
| Money for college | Total | 17.1 | 21.7 | 24.3 | 18.1 | 26.1 | 28.4 | 30.1 | 26.6 |
| | Recruit w/o | 15.9 | 21.0 | 23.2 | 17.2 | 25.8 | 25.3 | 31.5 | 25.7 |
| | Recruit w | 19.3 | 24.3 | 28.4 | 20.4 | 26.8 | 43.9 | 25.0 | 29.4 |
| Trained in a skill | Total | 14.5 | 12.3 | 6.5 | 13.7 | 10.7 | 7.6 | 8.9 | 9.8 |
| | Recruit w/o | 14.8 | 12.0 | 5.3 | 13.7 | 10.7 | 8.2 | 9.0 | 10.0 |
| | Recruit w | 13.8 | 13.8 | 10.8 | 13.6 | 10.7 | 4.9 | 8.3 | 9.4 |
| Something I can be proud of | Total | 19.5 | 20.7 | 21.4 | 19.8 | 20.6 | 18.3 | 28.3 | 20.7 |
| | Recruit w/o | 19.8 | 21.3 | 22.4 | 20.3 | 20.5 | 18.6 | 28.1 | 20.7 |
| | Recruit w | 18.7 | 18.2 | 17.6 | 18.6 | 20.9 | 17.1 | 29.2 | 20.7 |
| Serve my country | Total | 12.3 | 4.7 | 9.6 | 11.0 | 6.3 | 3.3 | 1.8 | 5.2 |
| | Recruit w/o | 12.3 | 4.2 | 9.1 | 10.8 | 7.1 | 3.2 | 0.0 | 5.5 |
| | Recruit w | 12.4 | 6.6 | 8.1 | 11.6 | 4.2 | 3.7 | 8.3 | 4.3 |

Source: Derived from 1997 New Recruit Survey (NRS).

### 2. Enlistment Incentives

The ranking of the most important reasons for enlisting shows that the educational incentive has a large impact on enlistment. Table 19 exhibits the educational expectations of new recruits. Most new recruits want to get a higher education, a bachelor's degree (37.6 percent) or a master's degree or higher (40.4 percent). Furthermore, women, blacks and Hispanics have higher expectations than do men and whites, respectively. Considering this kind of trend, educational incentives could be an effective method of attracting more college-bound recruits.

**Table 19. Percentage Distribution of Educational Expectations by Gender and Racial/Ethnic Group, 1997**

| Educational expectation | Total | Gender | | Racial/Ethnic Group | | |
|---|---|---|---|---|---|---|
| | | Male | Female | White | Black | Hispanic |
| Master's or Ph.D. | 40.4 | 36.1 | 53.8 | 37.7 | 47.5 | 52.1 |
| Bachelor's degree | 37.6 | 39.1 | 33.2 | 39.0 | 32.9 | 32.7 |
| Associate's degree | 9.4 | 10.0 | 7.4 | 9.9 | 8.7 | 5.8 |
| Vocational degree | 6.6 | 8.1 | 2.2 | 7.4 | 5.0 | 3.9 |
| High school diploma | 5.9 | 6.7 | 3.5 | 6.0 | 6.0 | 5.5 |
| Total | 100.0[1] | 100.0[1] | 100.0 | 100.0 | 100.0[1] | 100.0 |

[1] Each value of total is rounded.

Source: Derived from 1997 New Recruit Survey (NRS).

Over 80 percent of new recruits think that abolishing the GI Bill would make recruiting hard (see Table 20). This result supports the conclusion reported in Chapter III that the loss of the GI Bill in the late 1970s had a large negative impact on enlistment. This also proves that most recruits are sensitive to a change in educational benefits. As most previous studies have reported, sufficient resources (in this case, the GI Bill) are of key importance in guaranteeing the success of the AVF.

**Table 20. Percentage Distribution of Opinion over GI Bill Abolition, by New Recruit Version, 1997**

| GI bill--doing away with would make recruiting hard | Total | Recruit w/o incentives | Recruit w/ incentives |
|---|---|---|---|
| Strongly agree | 63.9 | 63.9 | 63.8 |
| Agree | 18.6 | 18.1 | 20.4 |
| Neither or disagree | 17.5 | 18.0 | 15.8 |
| total | 100.0 | 100.0 | 100.0 |

Source: Derived from 1997 New Recruit Survey (NRS).

Table 21 demonstrates the relationship between years of service and demographic factors. Just under half (48.1 percent) of recruits take four-year service, followed by three-year service (32.6 percent). Women (58.30 percent) are especially likely to opt for four years. Blacks (52.9 percent) are also more likely to take four-year service than recruits in other racial/ethnic groups.

**Table 21. Percentage Distribution of Recruits by Years of Service, Gender, Racial/Ethnic Group, 1997**

| Years of service | | 2yrs | 3yrs | 4yrs | 5yrs | 6yrs | Total |
|---|---|---|---|---|---|---|---|
| Total | | 3.4 | 32.6 | 48.1 | 8.1 | 7.8 | 100.0 |
| Sex | Male | 3.6 | 37.3 | 44.7 | 7.0 | 7.3 | 100.0[1] |
| | Female | 2.8 | 18.0 | 58.3 | 11.8 | 9.1 | 100.0 |
| Race | White | 3.6 | 31.7 | 47.2 | 9.3 | 8.2 | 100.0 |
| | Black | 2.8 | 33.8 | 52.8 | 4.7 | 5.9 | 100.0 |
| | Hispanic | 4.0 | 35.8 | 47.0 | 5.0 | 8.3 | 100.0[1] |

[1] Each value is rounded.

Source: Derived from 1997 New Recruit Survey (NRS).

As shown in Table 22, "money for college" is the main reason to enlist for recruits who take the two-year service option, but this option includes just 3.4 percent of all recruits (from Table 21). The percentage of "trained in a skill" gets larger as years of service increase from 7.1 percent for two-year service enlistments to 22.2 percent for five-year service enlistments. The percentage of "something I can be proud of" is almost equally distributed over the years of service categories. Table 22 implies that work-bound recruits are more likely to select a long commitment than are college-bound recruits.

**Table 22. Percentage Distribution of Recruits by the Four Most Important Reasons to Enlist and Years of Service, 1997**

| Most important reason to enlist | 2yrs | 3yrs | 4yrs | 5yrs | 6yrs |
|---|---|---|---|---|---|
| Something I can be proud of | 16.3 | 22.3 | 19.1 | 18.5 | 20.6 |
| Money for college | 46.0 | 16.2 | 22.3 | 14.6 | 14.0 |
| Trained in a skill | 7.1 | 11.1 | 12.0 | 22.2 | 17.8 |
| Serve my country | 5.4 | 11.4 | 8.4 | 9.8 | 9.7 |

Source: Derived from 1997 New Recruit Survey (NRS).

### 3. Enlistment Resources

This section consists of two parts: the effects of advertising and the recruiter. It considers the effect of Army advertising on enlistment, the role of recruiter in helping applicants to decide, and the initiation of the first contact between applicants and recruiters. The section also evaluates the effect of each information source that the Army Recruiting Command uses to help applicants make an enlistment decision.

#### *a. The Effect of Advertising*

Table 23 shows that over 80 percent of new recruits remember the Army's advertisements from television, followed by school, the recruiting station, magazines, and mail. Meanwhile, newspapers and the Internet are not memorable media for new recruits.

**Table 23. Percentage of Advertising Recognition by Source, Gender, and Racial/Ethnic group, 1997**

| Advertising Source | Total | Gender | | Racial/Ethnic group | | |
|---|---|---|---|---|---|---|
| | | Male | Female | White | Black | Hispanic |
| TV | 85.2 | 84.3 | 84.9 | 86.4 | 80.5 | 84.0 |
| Magazine | 52.9 | 54.2 | 48.7 | 55.0 | 45.0 | 51.8 |
| Radio | 40.7 | 39.4 | 45.1 | 43.0 | 35.2 | 31.4 |
| Newspaper | 13.3 | 13.1 | 13.8 | 12.1 | 17.9 | 12.7 |
| Mail | 48.9 | 52.5 | 37.5 | 51.4 | 42.5 | 39.7 |
| Rctg. Stn. | 54.0 | 54.2 | 53.5 | 55.3 | 48.1 | 53.2 |
| School | 57.8 | 57.1 | 59.9 | 59.5 | 52.7 | 56.1 |
| Friend | 31.6 | 30.8 | 34.1 | 31.6 | 30.1 | 35.8 |
| Internet | 9.2 | 9.7 | 7.4 | 10.2 | 5.1 | 2.9 |

Source: Derived from 1997 New Recruit Survey (NRS).

Table 24 shows the importance of information from each source. The information from a recruiter (69.7 percent) is the most influential in helping recruits make an enlistment decision. Just under half (45.5 percent) of new recruits rely on information from friends who have enlisted, with women and non-whites more likely to depend on friends' information. The importance of advertising on TV is also considerable, but radio advertising is not. This reflects the different characteristics of these two media. In contrast to the recognition level shown in Table 23, the importance of information from magazines, mail and school is much lower than the percentage of their recognition levels.

This study has the same result as Dertouzos's (1989) with regard to local radio advertising: hardly any discernible effect on enlistment. And, unlike the impact of the Internet on our society in general, the impact of Internet on recruiting is less than what one might expect.

**Table 24. Percentage of Recruits Attributing Importance to Information Sources, by Gender and Racial/Ethnic Group, 1997**

| How important was info. from? | Total | Sex | | Race | | |
|---|---|---|---|---|---|---|
| | | Male | Female | White | Black | Hispanic |
| Friend who enlisted | 45.5 | 48.5 | 52.6 | 48.3 | 51.7 | 57.5 |
| Ad on TV | 32.2 | 32.7 | 30.5 | 29.6 | 38.9 | 40.1 |
| Ad on radio | 14.9 | 14.5 | 16.0 | 13.3 | 20.2 | 18.4 |
| Ad in magazine | 20.0 | 20.2 | 19.7 | 17.8 | 24.5 | 32.7 |
| Mail info. | 29.2 | 28.8 | 30.5 | 27.1 | 35.6 | 34.3 |
| Info. At school | 28.3 | 29.5 | 35.3 | 29.5 | 35.0 | 37.4 |
| Info from recruiter | 69.7 | 68.8 | 72.2 | 69.4 | 69.8 | 70.7 |
| Info from internet | 12.5 | 12.2 | 13.4 | 12.0 | 12.5 | 17.4 |

Note: Values above are the sum of percentage: "important" and "very important."
Source: Derived from 1997 New Recruit Survey (NRS).

Table 25 shows the relationship between TV advertisements and the four most important reasons to enlist. Among those who think that information from TV is "important" or "very important", 26 percent mentioned "something I can be proud of" and 13.8 percent mentioned "serve my country" as a motivating factor to enlist. One may assume that these results come from the effect of "Be All You Can Be," the motto used in Army advertisements. The image of the Army in TV advertising apparently stimulates young people to enlist for these two reasons.

**Table 25. Percentage Distribution of the Four Most Important Reasons to Enlist among Recruits Who Indicated Major Importance of TV Advertisements**

| How important was info. From TV? | Money for college | Something I can be proud of | Trained in a skill | Serve my country |
|---|---|---|---|---|
| TV Advertisement | 15.9 | 26.0 | 10.5 | 13.8 |

Source: Derived from 1997 New Recruit Survey (NRS).

### *b. Recruiters*

Table 26 shows recruit opinions regarding recruiter contact. Most new recruits (over 70 percent) believe that it is a good idea to contact a recruiter in making an enlistment decision. Meanwhile, 23.5 percent of recruits tend to rely on their friends when deciding whether or not to enlist. This result is correlated to key influencer and supports the assumption that friends of recruits are one of the most important influencers.

**Table 26. Percentage Distribution of Opinion about Seeing an Recruiter**

| If a friend asked your advise about seeing an Army recruiter | Good idea | Bad idea | Up to him or her | Total |
|---|---|---|---|---|
| Percentage | 76.0 | 0.6 | 23.4 | 100.0 |

Source: Derived from 1997 New Recruit Survey (NRS).

As seen in Table 27, 51.4 percent of new recruits take the initiative to contact a recruiter. Recruits enlisting without incentives (53.1 percent) are about 6 percent more likely to initiate the contact than are those with incentives (47.2 percent). Recruiters are more likely to initiate contact with incentive-bound recruits. Friends of recruits still have a considerable effect on first contact.

**Table 27. Percentage Distribution of Recruits by First Contact with Recruiter and New Recruit Survey Version, 1997**

| How did you have first contact with an Army recruiter? | Total | Recruits w/o incentives | Recruits W/ incentives |
|---|---|---|---|
| I contacted army recruiter first. | 51.4 | 53.1 | 47.2 |
| Recruiter contacted me. | 38.3 | 36.9 | 41.9 |
| I was friend with whom a recruiter was meeting. | 10.3 | 10.0 | 10.9 |
| Total | 100.0 | 100.0 | 100.0 |

Source: Derived from 1997 New Recruit Survey (NRS).

As seen in Table 28, recruits who make the first contact tend to consider "something I can be proud of " as a motivator, while those who recruiters contact are

more likely to mention "money for college." This implies that the recruiters focus on meeting the high-quality recruit goal, because those who want the Army College Fund must score 50 or better on the AFQT and be a high school diploma graduate.

**Table 28. Percentage Distribution of Recruits According to Contact Initiative, by the Four Most Important Reasons to Enlist, 1997**

| Enlistment Reason | I contacted Recruiter | Recruiter contacted me |
|---|---|---|
| Money for college | 15.5 | 26.2 |
| Something I can be proud of | 21.6 | 17.5 |
| Trained in a skill | 11.6 | 14.5 |
| Serve my country | 11.2 | 7.9 |

Source: Derived from 1997 New Recruit Survey (NRS).

Just under half (47 percent) of contacts are made by phone, and about 53 percent of contacts are made face-to-face. Women are 3 percent more likely than men to make contact by phone. Men are more likely to make face-to-face contact (see Table 29). The percentage of contact at school is considerable for both men and women.

**Table 29. Percentage Distribution of Recruits According to First-Contact Situation, by Gender, 1997**

| Under what circumstances did you talk with a recruiter? | Total | Gender | |
|---|---|---|---|
| | | Male | Female |
| By phone (I called the recruiter) | 19.6 | 19.0 | 21.7 |
| By phone (recruiter called me) | 27.3 | 27.1 | 27.8 |
| Talked at school | 16.5 | 16.3 | 17.2 |
| Talked at Rctg. Stn. (I initiated the visit) | 27.4 | 28.5 | 23.7 |
| Talked at an army cinema van display | 0.2 | 0.2 | 0.3 |
| Talked during a chance encounter in public | 3.9 | 4.0 | 4.0 |
| Other | 5.1 | 5.0 | 5.5 |
| Total | 100 | 100.0[1] | 100.0[1] |

[1] Each value is rounded.

Source: Derived from 1997 New Recruit Survey (NRS).

### 4. Key Barriers to Enlist

Table 30 shows the percentage of key barriers for enlisting that new recruits mentioned as "important" or "very important". About 76 percent of new recruits think of military service as a serious obstacle to their educational progress. The military lifestyle, other interests, and commitment are also considered significant barriers. New recruits think danger in performing duty and fear of basic training are less important barriers to enlistment. Women's responses regarding danger and fear of basic training are 7 percent to 26 percent higher than that of men, and, for them, danger and fear of basic training are considerable barriers to enlistment. With regard to each barrier, the percentage of blacks and Hispanics are much higher than that of whites. The fact that women, blacks and Hispanics are more worried about educational interruption supports the assertion that they have higher educational expectations. The same trends are seen in the results of the 1996 YATS.

**Table 30. Key Barriers to Enlist (Important or Very Important), in Percent, By Gender and Racial/Ethnic Group, 1997**

| Key barriers to enlist | Total | Gender | | Racial/Ethnic Group | | |
|---|---|---|---|---|---|---|
| | | Male | Female | White | Black | Hispanic |
| Lifestyle | 63.1 | 60.6 | 70.7 | 60.7 | 70.7 | 67.9 |
| Other interests | 63.2 | 61.7 | 68.1 | 59.2 | 75.6 | 72.9 |
| Commitment | 56.5 | 54.2 | 63.9 | 54.7 | 62.0 | 62.3 |
| Danger | 35.2 | 32.6 | 43.7 | 30.0 | 54.2 | 44.1 |
| Obligations | 44.7 | 43.4 | 59.2 | 41.2 | 58.2 | 49.3 |
| Education | 75.7 | 73.5 | 82.6 | 72.9 | 84.6 | 84.9 |
| Fear of basic training | 35.5 | 28.8 | 56.4 | 33.5 | 43.2 | 35.4 |
| Family attitude | 39.1 | 36.9 | 46.0 | 37.1 | 44.2 | 45.2 |

Source: Derived from 1997 New Recruit Survey (NRS).

### 5. Key Influencers

Table 31 shows the percentages of key influencers on enlistment. As previous studies determined, one's immediate family exercises a great influence on the decision to enlist, with a total of 57.2 percent. Father, mother, and friends, in order, strongly support the decision to enlist. Blacks and women are more likely than others to depend on their mother. Meanwhile, friends (42.1 percent) are the least supportive of enlistment.

**Table 31. Key Influencers, in Percent, by Supportive and Least Supportive, 1997**

| Influencer | Supportive | Least Supportive |
|---|---|---|
| Mother | 22.2 (33.1[1], 27.9 [2]) | 14.0 |
| Father | 22.5 | 8.0 |
| Friend | 18.3 | 42.1 |
| Other immediate family [3] | 12.5 | 6.1 |

[1] Black
[2] Women
[3] Including sister, brother, husband, and wife.
Source: Derived from 1997 New Recruit Survey (NRS).

This result implies that, if a person's key influencers have a negative perception of the Army and advise against enlistment, they might have a significant effect on enlistment, as Orvis et al. (1996) observed.

Therefore, it is very important that the Army try to change the perception of parents and friends from negative to positive. To accomplish this, the Army must improve not only its image through aggressive advertising and recruiters' efforts, but also its service environment with regard to leadership, quality of life, and healthy human relationships.

## B. MULTI-NOMIAL LOGIT ANALYSIS USING PROC CATMOD

### 1. Analysis of Enlistment Reasons

#### *a. Grouping the Response Variables*

To reduce the number of required parameter estimates, the most important reasons given to enlist are categorized into four groups. Table 32 shows how the answers have been grouped for this analysis based on cross-tabulation analysis (see Table16). The

four categories are "college fund," "job training/money," "other," and "self-development." "Money for college" is categorized as "college fund" to examine the significance of the current educational incentive called Army College Fund (ACF); it also has somewhat different characteristics than "money" or "self-development."

**Table 32. Category of Response Variables: Enlistment Reasons**

| 0 | 1 | | 2 | 3 |
|---|---|---|---|---|
| College Fund | Job training | Money | Other | Self-development |
| Money For college | Trained in a skill<br><br>High-tech environment | More money<br><br>Unemployed | Travel<br><br>Family tradition<br><br>Serve my country<br><br>Other | Prove I can make it<br><br>Something I can be proud of<br><br>Mgmt and Leadership Experience<br><br>Away from home |

Since the four response variables are created and are in the order "0: college fund," "1: job/ money," "2: other," and "3: self-development," generalized logits are formed for the probability of "college fund" to "self-development," "job/ money" to "self-development," and "other" to "self-development."

***b. Explanatory Variables***

(1) **Gender**

Gender is a dichotomous variable. Male is 0, and female is 1.

(2) **Ethnicity**

A dummy variable defined by three categories: White (0), Black (1), and Hispanic (2). Native American, Alaskan, Asian, and Pacific Islander are removed from the data due to their small proportion of all recruits in the sample.

(3) **Educational Expectations**

A dichotomous variable. These are the educational expectations of recruits. If someone has educational expectations of college or above, then the variable EXEDU equals 0. If less than college-level, EXEDU equals 1.

(4) **Past Status**

A dummy variable defined by three categories. It represents the recruit's status before joining the Army. If someone was in the work force part- or full-time, then PASTST equals 0. If in school part- or full-time, then PASTST equals 1. Someone unemployed equals 2.

(5) **Contact Initiation**

A dummy variable defined by three categories. If recruits make the first contact, then CONTACT equals 0. If the recruiter makes the first contact, then CONTACT equals 1. If the recruit's friends help to meet recruiters, then CONTACT equals 2.

(6) **Years of Service**

A dichotomous variable. If someone has two- to four-year commitments, then YOS equals 0. If someone has five- to six-year commitments, then YOS equals 1.

Table 33 shows the description of explanatory variables.

**Table 33. Description of Variables**

| | | |
|---|---|---|
| **Demographic** | **ETHNIC** | White:0, Black:1, Hispanic:2 |
| **Others** | **EXEDU** | Educational expectation<br>- >= college:0, < college: 1 |
| | **PASTST** | Status before joining the Army<br>- work full or part time: 0,<br>- school full or part time: 1,<br>- unemployed: 2 |
| | **CONTACT** | Contact initiative<br>- recruits: 0, recruiter: 1, friends: 2 |
| | **YOS** | Years of service<br>- 2~4 years: 0, 5~6 years: 1 |

### *c. Multi-Nomial Logit Analysis*

The estimated model for men, which includes three logits, is the function of gender, ethnic group, educational expectations, past status, contact initiation, and years of service:

*Log (College fund/Self-Development)*

*Log (Job, Money/Self-Development) = f (ETHNIC, YOS, EXEDU, CONTACT, PASTST)*

*Log (Other/Self-Development)*

Table 34 gives an analysis of variance results of enlistment reasons for men, using PROC CATMOD. The likelihood ratio goodness of fit statistics are Chi-square = 293.09 with 255 degree of freedom (df) and $p$=0.0507, indicating that the inclusion of certain interaction terms might explain additional variation. However, all single variables in the table are highly significant at $\alpha$ = .01 ($p$<0.001), and additional investigation indicates that multi-collinearity problems in the more complex model hinder interpretation. Note that the degrees of freedom for modeling three generalized logits are three times what one would expect for modeling one logit: instead of 2 df for ETHNIC, which has three levels, this table has 6. To determine the correct number of degrees of freedom for effects in models using generalized logits, multiply the number one would expect for modeling one logit by r-1, where r is the number of response levels (Stokes et al., 1995, p. 237).

**Table 34. Analysis of Variance for the Main Effect Model: Men**

| Source of variation | Degrees of freedom | Chi-square | Probability |
|---|---|---|---|
| INTERCEPT | 3 | 179.86 | 0.0000 |
| ETHNIC | 6 | 65.99 | 0.0000 |
| YOS | 3 | 65.61 | 0.0000 |
| EXEDU | 3 | 124.59 | 0.0000 |
| CONTACT | 6 | 94.13 | 0.0000 |
| PASTST | 6 | 65.30 | 0.0000 |
| LIKELIHOOD RATIO | 255 | 293.09 | 0.0507 |

Source: Derived from 1997 New Recruit Survey (NRS).

Table 35 contains the parameter estimates and tests for the Multi-Nomial Logit model for men. The order of parameters corresponds to the order in which the response variable and explanatory variable levels are listed in the response profiles table and the population profiles table in the PROC CATMOD printout (Stokes et al., 1995, p. 238). Each coefficient equals the differential effect of the categorical variable outcome on the relevant log of the odds.

With regard to ethnic group, the result shows that, regardless of ethnicity, there is no statistical significance for the logit comparing "college fund" to "self-development." White men are more likely to be influenced by the "job/money" category or by patriotism ("other" category) than by the "self-development" category. Black men choose "job/money" over "self-development" and "self-development" over "other" as their motivation. Hispanics seek "self-development" more than they do the "job/money" benefits.

Men who have two- to four-year service commitments are more likely to be motivated by the "college fund" incentive than by anything in the "self-development" category; at the same time, they are more motivated by "self-development" items than by anything in the "job/money" category. Meanwhile, men who have a relatively long service commitment are more motivated by "job/money" or self-development" considerations.

Men who have a college-or-above level of educational expectations are influenced more by the "college fund" category than by "self-development" items, while those who have low educational expectations are more likely to be motivated by "self-development" considerations. One may assume that educational-incentive-bound recruits are influenced by the "college fund" category. With regard to the logit (job,money/self-development), those who have higher educational expectations are more motivated by the "self-development" category, and those who do not have the reverse response. The former are more likely to be influenced by "other" over "self-development," while the latter are more motivated by "self-development" than by the "other" category.

Recruits who make first contact are more likely to choose "self-development" over "college fund" and "other" over "self-development" as their reason for enlistment. Meanwhile, recruits who are contacted first by a recruiter are more

influenced by the "college fund" category than by "self-development," and more influenced by "job/money" than "self-development." One may assume that applicants for the college fund are more likely to be designated as high-quality soldiers. Thus, recruiters tend to focus their contact efforts on them to meet their high-quality recruiting goal. Men who are influenced by a friend who enlisted are more motivated by "self-development" items than by the "other" category.

Men from the work force are more likely to be motivated by "self-development" than by the "college fund" category. Those who are in school before joining the Army are more influenced by the "college fund" than by "self-development," and by "self-development" more than "job/money." For the unemployed, "self-development" or "job/money" items are motivating factors in the decision to enlist over "college fund" or "self-development," respectively. Regardless of past status, there is no statistical significance in the logit comparing "other" to "self-development."

**Table 35. Parameter Estimates of Model: Men**

| VARIABLE | Log (Coll.fund/Self-develop) | | Log (Job,Money/Self-develop) | | Log (Other/ Self-develop) | |
|---|---|---|---|---|---|---|
| | Co-efficient | Significance level | Co-efficient | Significance level | Co-efficient | Significance level |
| INTERCEPT | -1.3372 | <.01 | -0.4714 | <.01 | -0.8510 | <.01 |
| ETHNIC | | | | | | |
| White | -0.0285 | 0.6867 | 0.3166 | <.01 | 0.4000 | <.01 |
| Black | 0.0112 | 0.8967 | 0.1724 | 0.0663 | -0.3850 | <.01 |
| Hispanic | 0.0173 | 0.8754 | -0.4890 | <.01 | -0.0150 | 0.8930 |
| YOS | | | | | | |
| 2~4 yrs | 0.2295 | <.01 | -0.3185 | <.01 | -0.0762 | 0.1708 |
| 5~6 yrs | -0.2295 | <.01 | 0.3185 | <.01 | 0.0762 | 0.1708 |
| EXEDU | | | | | | |
| >=Coll. | 0.5107 | <.01 | -0.1586 | <.01 | 0.1421 | <.01 |
| < Coll. | -0.5107 | <.01 | 0.1586 | <.01 | -0.1421 | <.01 |
| CONTACT | | | | | | |
| Recruits | -0.2362 | <.01 | -0.0333 | 0.5948 | 0.3049 | <.01 |
| Recruiters | 0.3221 | <.01 | 0.1802 | <.01 | -0.0650 | 0.3319 |
| Friends | -0.0859 | 0.3676 | -0.1469 | 0.1042 | -0.2399 | <.01 |
| PASTST | | | | | | |
| Work | -0.1262 | 0.0868 | -0.0429 | 0.4710 | 0.0154 | 0.7959 |
| School | 0.3881 | <.01 | -0.1876 | <.01 | 0.0693 | 0.2545 |
| Unemployed | -0.2619 | <.05 | 0.2304 | <.01 | -0.0847 | 0.3163 |

Source: Derived from 1997 New Recruit Survey (NRS).

Table 36 gives the predicted probability of each category for men, and Figure 2 and Figure 3 are presented in bar-charts to understand Table 36 more easily. The

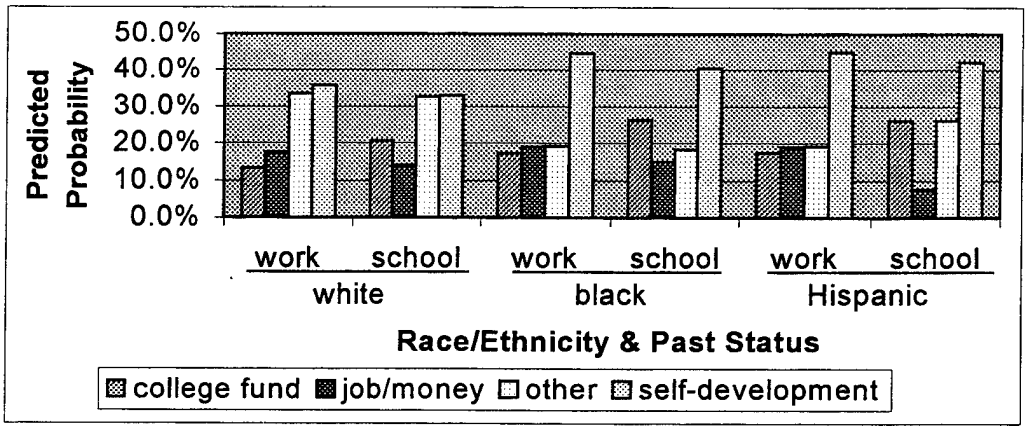
sample profile consists of racial/ethnic group, contact initiation, past status, years of service, and educational expectations. For example, white men in school before joining the Army who are contacted by a recruiter, who have a college-or-above level of educational expectations, and who have a two- to four-year commitment are most likely influenced by the "college fund" category, with a predicted probability of 0.330, followed by "self-development," with a predicted probability of 0.303.

**Table 36. Predicted Probability of Each Category for Men**

| Sample Profile (2-4 yrs, >= coll.) | | | Predicted Probability (± Standard Error) | | | |
|---|---|---|---|---|---|---|
| Racial/ Ethnic Group | Contact Initiation | Past Status | College Fund | Job/ Money | Other | Self-Develop |
| White | Recruit | Work | 0.132 ± 0.010 | 0.176 ± 0.010 | 0.335 ± 0.014 | 0.357 ± 0.014 |
| | | School | 0.205 ± 0.014 | 0.140 ± 0.010 | 0.326 ± 0.016 | 0.329 ± 0.015 |
| | Recruiter | Work | 0.224 ± 0.016 | 0.210 ± 0.015 | 0.223 ± 0.015 | 0.344 ± 0.017 |
| | | School | 0.330 ± 0.016 | 0.160 ± 0.011 | 0.207 ± 0.012 | 0.303 ± 0.014 |
| Black | Recruit | Work | 0.172 ± 0.016 | 0.190 ± 0.017 | 0.191 ± 0.018 | 0.446 ± 0.022 |
| | | School | 0.263 ± 0.022 | 0.150 ± 0.015 | 0.183 ± 0.018 | 0.405 ± 0.023 |
| | Recruiter | Work | 0.271 ± 0.024 | 0.211 ± 0.020 | 0.118 ± 0.014 | 0.400 ± 0.024 |
| | | School | 0.390 ± 0.025 | 0.158 ± 0.015 | 0.107 ± 0.012 | 0.345 ± 0.02 |
| Hispanic | Recruit | Work | 0.175 ± 0.023 | 0.099 ± 0.017 | 0.278 ± 0.031 | 0.449 ± 0.032 |
| | | School | 0.261 ± 0.031 | 0.076 ± 0.014 | 0.262 ± 0.030 | 0.401 ± 0.032 |
| | Recruiter | Work | 0.286 ± 0.034 | 0.114 ± 0.021 | 0.180 ± 0.024 | 0.420 ± 0.034 |
| | | School | 0.403 ± 0.037 | 0.083 ± 0.015 | 0.160 ± 0.022 | 0.354 ± 0.031 |

Note: Rounding error if the sum of predicted probability in each row is not equal to 1.
Source: Derived from 1997 New Recruit Survey (NRS).

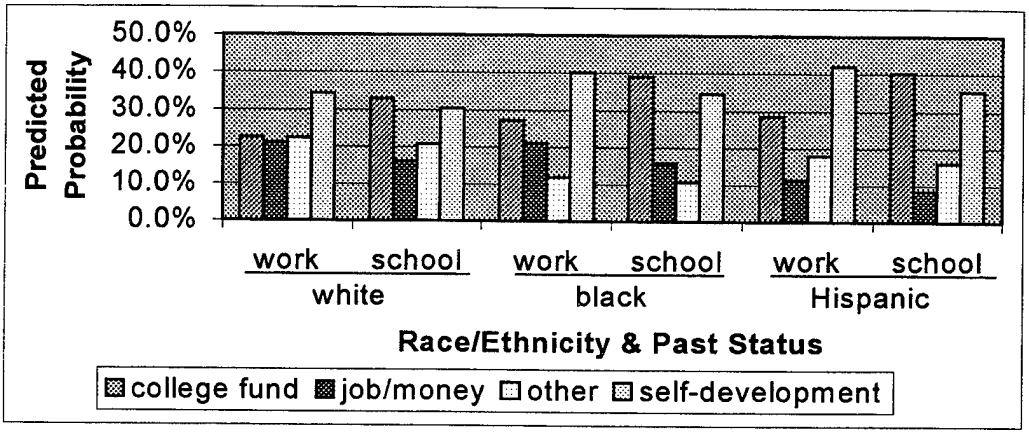
Figure 2 shows the predicted probability of each category for men in each ethnic group, who were in either the work force or school before joining the Army, who make the first contact, who have a college-or-above level of educational expectations, and who have a two- to four-year commitment. The results show that, regardless of racial/ethnic group or past status, these young men are more likely to be motivated by "self-development," followed by "other," rather than the "college fund" category. Furthermore, blacks and Hispanics are more influenced than whites by "self-development." blacks are less influenced by the "other" category than are young men from other racial/ethnic groups, while Hispanics are less motivated by the "job/money" category.




Note: Controlling sample profile with 2~4 years of service and college-or-above level of educational expectations.
Source: Derived from Table 36.

**Figure 2. Predicted Probability of Enlistment Reasons for Men by Racial/Ethnic Group, Past Status: Recruit makes the first contact**

Figure 3 also gives the predicted probability of each category for men who were contacted by a recruiter, with the same other conditions as Figure 2. Unlike Figure 2, those who are in school before joining the Army, who were contacted by a recruiter, and who have a two- to four-year commitment, are more motivated by the "college fund" category, while those who are in work force, with the same other conditions, are more likely to be influenced by the "self-development" category.




Note: Controlling sample profile with 2~4 years of service and college-or-above level of educational expectations.
Source: Derived from Table 36.

**Figure 3. Predicted Probability of Enlistment Reasons for Men by Racial/Ethnic Group, Past Status: Recruiter makes the first contact**

Table 37 gives an analysis of variance results of the estimated model for women. The same method is used for both men and women. The goodness of fit is adequate for this model (Chi-square = 245.10 with 231 df and $p$=0.2502) indicating that interaction variables do not provide significant additional explanatory power. Since ETHNIC with $p$=0.0650 remains marginally influential, it is kept in the model. All single variables except racial/ethnic group are highly significant at $\alpha$ = .01 ($p$<0.001).

**Table 37. Analysis of Variance for the Main Effect Model: Women**

| Source of variation | Degrees of freedom | Chi-square | Probability |
|---|---|---|---|
| INTERCEPT | 3 | 65.86 | 0.0000 |
| ETHNIC | 6 | 11.87 | 0.0650 |
| YOS | 3 | 15.85 | 0.0012 |
| EXEDU | 3 | 31.49 | 0.0000 |
| CONTACT | 6 | 48.61 | 0.0000 |
| PASTST | 6 | 25.57 | 0.0003 |
| LIKELIHOOD RATIO | 231 | 245.10 | 0.2502 |

Source: Derived from 1997 New Recruit Survey (NRS).

Table 38 shows the parameter estimates of the response functions for women. With regard to racial/ethnic group, the results show that, regardless of ethnicity, there is no statistical significance for the logit comparing "college fund" to "self-development," and "job/money" to "self-development." White women are more likely to be influenced by the "job/money" category or by the "other" category than by the "self-development" category. Hispanics seek "self-development" more than they do the "other" categories.

Years of service are not significant for the logit comparing "college fund" to "self-development." However, in comparing the coefficients, women who have a two- to four-year service commitments are more likely to be motivated by the "college fund" incentive than by anything in the "self-development" category; at the same time, they are more motivated by "self-development" items than by anything in the "job/money" or "other" category. Meanwhile, women who have a five- to six-year service commitment are more motivated by "job/money," or "other" considerations than by "self-development." Women who have a college-or-above level of educational expectations are influenced more by the "college fund" category than by "self-development" items, while those who have low educational expectations are more likely to be motivated by "self-development" considerations. In addition, the former are more likely to be influenced by "self-development" than by "other," while the latter are more motivated by "other" than by the "self-development" category.

Recruits who make first contact are more likely to choose "self-development" over "college fund" and "other" over "self-development," but "self-development" over "job/money," as their reason for enlisting. Meanwhile, recruits who are contacted by a recruiter are more influenced by the "college fund" category than by "self-development," and "self-development" than by "other." Women who are influenced by a friend who enlisted are more motivated by "college fund," "job/money" or "other" than by "self-development" items, but this is not statistically significant.

Women from the work force are more likely to be motivated by "other" than by the "self-development" category. Those who are in school before joining the Army are more influenced by "college fund" than by "self-development." For the unemployed, "self-development" items are motivating factors in the decision to enlist over "college fund" or "other," respectively. Regardless of past status, there is no statistical significance in the logit comparing "job/money" or "other" to "self-development."

**Table 38. Parameter Estimates of Model: Women**

| VARIABLE | Log (Coll.fund/Self-develop) | | Log (Job/money/Self-Develop) | | Log (Other/ Self-develop) | |
|---|---|---|---|---|---|---|
| | Co-efficient | Significance level | Co-efficient | Significance level | Co-efficient | Significance level |
| INTERCEPT | -0.9729 | <.01 | -0.6809 | <.01 | -1.3424 | <.01 |
| ETHNIC | | | | | | |
| White | 0.0484 | 0.6562 | 0.1590 | 0.2591 | 0.5150 | <.01 |
| Black | 0.0193 | 0.8732 | 0.0352 | 0.8223 | 0.1599 | 0.3519 |
| Hispanic | -0.0677 | 0.7023 | -0.1941 | 0.4128 | -0.6749 | <.05 |
| YOS | | | | | | |
| 2~4 yrs | 0.1102 | 0.1938 | -0.2304 | <.05 | -0.1802 | <.05 |
| 5~6 yrs | -0.1102 | 0.1938 | 0.2304 | <.05 | 0.1802 | <05 |
| EXEDU | | | | | | |
| =Coll. | 0.3896 | <.01 | -0.2583 | <.01 | 0.1971 | 0.0806 |
| < Coll. | -0.3896 | <.01 | 0.2583 | <.01 | -0.1971 | 0.0806 |
| CONTACT | | | | | | |
| Recruits | -0.3937 | <.01 | -0.3407 | <.01 | 0.2383 | <.05 |
| Recruiters | 0.1863 | <.05 | 0.0923 | 0.4458 | -0.3406 | <.01 |
| Friends | 0.2074 | 0.1298 | 0.2484 | 0.1298 | 0.1022 | 0.5407 |
| PASTST | | | | | | |
| Work | -0.0065 | 0.9543 | 0.0451 | 0.7022 | 0.1288 | 0.2557 |
| School | 0.4410 | <.01 | -0.1356 | 0.2499 | 0.1354 | 0.2383 |
| Unemployed | -0.4345 | <.01 | 0.0904 | 0.5555 | -0.2642 | 0.0974 |

Source: Derived from 1997 New Recruit Survey (NRS).

Table 39 gives the predicted probability of each category for women, and Figure 4 and Figure 5 display bar-charts constructed from Table 39. For example, white women in school before joining the Army, who are contacted by the recruiter, who have a college-or-above level of educational expectations, and who have a two- to four-year commitment are more likely influenced by the "college fund" category, with an estimated probability of 0.428, followed by "self-development," with an estimated probability of 0.334.

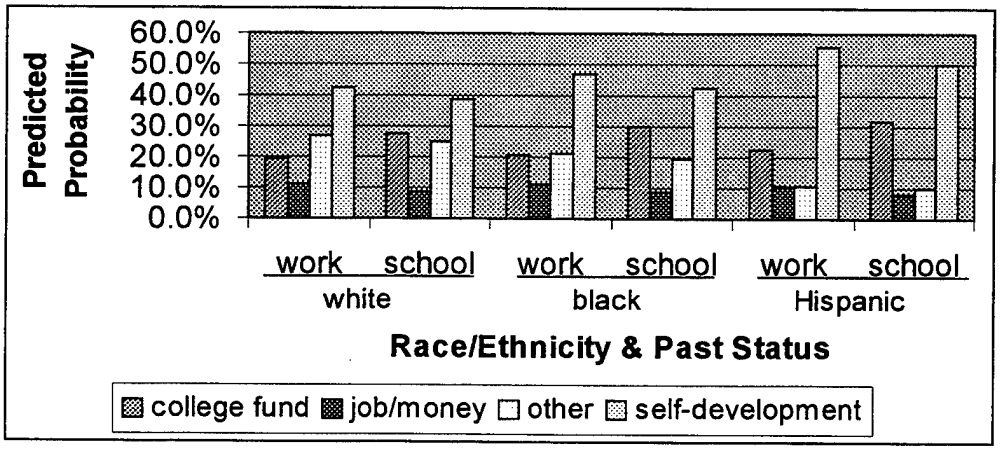
**Table 39. Predicted Probability of Each Category for Women**

| Sample profile (2-4 yrs, >= coll.) | | | Predicted probability (± Standard Error) | | | |
|---|---|---|---|---|---|---|
| Racial/ Ethnic Group | Contact Initiation | Past Status | College Fund | Job/ Money | Other | Self-Develop |
| White | Recruit | Work | 0.193 ± 0.020 | 0.114 ± 0.016 | 0.271 ± 0.025 | 0.422 ± 0.027 |
| | | School | 0.277 ± 0.026 | 0.087 ± 0.014 | 0.250 ± 0.027 | 0.386 ± 0.028 |
| | Recruiter | Work | 0.315 ± 0.032 | 0.161 ± 0.025 | 0.139 ± 0.022 | 0.385 ± 0.032 |
| | | School | 0.428 ± 0.027 | 0.117 ± 0.015 | 0.121 ± 0.016 | 0.334 ± 0.024 |
| Black | Recruit | Work | 0.209 ± 0.025 | 0.112 ± 0.018 | 0.211 ± 0.027 | 0.469 ± 0.032 |
| | | School | 0.297 ± 0.032 | 0.085 ± 0.016 | 0.193 ± 0.028 | 0.426 ± 0.034 |
| | Recruiter | Work | 0.329 ± 0.037 | 0.153 ± 0.027 | 0.104 ± 0.019 | 0.414 ± 0.037 |
| | | School | 0.443 ± 0.034 | 0.110 ± 0.018 | 0.091 ± 0.015 | 0.356 ± 0.030 |
| Hispanic | Recruit | Work | 0.228 ± 0.047 | 0.106 ± 0.034 | 0.109 ± 0.040 | 0.558 ± 0.060 |
| | | School | 0.320 ± 0.056 | 0.080 ± 0.026 | 0.099 ± 0.036 | 0.501 ± 0.032 |
| | Recruiter | Work | 0.342 ± 0.064 | 0.138 ± 0.045 | 0.051 ± 0.022 | 0.469 ± 0.065 |
| | | School | 0.457 ± 0.063 | 0.098 ± 0.031 | 0.044 ± 0.018 | 0.401 ± 0.058 |

Note: Rounding error if the sum of predicted probability in each row is not equal to 1.
Source: Derived from 1997 New Recruit Survey (NRS).

Compared with the men's result, the predicted probabilities of women for "college fund" or "self-development" are much higher. Meanwhile, for "job/money" or "other," women have lower predicted probabilities.

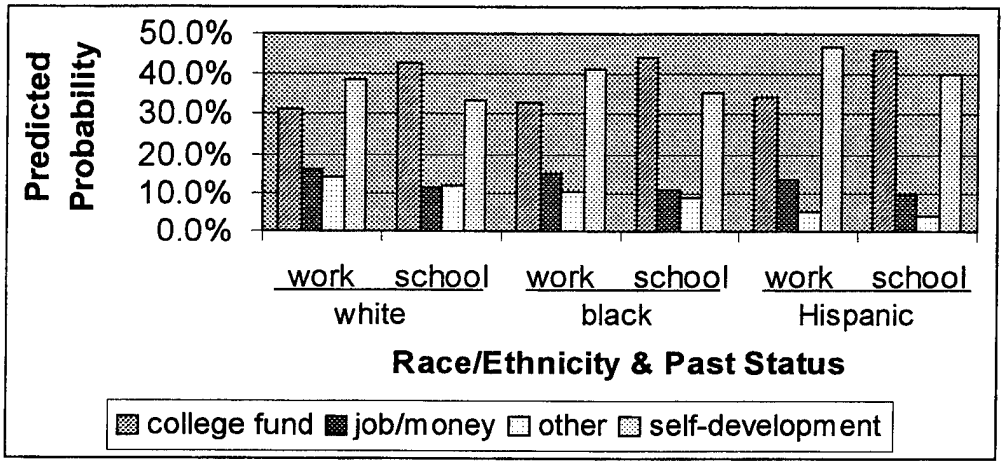
Figure 4 shows the predicted probability of each category for women by racial/ethnic group, who were in either the work force or school before joining the Army, who make the first contact, who have a college-or-above level of educational expectations, and who have a two- to four-year commitment. The results show that, regardless of ethnic group or past status, they are more likely to be motivated by "self-development," followed by "college fund" for whites and Hispanics, and "other" for blacks. Furthermore, blacks and Hispanics are more influenced than whites by "self-development." Hispanics are less influenced by the "other" category than persons from other racial/ethnic groups. Women are less motivated by the "job/money" category than are men.




Note: Controlling sample profile with 2~4 years of service and college-or-above level of educational expectations.
Source: Derived from Table 39.

**Figure 4. Predicted Probability of Enlistment Reasons for Women by Racial/Ethnic Group, Past Status: Recruit makes the first contact**

Figure 5 also gives the predicted probability of each category for women who were contacted by a recruiter with the same other conditions. Those in school before joining the Army, who were contacted by a recruiter, and who have a two- to four-year commitment, are more motivated by the "college fund" category, while those who are in the work force, with the same other conditions, are more likely to be influenced by the "self-development" category. Both men and women have the same tendency in a predicted probability.




Note: Controlling sample profile with 2~4 years of service and college-or-above level of educational expectations.
Source: Derived from Table39.

**Figure 5. Predicted Probability of Enlistment Reasons for Women by Racial/Ethnic Group, Past Status: Recruiter makes the first contact**

### 2. Analysis of Enlistment Reasons by Information Sources

The purpose of this analysis is to examine the relationship between four categories of enlistment reasons and information sources. The method and response variables used in this analysis are the same as in the previous section.

The estimated model is the function of information from media sources, direct information from the Army or its recruiters, and information from other sources:

*Log (College fund/Self-Development)*

*Log (Job, Money/self-development)* $= f$ *(MEDIA, IFARMY, IFOTH)*

*Log (Other/Self-development)*

Table 40 gives the description of explanatory variables. Each group is divided into two sub-categories--0: important or very important; 1: less than important.

**Table 40. Grouping of Explanatory Variables by Information Source**

| MEDIA | IFARMY | IFOTH |
|---|---|---|
| Media Advertisement | Army or Recruiters | Other |
| TV | Recruiter | Friends who enlisted |
| Radio | Mail (solicited) | School |
| Magazine | Mail (unsolicited) | Internet |

Table 41 shows the analysis of variance for four categories of enlistment reasons by information sources. The goodness of fit is adequate for this model (Chi-square = 11.95 with 12 df and $p = 0.4494$). The effects of information from media advertising and Army recruiters are highly significant, $p < 0.001$. Information from other sources is significant at $\alpha = 0.05$ level.

**Table 41. Analysis of Variance for Response Variable by Information Sources**

| Source of variation | Degrees of Freedom | Chi-square | Probability |
|---|---|---|---|
| INTERCEPT | 3 | 285.85 | 0.0000 |
| MEDIA | 3 | 39.67 | 0.0000 |
| IFARMY | 3 | 78.44 | 0.0000 |
| IFOTH | 3 | 9.07 | 0.0284 |
| LIKELIHOOD RATIO | 12 | 11.95 | 0.4494 |

Source: Derived from 1997 New Recruit Survey (NRS).

Table 42 provides the parameter estimate of each main effect. The estimated probabilities suggest that recruits who see media advertisement as important input into the enlistment decision are more likely to choose "self-development" rather than "college fund" or "job/money." The effect of media advertising on the logit "other" to "self-development" is not significantly different (coefficient: –0.0521). Direct information from the Army or its recruiters has a greater effect on the "college fund" category than on "self-development." Information from other sources affects "self-development" more than other categories.

**Table 42. Parameter Estimates of Enlistment Reasons by Information Sources**

| Variable | Log (College fund/Self-develop) | | Log (Job/Money/Self-develop) | | Log (Other/ Self-develop) | |
|---|---|---|---|---|---|---|
| | Co-efficient | Significance level | Co-efficient | Significance level | Co -efficient | Significance level |
| INTERCEPT | -0.7004 | <.01 | -0.6006 | <.01 | -0.3227 | <.01 |
| MEDIA | -0.1862 | <.01 | -0.1760 | <.01 | 0.0202 | 0.6021 |
| IFARMY | 0.1812 | <.01 | -0.0348 | 0.4288 | -0.2412 | <.01 |
| IFOTH | -0.0394 | 0.3267 | -0.1070 | <.01 | -0.0878 | <.05 |

Note: Coefficients in this table represent only for "important or very important."
Source: Derived from 97 New Recruit Survey (NRS).

Table 43 and Figure 6 give the predicted probability of each category by information source. Those who feel the media are important are more likely to be motivated by the "other" category, with a predicted probability of 0.352, followed by "self-development," with a predicted probability of 0.343. Meanwhile, direct information from the Army or its recruiters increases a predicted probability of "college fund" to 0.244, twice higher than a predicted probability in information from the media. The

predicted probability of "Job/money" (0.205) is also increased. The predicted probability of " self-development" is strong over all information sources. Recruits who feel information from other sources is important are more influenced by "self-development," followed by " other," and then " job/money."

**Table 43. Predicted Probability of Each Category by Information Sources**

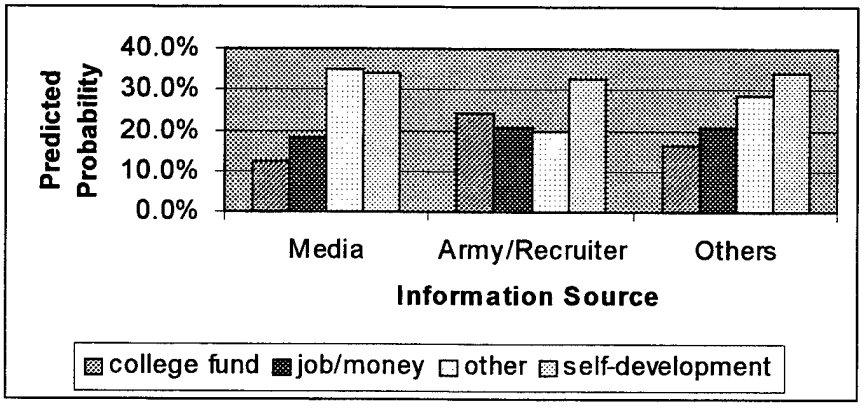
| Sample Profile | | | Predicted Probability (± Standard Error) | | | |
|---|---|---|---|---|---|---|
| MEDIA | IFARMY | IFOTH | College Fund | Job/ Money | Other | Self-Develop |
| 0[1] | 1[2] | 1 | 0.123 ± 0.011 | 0.182 ± 0.014 | 0.352 ± 0.020 | 0.343 ± 0.018 |
| 1 | 0 | 1 | 0.244 ± 0.012 | 0.205 ± 0.015 | 0.199 ± 0.010 | 0.327 ± 0.012 |
| 1 | 1 | 0 | 0.165 ± 0.012 | 0.209 ± 0.013 | 0.284 ± 0.015 | 0.343 ± 0.015 |

Note: Rounding error if the sum of predicted probability in each row is not equal to 1.

[1] 0 represents "important or very important."

[2] 1 represents "less than important."

Source: Derived from 1997 New Recruit Survey (NRS).




Source: Derived from Table 43.

**Figure 6. Predicted Probability of Enlistment Reasons By Information Sources**

### 3. Analysis of Information Sources

The purpose of this analysis is to examine the relationship between the importance of each information source and certain single variables. The method and description of independent variables are the same as in Section 1.

#### *a. Response Variables*

The response variable is a dichotomous one with response categories "important" or "very important" and "less than important," as mentioned in Section 2. Therefore, the estimated model of each group for information sources is a function of gender, racial/ethnic group, past status, and contact initiation:

$$Log\ (Important\ or\ very\ important/\ Less\ than\ important) = f\ (GENDER, ETHNIC, PASTST, CONTACT)$$

However, the main effect model of each information source is somewhat different from the estimated model because non-significant variables are removed from the model as a result of an analysis of variance.

#### *b. Multi-Nomial Logit Analysis*

Table 44 shows the main effect variables for each information source, which are derived from the analysis of variance for the importance of information from the various sources. The main effect model of media information is the function of gender and racial/ethnic group. The main effect model of information from the Army or its recruiters is the function of gender, past status, and contact initiation. The main effect of information from other sources is the function of gender, racial/ethnic group, past status, and contact initiation, which includes all independent variables.

**Table 44. Main Effect Variables for Each Information Source**

| Media | Army or its recruiters | Other sources |
|---|---|---|
| GENDER<br>ETHNIC | GENDER ($p$= 0.06)[1]<br>PASTST<br>CONTACT | GENDER<br>ETHNIC ($p$= 0.07)[2]<br>PASTST<br>CONATCT |

Note: [1] and [2] are kept in the model because they are marginally influential.

Table 45 shows the parameter estimates of the main effect model of three categories of information sources. With regard to media information, the results show that male recruits are more likely than female recruits to say that information from the media influenced their decision to enlist. Among racial/ethnic groups, whites are least likely to report that media is important, while Hispanics and blacks depend more on media information to make enlistment decisions.

The results indicate that men are less likely than women to rate information from the Army or its recruiters as important or very important. Recruits who are in the work force are less likely to mention the importance of direct information, while those who are in school full- or part-time depend more on direct information. Recruits who are contacted by recruiters are more influenced by information from the Army or its recruiters. According to the analysis of enlistment reasons, recruits who are in school and who are contacted by recruiters are more likely to be motivated by enlistment incentives, especially the college fund. Thus, for incentive-bound recruits, direct information from the Army or its recruiters is very important in the enlistment decision.

Men are less likely than women to mention information from other sources as important in their enlistment decision. Among racial/ethnic groups, Hispanics are most likely to be influenced by information from other sources. Persons in school depend more on information from other sources than do those in the work force. Recruits who contact recruiters with friends' help are more likely to consider other information sources as important. Recruits who either make the first contact or are contacted by a recruiter are less likely to feel that information from other sources is important or very important.

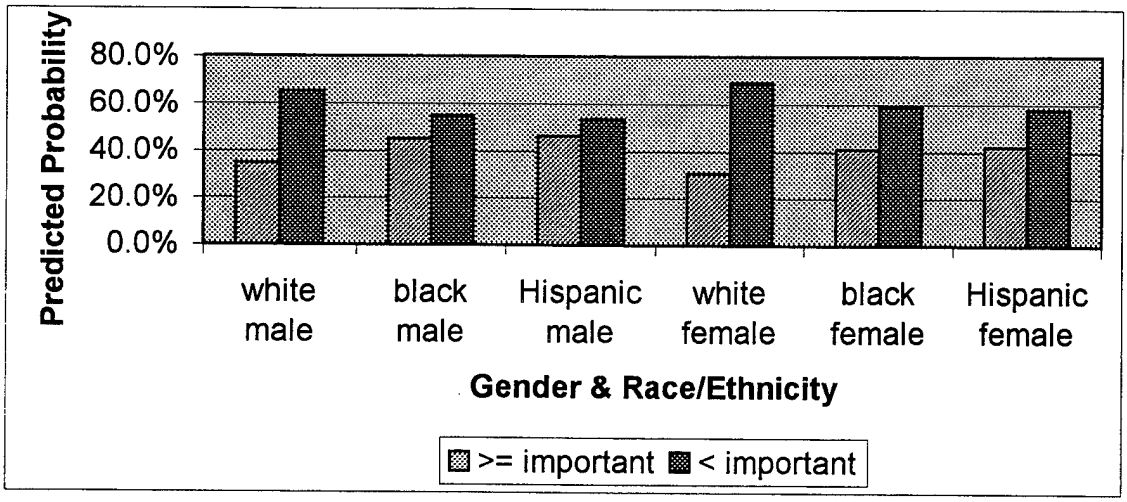
**Table 45. Parameter Estimates of the Importance of Each Information Source**

| VARIABLE | Media | | Army or its recruiter | | Other sources | |
|---|---|---|---|---|---|---|
| | Log (important or very important/less than important) | | | | | |
| | Co-efficient | Significance level | Co-efficient | Significance level | Co-efficient | Significance level |
| INTERCEPT | -0.4111 | <.01 | 1.4091 | <.01 | 0.8839 | <.01 |
| GENDER | | | | | | |
| Male | 0.0836 | <.05 | -0.0788 | 0.0610 | -0.1187 | <.01 |
| Female | -0.0836 | <.05 | 0.0788 | 0.0610 | 0.1187 | <.01 |
| ETHNIC | | | | | | |
| White | -0.3110 | <.01 | N/A* | | -0.1224 | <.05 |
| Black | 0.1301 | <.05 | | | -0.0755 | 0.2666 |
| Hispanic | 0.1809 | <.05 | | | 0.1979 | <.05 |
| PASTST | | | | | | |
| Work | N/A* | | -0.3109 | <.01 | -0.1027 | <.01 |
| school | | | 0.3109 | <.01 | 0.1027 | <.01 |
| CONTACT | | | | | | |
| Recruits | N/A* | | -0.7867 | <.01 | -0.2969 | <.01 |
| Recruiters | | | 0.7997 | <.01 | -0.3164 | <.01 |
| Friends | | | -0.0130 | <.01 | 0.6133 | <.01 |

* Variable not included because of low significance.

Source: Derived from 97 New Recruit Survey (NRS).

Figure 7 shows that the predicted probability of the importance of media information for white men is 0.346 for important, while black and Hispanic males have the predicted probability of 0.451 and 0.463, respectively. The predicted probability for white females is 0.308, while black and Hispanic women have the predicted probability of 0.401 and 0.422, respectively. Figure 7 supports the results of the parameter estimates for the importance of information from the media.

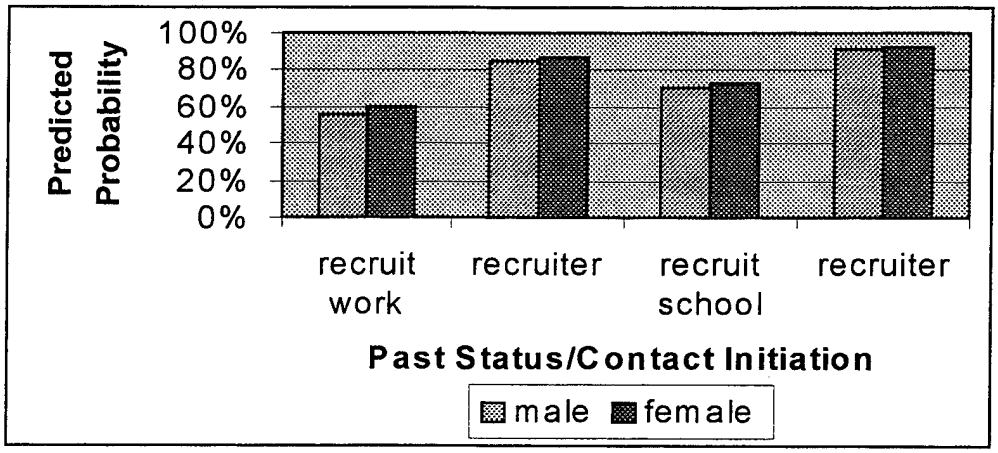



Source: Derived from 1997 New Recruit Survey (NRS).

**Figure 7. Predicted Probability of the Importance of Media Information**

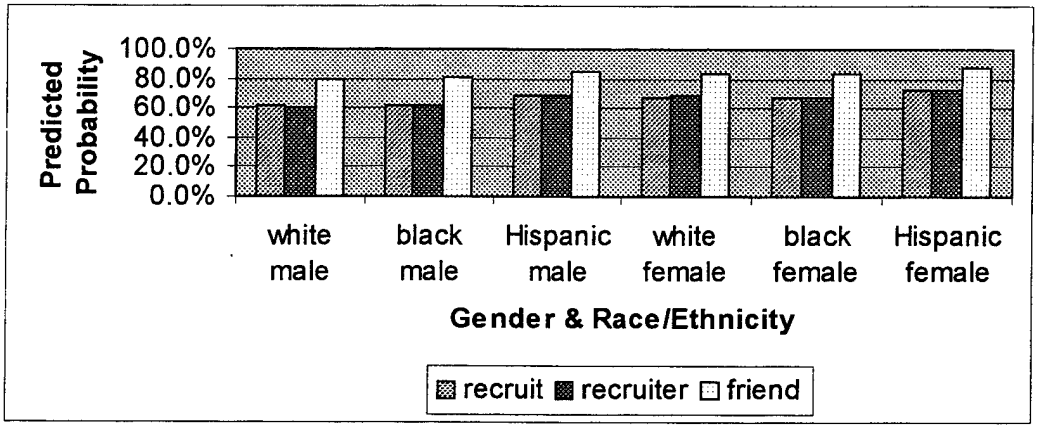
Figure 8 shows the predicted probability of the importance of information from the Army or its recruiters. For example, the predicted probability for men from the work force who make the first contact is 0.558 for important, while, for women in school who are contacted by recruiters, it is 0.925. Regardless of gender, recruits who are in school and who are contacted by a recruiter are more likely to be influenced by direct information from the Army or its recruiters.

Figure 9 shows the predicted probability of the importance of information from other sources. For example, the predicted probability for Hispanic women in school who make the first contact with a friend's help is 0.872, while, for white men with the same other conditions, it is 0.796. As Figure 9 shows, recruits whose friends help them contact a recruiter are more likely to think of other sources as important information, regardless of gender and racial/ethnic group. Women feel more than do men that information from other sources is important to the enlistment decision.




Source: Derived from 1997 New Recruit Survey (NRS).

**Figure 8. Predicted Probability of the Importance of Information from the Army or Its Recruiters: Important or Very Important**




Note: Controlling sample profile with school for past status.
Source: Derived from 1997 New Recruit Survey (NRS)

**Figure 9. Predicted Probability of the Importance of Information from Other Sources: Important or Very Important**

# VI. CONCLUSIONS AND RECOMMENDATIONS

## A. CONCLUSIONS

The primary goal of this thesis is to analyze factors that influence people's decisions to enlist in the U.S. Army. By using cross-tabulations and Multi-Nomial Logit analysis, the research tried to determine the important reasons for enlisting, the effect of enlistment incentives and resources, and key barriers to and key influences on enlistment. The major findings of the data analysis are described in Chapter V. Conclusions drawn from the findings are presented below.

"Money for college" and "something I can be proud of" are the primary reasons for enlisting. Skill training and patriotism are also among the reasons for enlisting, but "more money" and "unemployment" apparently have little effect on enlistment motivation. The characteristics that influence the decision to enlist are gender, racial/ethnic group, educational expectations, status before joining the Army, contact initiation, and years of service. These different characteristics have different influences on recruits' enlistment decisions. Women and non-whites are more influenced than men and whites by "money for college." Regardless of gender and racial/ethnic group, recruits who have a college-or-above level of educational expectations, who are students before enlisting, who are contacted by a recruiter, and who have a shorter commitment, are more likely to be motivated by "money for college," and those who make the first contact, who are in the work force, with the same other conditions, are more likely to be influenced by "self-development" or "other" category including patriotism.

With regard to enlistment incentives, most new recruits want get a higher education (college level or above), and women have higher expectations than do men. Thus, educational incentives, such as the Army College Fund, can be a strong motivation for youths to enlist. More than 80 percent of new recruits think that the abolition of the GI Bill would make recruiting difficult. This suggests that most recruits are sensitive to a change in enlistment incentives, especially educational benefits. For recruits who have a two-year commitment, "money for college" is the main reason to enlist. The percentage recruits identifying skill training as an enlistment reason gets larger as years of service

increase. Thus, work-bound recruits are more likely than college-bound recruits to select a long commitment.

Recruiters and friends who have enlisted are the most important sources of information about the Army. Among the mass media, TV advertisement is the most influential source of information. Men tend to recall the Army's advertising better than do women. Whites are less likely than non-whites to report that the media are important. TV advertising stimulates recruits to choose "self-development," including "something I can be proud of," or the " other" category, including "serve my country," as a motivating factor to enlist, while incentive-bound recruits tend to seek more information from recruiters.

Most recruits make the first contact. Recruiters are more likely to contact incentive-bound recruits who want the Army College Fund or enlistment bonuses because they are more likely to be designated as high-quality soldiers, and recruiters have to meet the high-quality recruit goal.

Most new recruits think of the military as a serious obstacle to educational progress. The military lifestyle, other interests, and a long commitment are also serious barriers to enlistment. Women are more concerned than men about the military lifestyle and future educational progress.

Immediate family members, especially parents, have a great influence on the decision to enlist. Blacks and women are more likely than others to depend on their mother.

## B. RECOMMENDATIONS

The results of this analysis suggest that the Army needs an effective recruiting policy, sufficient resources, and a timely, adequate mix of factors that influence the decision to enlist in a continuously changing environment.

Educational benefits, especially the college fund, are a key factor in influencing youths to enlist. Youths are more likely to serve because of benefits they will receive, as the cost of college increases and the general perception of military service becomes more negative. Also, it is critical to address the perception among young people that service in the Army is a great obstacle to their educational progress.

It is impossible to maintain youth awareness about benefits and opportunities from the Army if the Army has neither a sufficient number of recruiters nor an effective advertising program. Although youths are not highly motivated by "more money," military pay or bonuses can be a negative incentive for enlistment if they are decreased below the level recruits expect. Therefore, monetary incentives, including the college fund, should be kept at a level high enough to allow the Army to meet its recruiting goal. Furthermore, the results of this thesis show that an equivalent number of youths consider service in the Army a means for personal self-development. Work-bound recruits still think of the Army as a place to learn various skills for their future. Patriotism also has a marginal effect on enlistment. Thus, considering the cost of enlistment incentives, it is important to find ways to attract youths who may want to enlist for those reasons. Effective Advertising and recruiters' efforts can be helpful, because this study shows that new recruits who are most affected by media advertisements enlist for "self-development" or patriotism.

Another key finding of this thesis is that the way new recruits' parents and friends view the Army is an important factor in deciding whether or not to enlist. Most key influencers have post-Vietnam or non-military experience, so they might have misconceptions about military life and question the necessity of military service in the current world situation. The Army might be concerned that those influencers impart a negative attitude to potential recruits, so the focus of Army advertising and recruiter efforts should be on changing the attitudes of those influencers.

The incentives and resources mentioned above can have a considerable effect on enlistment decisions in the short run. For the long term, the Army has to make a major effort to improve not only its image, but also its service environment with respect to sound leadership, quality of life, training, healthy human relationships, equal opportunity for women and minorities, and so on. Therefore, soldiers and veterans who have a positive impression of the Army can have a great effect on the enlistment decisions of their friends, sons, or daughters.

Looking at the current situation in Korea, the Korean Army confronts many of the same issues that the U.S. Army faces, even though it still uses a draft system to fill its ranks. Some of these issues are: a low propensity to enlist; the perception that the military

hinders educational and vocational progress; the issue of inequity; a higher educational requirement to survive in a very competitive society; an increase in numbers of post-Korean War generations; and so on. Therefore, the results of this thesis suggest that, if Korea adopts an all-volunteer system, the Korean Army should follow the example set by the U.S. Army. To succeed, however, any new system would clearly have to fit Korea's unique culture and environment.

# APPENDIX A: PREDICTED PROBABILITIES OF EACH MULTI- NOMIAL LOGIT MODEL

This appendix contains tables showing predicted probabilities for each Multi-Nomial Logit models discussed in Chapter V. Explanations of variables in population profile of each table are the same as the content of Table 33.

**Table A.1. Predicted Probability of Each Category of Enlistment Reasons for Men.**

| Population Profile | | | | | Predicted Probability | | | |
|---|---|---|---|---|---|---|---|---|
| ETHNIC | YOS | EXEDU | CONTACT | PASTST | College Fund | Job/ Money | Other | Self-Development |
| 0 | 0 | 0 | 0 | 0 | 0.133 | 0.176 | 0.334 | 0.357 |
| 0 | 0 | 0 | 0 | 1 | 0.205 | 0.140 | 0.326 | 0.329 |
| 0 | 0 | 1 | 0 | 2 | 0.115 | 0.230 | 0.301 | 0.355 |
| 0 | 0 | 0 | 1 | 0 | 0.224 | 0.210 | 0.223 | 0.344 |
| 0 | 0 | 0 | 1 | 1 | 0.330 | 0.160 | 0.207 | 0.303 |
| 0 | 0 | 1 | 0 | 0 | 0.053 | 0.269 | 0.280 | 0.397 |
| 0 | 0 | 1 | 0 | 1 | 0.088 | 0.230 | 0.291 | 0.392 |
| 0 | 0 | 1 | 1 | 0 | 0.092 | 0.327 | 0.190 | 0.391 |
| 0 | 0 | 1 | 1 | 1 | 0.149 | 0.276 | 0.196 | 0.380 |
| 0 | 1 | 0 | 0 | 0 | 0.072 | 0.286 | 0.335 | 0.307 |
| 0 | 1 | 0 | 0 | 1 | 0.117 | 0.241 | 0.344 | 0.298 |
| 0 | 1 | 0 | 1 | 0 | 0.198 | 0.287 | 0.229 | 0.287 |
| 1 | 0 | 0 | 0 | 0 | 0.173 | 0.190 | 0.191 | 0.446 |
| 1 | 0 | 0 | 0 | 1 | 0.263 | 0.150 | 0.183 | 0.405 |
| 1 | 0 | 0 | 0 | 2 | 0.148 | 0.245 | 0.169 | 0.438 |
| 1 | 0 | 0 | 1 | 0 | 0.271 | 0.211 | 0.118 | 0.400 |
| 1 | 0 | 0 | 1 | 1 | 0.390 | 0.158 | 0.107 | 0.345 |
| 1 | 0 | 1 | 0 | 0 | 0.068 | 0.286 | 0.157 | 0.489 |
| 1 | 0 | 1 | 0 | 1 | 0.112 | 0.244 | 0.163 | 0.481 |
| 1 | 0 | 1 | 1 | 1 | 0.180 | 0.276 | 0.103 | 0.441 |
| 1 | 1 | 0 | 0 | 0 | 0.096 | 0.316 | 0.195 | 0.392 |
| 1 | 1 | 0 | 0 | 1 | 0.156 | 0.265 | 0.200 | 0.380 |
| 2 | 0 | 0 | 0 | 0 | 0.175 | 0.099 | 0.278 | 0.449 |
| 2 | 0 | 0 | 0 | 1 | 0.261 | 0.076 | 0.262 | 0.401 |
| 2 | 0 | 0 | 0 | 2 | 0.155 | 0.132 | 0.256 | 0.457 |
| 2 | 0 | 0 | 1 | 0 | 0.286 | 0.114 | 0.180 | 0.420 |
| 2 | 0 | 0 | 1 | 1 | 0.403 | 0.083 | 0.160 | 0.354 |
| 2 | 0 | 0 | 2 | 1 | 0.329 | 0.074 | 0.164 | 0.434 |
| 2 | 0 | 1 | 0 | 1 | 0.118 | 0.132 | 0.247 | 0.503 |
| 2 | 0 | 1 | 1 | 1 | 0.198 | 0.156 | 0.164 | 0.482 |
| 2 | 1 | 0 | 0 | 0 | 0.103 | 0.175 | 0.302 | 0.420 |
| 2 | 1 | 0 | 0 | 1 | 0.163 | 0.142 | 0.300 | 0.395 |

Note: Rounding error if sum of predicted probability in each row is not equal to 1.
Source: Derived from 1997 New Recruit Survey (NRS).

**Table A.2. Predicted Probability of Each Category of Enlistment Reasons for Women.**

| Population Profile | | | | | Predicted Probability | | | |
|---|---|---|---|---|---|---|---|---|
| ETHNIC | YOS | EXEDU | CONTACT | PASTST | College Fund | Job/ Money | Other | Self-Development |
| 0 | 0 | 0 | 0 | 0 | 0.193 | 0.114 | 0.271 | 0.422 |
| 0 | 0 | 0 | 0 | 1 | 0.277 | 0.087 | 0.250 | 0.386 |
| 0 | 0 | 0 | 0 | 2 | 0.148 | 0.141 | 0.215 | 0.496 |
| 0 | 0 | 0 | 1 | 0 | 0.315 | 0.161 | 0.139 | 0.385 |
| 0 | 0 | 0 | 1 | 1 | 0.428 | 0.117 | 0.121 | 0.334 |
| 0 | 0 | 0 | 2 | 1 | 0.399 | 0.124 | 0.172 | 0.305 |
| 0 | 0 | 1 | 1 | 1 | 0.243 | 0.242 | 0.101 | 0.414 |
| 0 | 1 | 0 | 0 | 0 | 0.135 | 0.158 | 0.339 | 0.368 |
| 0 | 1 | 0 | 0 | 1 | 0.201 | 0.125 | 0.324 | 0.350 |
| 0 | 1 | 0 | 1 | 1 | 0.332 | 0.178 | 0.168 | 0.323 |
| 0 | 1 | 1 | 1 | 1 | 0.172 | 0.337 | 0.127 | 0.364 |
| 0 | 1 | 0 | 1 | 0 | 0.232 | 0.234 | 0.182 | 0.353 |
| 1 | 0 | 0 | 0 | 0 | 0.209 | 0.112 | 0.211 | 0.469 |
| 1 | 0 | 0 | 0 | 1 | 0.297 | 0.085 | 0.193 | 0.426 |
| 1 | 0 | 0 | 0 | 2 | 0.157 | 0.136 | 0.165 | 0.542 |
| 1 | 0 | 0 | 1 | 0 | 0.329 | 0.153 | 0.104 | 0.414 |
| 1 | 0 | 0 | 1 | 1 | 0.443 | 0.110 | 0.091 | 0.356 |
| 1 | 0 | 0 | 1 | 2 | 0.250 | 0.186 | 0.082 | 0.482 |
| 1 | 0 | 0 | 2 | 1 | 0.420 | 0.119 | 0.131 | 0.331 |
| 1 | 0 | 1 | 0 | 0 | 0.107 | 0.210 | 0.159 | 0.524 |
| 1 | 1 | 0 | 0 | 0 | 0.150 | 0.160 | 0.271 | 0.420 |
| 1 | 1 | 0 | 0 | 1 | 0.221 | 0.125 | 0.257 | 0.396 |
| 2 | 0 | 0 | 0 | 0 | 0.228 | 0.106 | 0.108 | 0.558 |
| 2 | 0 | 0 | 0 | 1 | 0.320 | 0.080 | 0.099 | 0.502 |
| 2 | 0 | 0 | 0 | 2 | 0.167 | 0.125 | 0.083 | 0.626 |
| 2 | 0 | 0 | 1 | 0 | 0.342 | 0.138 | 0.051 | 0.469 |
| 2 | 0 | 0 | 1 | 1 | 0.457 | 0.098 | 0.044 | 0.401 |
| 2 | 0 | 0 | 2 | 1 | 0.444 | 0.109 | 0.065 | 0.381 |
| 2 | 0 | 1 | 0 | 1 | 0.173 | 0.157 | 0.078 | 0.591 |
| 2 | 1 | 0 | 0 | 0 | 0.172 | 0.158 | 0.147 | 0.524 |
| 2 | 1 | 0 | 0 | 1 | 0.250 | 0.123 | 0.138 | 0.489 |
| 2 | 1 | 0 | 1 | 1 | 0.372 | 0.158 | 0.064 | 0.406 |

Note: Rounding error if sum of predicted probability in each row is not equal to 1.
Source: Derived from 1997 New Recruit Survey (NRS).

**Table A.3. Predicted Probability of the Importance of Media Information**

| Population Profile | | Predicted Probability | |
|---|---|---|---|
| GENDER | ETHNIC | Important or very Important | Less than Important |
| 0 | 0 | 0.346 | 0.654 |
| 0 | 1 | 0.451 | 0.549 |
| 0 | 2 | 0.463 | 0.537 |
| 1 | 0 | 0.309 | 0.691 |
| 1 | 1 | 0.410 | 0.590 |
| 1 | 2 | 0.422 | 0.577 |

Note: Rounding error if sum of predicted probability in each row is not equal to 1.
Source: Derived from 1997 New Recruit Survey (NRS).

**Table A.4. Predicted Probability of the Importance of Information from the Army or its Recruiter**

| Population Profile | | | Predicted Probability | |
|---|---|---|---|---|
| GENDER | PASTST | CONTACT | Important or very Important | Less than Important |
| 0 | 0 | 0 | 0.558 | 0.442 |
| 0 | 0 | 1 | 0.849 | 0.151 |
| 0 | 0 | 2 | 0.750 | 0.250 |
| 0 | 1 | 0 | 0.702 | 0.299 |
| 0 | 1 | 1 | 0.913 | 0.087 |
| 0 | 1 | 2 | 0.848 | 0.152 |
| 1 | 0 | 0 | 0.596 | 0.404 |
| 1 | 0 | 1 | 0.868 | 0.132 |
| 1 | 0 | 2 | 0.778 | 0.222 |
| 1 | 1 | 0 | 0.733 | 0.267 |
| 1 | 1 | 1 | 0.925 | 0.075 |
| 1 | 1 | 2 | 0.867 | 0.133 |

Note: Rounding error if sum of predicted probability in each row is not equal to 1.
Source: Derived from 1997 New Recruit Survey (NRS).

**Table A.5. Predicted Probability of the Importance of Information from Other Sources**

| Population Profile | | | | Predicted Probability | |
|---|---|---|---|---|---|
| GENDER | ETHNIC | PASTST | CONTACT | Important or very Important | Less than Important |
| 0 | 0 | 0 | 0 | 0.561 | 0.440 |
| 0 | 0 | 0 | 1 | 0.556 | 0.444 |
| 0 | 0 | 0 | 2 | 0.760 | 0.240 |
| 0 | 0 | 1 | 0 | 0.610 | 0.390 |
| 0 | 0 | 1 | 1 | 0.606 | 0.394 |
| 0 | 0 | 1 | 2 | 0.796 | 0.204 |
| 0 | 1 | 0 | 0 | 0.572 | 0.428 |
| 0 | 1 | 1 | 0 | 0.621 | 0.379 |
| 0 | 1 | 1 | 1 | 0.617 | 0.383 |
| 1 | 0 | 0 | 0 | 0.618 | 0.382 |
| 1 | 0 | 1 | 0 | 0.665 | 0.335 |
| 1 | 0 | 1 | 1 | 0.661 | 0.339 |
| 1 | 1 | 1 | 1 | 0.671 | 0.329 |

Note: Rounding error if sum of predicted probability in each row is not equal to 1.
Source: Derived from 1997 New Recruit Survey (NRS).

## APPENDIX B: FULL MULTI-NOMIAL LOGIT MODEL

This appendix contains the full Multi-Nomial Logit analysis for full model, which combines all variables discussed in Multi-Nomial Logit analysis, Chapter V. Therefore, the estimated model for each logit for enlistment reasons is a function of gender, racial/ethnic group, educational expectations past status, contact initiation, years of service, media information, information from the Army or its recruiters, and information from other sources:

*Log (College fund/Self-Development)*

*Log (Job, Money/Self-Development)* $= f$ *(GENDER,ETHNIC, YOS, EXEDU, CONTACT, PASTST, MEDIA, IFARMY, IFOTH)*

*Log (Other/Self-Development)*

The way of analysis is the same as the contents of Chapter V. Table B.1 and B.2, respectively, contain the analysis of variance table and the parameter estimates for model.

**Table B.1. Analysis of Variance for the Main Effect Model**

| Source of variation | Degrees of freedom | Chi-square | Probability |
|---|---|---|---|
| INTERCEPT | 3 | 144.33 | 0.0000 |
| GENDER | 3 | 56.02 | 0.0000 |
| ETHNIC | 6 | 52.95 | 0.0000 |
| YOS | 3 | 65.74 | 0.0000 |
| EXEDU | 3 | 121.95 | 0.0000 |
| CONTACT | 6 | 82.44 | 0.0000 |
| PASTST | 6 | 65.34 | 0.0000 |
| MEDIA | 3 | 27.01 | 0.0000 |
| IFARMY | 3 | 18.40 | 0.0004 |
| IFOTH | 3 | 7.88 | 0.0486 |
| LIKELIHOOD RATIO | 2031 | 2055.69 | 0.3459 |

Source: Derived from 1997 New Recruit Survey (NRS).

**Table B.2. Parameter Estimates of Model**

| VARIABLE | | Log (Coll.fund/Self-develop) | | Log (Job,Money/Self-develop) | | Log (Other/ Self-develop) | |
|---|---|---|---|---|---|---|---|
| | | Co-efficient | Significance level | Co-efficient | Significance level | Co-efficient | Significance level |
| INTERCEPT | | -1.1758 | <.01 | -0.5765 | <.01 | -0.8651 | <.01 |
| GENDER | Male | -0.1183 | <.05 | 0.2618 | <.01 | 0.1758 | <.01 |
| ETHNIC | | | | | | | |
| | White | -0.0357 | 0.6049 | 0.2246 | <.01 | 0.4010 | <.01 |
| | Black | -0.0174 | 0.8318 | 0.1681 | 0.0743 | -0.2661 | <.01 |
| YOS | | | | | | | |
| | 2~4 yrs | 0.1842 | <.01 | -0.3206 | <.01 | -0.1192 | <.05 |
| EXEDU | | | | | | | |
| | >=Coll. | 0.4885 | <.01 | -0.1682 | <.01 | 0.1876 | <.01 |
| CONTACT | | | | | | | |
| | Recruits | -0.2444 | <.01 | -0.1390 | <.05 | 0.2591 | <.01 |
| | Recruiters | 0.2710 | <.01 | 0.1683 | <.05 | -0.1110 | 0.1171 |
| PASTST | | | | | | | |
| | Work | -0.1115 | 0.1222 | -0.0263 | 0.6718 | -0.0101 | 0.8685 |
| | School | 0.4282 | <.01 | -0.1393 | <.05 | 0.1129 | 0.0705 |
| MEDIA | | | | | | | |
| | >= Important | -0.1625 | <.01 | -0.1466 | <.01 | 0.0481 | 0.2706 |
| IFARMY | | | | | | | |
| | >= Important | 0.0352 | 0.5312 | -0.0570 | 0.2753 | -0.1818 | <.01 |
| IFOTH | | | | | | | |
| | >= Important | -0.0300 | 0.5179 | -0.0966 | <.05 | -0.1069 | <.05 |

Source: Derived from 1997 New Recruit Survey (NRS).

Because of the complexity of this table, it was determined that the recursive decomposition of this model, presented in the main body of the thesis, is more insightful.

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