USAWC STRATEGY RESEARCH PAPER

Propensity to Enlist: Recruiting Implications

by

Roger A. Behringer
Lieutenant Colonel, U.S. Army

COL Cortez K. Dial
Project Advisor

The views expressed in this academic research paper are those of the author and do not necessarily reflect the official policy or position of the U.S. Government, the Department of Defense, or any of its agencies.

U.S. Army War College
CARLISLE BARRACKS, PENNSYLVANIA 17013
1. REPORT DATE (DD-MM-YYYY)  
07-04-2003

2. REPORT TYPE

3. DATES COVERED (FROM - TO)  
xx-xx-2002 to xx-xx-2003

4. TITLE AND SUBTITLE  
Propensity to Enlist: Recruiting Implications

5. AUTHOR(S)  
Behringer, Roger ; Author

6. PERFORMING ORGANIZATION NAME AND ADDRESS  
U.S. Army War College  
Carlisle Barracks  
Carlisle, PA17013-5050

7. SPONSORING/MONITORING AGENCY NAME AND ADDRESS  

8. SPONSOR/MONITOR'S ACRONYM(S)

9. SPONSOR/MONITOR'S REPORT NUMBER

10. DISTRIBUTION/AVAILABILITY STATEMENT  
PUBLIC RELEASE

11. SUPPLEMENTARY NOTES

12. ABSTRACT  
See attached file.

13. SUBJECT TERMS

14. SECURITY CLASSIFICATION OF:
   a. REPORT  
   Unclassified

   b. ABSTRACT  
   Unclassified

   c. THIS PAGE  
   Unclassified

15. LIMITATION OF ABSTRACT  
   Same as Report (SAR)

16. NUMBER OF PAGES  
   37

17. NAME OF RESPONSIBLE PERSON  
   Rife, Dave  
   RifeD@awc.carlisle.army.mil

18. TELEPHONE NUMBER  
   International Area Code  
   Area Code Telephone Number  
   DSN

Standard Form 298 (Rev. 8-98)  
Prescribed by ANSI Std Z39.18
Our Armed Forces face huge challenges as we begin the 21st Century. Transformation, asymmetrical warfare, terrorism, scarce resources, civil-military gap—these are just a few examples of the myriad challenges facing the U.S. Armed Forces. Among the many areas of concern, the challenge of recruiting a quality force invariable floats to the top. U.S. National Security depends on an adequately trained, equipped, and manned force. Transitioning from a conscript Army to the all-volunteer force of 1973 put the Army squarely in the open market place for talent. No one foresaw the total implications of manning the force for 2010 when we made this decision. This Strategy Research Project proposes ways to increase the propensity of America’s youth to serve in the Army. It offers suggestions for recruiting a quality force to serve the nation’s 21st century defense needs.
# TABLE OF CONTENTS

ABSTRACT ................................................................................................................................. III

LIST OF ILLUSTRATIONS ........................................................................................................ VII

LIST OF TABLES ....................................................................................................................... IX

PROPENSITY TO ENLIST: RECRUITING IMPLICATIONS ......................................................... 1

ALL-VOLUNTEER FORCE ........................................................................................................ 2

THE BUSINESS OF RECRUITING .......................................................................................... 3

ACCESSION REQUIREMENTS ............................................................................................... 4

QUALITY FORCE STANDARDS ............................................................................................ 4

THE CHALLENGE ..................................................................................................................... 6

PROPENSITY .......................................................................................................................... 10

BEHAVIOR THEORIES ........................................................................................................... 11

PRIMARY DETERMINANTS THAT CAUSE YOUNG ADULTS TO ENLIST ......................... 12

ECONOMIC FACTORS ............................................................................................................ 16

CIVIL–MILITARY GAP ............................................................................................................ 17

FACTORS LINKED TO RECRUITING SUCCESS .................................................................... 18

DOING MORE .......................................................................................................................... 18

DOING DIFFERENTLY ............................................................................................................. 19

   Educational Enticements .................................................................................................... 19
   Primary advertising campaign ............................................................................................ 19

ENDNOTES .............................................................................................................................. 21

BIBLIOGRAPHY ...................................................................................................................... 25
LIST OF ILLUSTRATIONS

FIGURE 1. 18-YEAR-OLD-POPULATION, NRC, 3-22 ................................................................. 9
FIGURE 2. DO SOMETHING FOR COUNTRY .................................................................................. 14
FIGURE 3. GOOD PAY ......................................................................................................................... 15
FIGURE 4. GET PARENTS’ APPROVAL .......................................................................................... 16
LIST OF TABLES

TABLE 1. ACTIVE ENLISTED RECRUITING GOALS AND SUCCESS BY SERVICE.............. 4
TABLE 2. ACTIVE ENLISTED ACCESSIONS BY AFQT CATEGORY (PERCENTAGE)........... 6
TABLE 3. STAGES IN THE RECRUITING PROCESS FROM LEAD GENERATION
(CONTRACTS) TO ACCESSIONS (CONTRACTS)................................................................. 7
TABLE 4. SUPPLY AND DEMAND FACTORS..................................................................... 8
TABLE 5. IMPORTANCE PLACED ON VARIOUS LIFE GOALS: COMPARISON OF RANK
ORDER.................................................................................................................................... 12
PROPENSITY TO ENLIST: RECRUITING IMPLICATIONS

People are central to everything else we do in the Army. Institutions don’t transform, people do. Platforms and organizations don’t defend this nation, people do. And finally, units don’t train, they don’t stay ready, they don’t grow and develop leadership; they don’t sacrifice; and they don’t take risks on behalf of the nation; people do.

—General Eric Shinseki

Nothing is more important than that the guardians’ work be performed well.

—Plato

Today the United States enjoys a position of unparalleled military strength and great global economic and political influence. This position of prominence places great responsibilities and obligations on all the elements of U.S. national power -- diplomatic, economic, political, and military. The United States faces unprecedented national security challenges as the 21st Century begins. U.S. Armed Forces share in this obligation as they defend freedom, democracy, and free enterprise at home and abroad. The U.S. Army, Air Force, Navy, and Marines dominate the seas, skies, and land; their ships, tanks, and airplanes are the best in the world. U.S. soldiers, sailors, airmen, and marines are the best-trained, best-equipped, and best-led forces in the world.

Despite these advantages, the U.S. Armed Forces face a myriad of challenges. The United States faces an enemy whose tactics of terror threaten fundamental U.S. civil liberties the armed forces have sworn to defend. The U.S. Armed Forces face the challenge of transforming their capabilities to meet the demands of the future while staying ready to meet the threats of today. U.S. Armed Forces are operating in a resource-constrained environment that forces leaders to make tough choices. Additionally, U.S. active forces are increasingly performing their duties for a public that does not know them or understand what they do. U.S. elected officials are engaged in a fundamental ends-ways-means debate over National Security Strategy and the military role in that strategy. However, the U.S. society generally agrees on the desired end state: political and economic freedom, peaceful relations with other states, and respect for human dignity. Even so there is on-going debate on the ways and means to reach that goal. Certainly, the ends-ways-means discussion on National Security is not new, but the volatile, uncertain, changing, and ambiguous environment of the 21st Century has new and unique implications for the fielding, training and use of our military. Specifically, this new environment has significant implications to all the services particularly the Army as it strives to recruit a quality force for the 21st Century. Pressed to prioritize among the many challenges
facing U.S. Armed Forces, the challenge of recruiting a quality force invariably floats to the top of the list. U.S. national security depends on an adequately trained, equipped, and manned force. This Strategy Research Project examines the dynamics of propensity of young Americans to serve in the military and seeks to identify ways to increase the propensity of America’s youth to serve. It suggests ways to recruit a quality force to meet the challenges of the 21st Century.

ALL-VOLUNTEER FORCE

In 1973, the United States abandoned the policy of conscription in favor of an all-volunteer force (AVF). The unpopular Vietnam War and a strong public perception of an unfair draft system were prime motivators for this policy shift. Many defining moments of American culture took place during the turbulent sixties and seventies: the civil-rights movement, the free speech movement, the Watergate scandal, and formations of a strong and vocal anti-war community. The impact on the military, particularly the Army, was great. To a growing portion of American society, military service lost its traditional prestige during the mid seventies. A subsequent strong anti-military sentiment made recruiting very difficult. Of course, military recruiting has never been an easy chore. As far back as 1830, President Jackson’s Secretary of War John Eaton reported that the Army had been unable to fill its rather modest enlistment quotas for another year with men of any quality:

A country possessing 12 millions of people ought surely to be able at all times to possess itself of an army of 6,000 men obtained upon principles of fair contract; if this can not be effected then will it be better to rely on some other means of defense, rather than resort to the expedient of obtaining a discontented and besotted soldiery.

Abolishing conscription in favor of the AVF forced the Department of Defense to compete for the services of American sons and daughters. In his Strategy Research Paper, *The War for Talent*, Lieutenant Colonel Keith Armstrong suggests that the Department of Defense risks losing a very competitive war for the services of America’s sons and daughters. America’s young adults are much more inclined to take a civilian job or go to college than to join an armed service. The armed forces compete directly for the same portion of the youth market that these other sectors do. General Maxwell Thurman, who is widely recognized within the Department of Defense as the architect of the Army’s first all-volunteer force recruiting strategy declared, “Today’s military may be called an all-volunteer force, but it is, in reality, an all-recruited force.”
THE BUSINESS OF RECRUITING

The Department of Defense is the largest employer in the United States. The Department of Defense recruiting missions for all military services for fiscal year 2002 was 203,522. Broken down by service, the recruiting mission included 79,000 for the Army, 53,000 for the Navy, 37,283 for the Air Force, and 34,239 for the Marine Corps. The recruiting mission for the enlisted Reserves totaled 74,950. No other industry comes close to requiring the same number of new employees. By way of comparison, Fortune Magazine reports the numbers of employees for each company in the Fortune 500. The largest employer is Wal-Mart Stores with 1.3 million employees, McDonalds is next with 395,000. United Parcel Service is third with 370,000 employees.

The Army G1 is the senior Army Human Resource Manager who oversees the human resource life cycle model. G1 personnel acquire, develop, deploy, compensate, sustain, and transition people. All of these functions are important and interrelated; this Strategy Research Project focuses solely on the acquisition function, which has three major components:

- Manpower management: The process of linking accession, retention, and promotion targets to Army requirements as measured by against the military manning program in the Planning, Programming, Budgeting, and Execution System (PPBES) process.
- Accession and retention management: The process that converts manpower targets to missions and oversees execution.
- Training integration: The establishment of a demand for training programs and a system to control input and tracking of trainees and students.

The Army’s Training and Doctrine Command, with its four-star commander, is the senior command responsible for accessing and training the Army’s soldiers and leaders and providing disciplined combined arms training environments for units. In February 2002, the Army created the U.S. Army Accessions Command (USAAC) a three-star subordinate command of Training and Doctrine Command. USAAC was charged with providing integrated command and control of the recruiting and initial military training for the Army’s officer, warrant officer, and enlisted forces. Designed to recruit qualified soldiers for the Army from first handshake to first unit of assignment, the command transforms volunteers into soldiers and leaders for the Army. Subordinate commands of USAAC are the Cadet Command, which accesses officers into the Army through the Reserve Officer Training Corps (ROTC) and the U.S. Army Recruiting Command (USAREC), which is primarily responsible for recruiting quality young women and men to serve in the Regular Army and Army Reserve. There is also a basic entry-training USAAC function at the U.S. Army Training Center, Fort Jackson: It is responsible for
transforming volunteers into quality soldiers, leaders, and team members for America’s Army. Basic entry-level training is an important phase in the human resource life cycle model; it affects all the other functions of the model. Analysis of how basic entry-level training relates to the other functions and affects recruiting and propensity to enlist is beyond the scope of this paper.

ACCESSION REQUIREMENTS

Accession requirements for the Army are based on a complex formula of force and size requirements and military manpower management systems that focus on how the Army manages force structure and personnel once the force is configured and sized. The Army defines its primary market as 17-25 year old high school diploma graduates who meet mental and moral standards. The table below indicates the active enlisted recruiting goals and successes by service since 1980.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Army Goal</th>
<th>Navy Goal</th>
<th>Marine Corps Goal</th>
<th>Air Force Goal</th>
<th>Total DoD Goal</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>173,800</td>
<td>172,328</td>
<td>97,627</td>
<td>97,678</td>
<td>43,884</td>
<td>100</td>
</tr>
<tr>
<td>1981</td>
<td>134,800</td>
<td>137,916</td>
<td>101,004</td>
<td>104,312</td>
<td>42,284</td>
<td>43,010</td>
</tr>
<tr>
<td>1982</td>
<td>125,100</td>
<td>130,198</td>
<td>81,922</td>
<td>92,784</td>
<td>40,588</td>
<td>40,141</td>
</tr>
<tr>
<td>1983</td>
<td>144,000</td>
<td>145,287</td>
<td>82,790</td>
<td>82,790</td>
<td>37,690</td>
<td>39,057</td>
</tr>
<tr>
<td>1984</td>
<td>141,177</td>
<td>142,266</td>
<td>82,907</td>
<td>82,907</td>
<td>36,660</td>
<td>36,285</td>
</tr>
<tr>
<td>1985</td>
<td>123,000</td>
<td>125,443</td>
<td>87,952</td>
<td>87,952</td>
<td>36,536</td>
<td>36,020</td>
</tr>
<tr>
<td>1986</td>
<td>135,259</td>
<td>135,250</td>
<td>94,878</td>
<td>94,878</td>
<td>36,682</td>
<td>36,763</td>
</tr>
<tr>
<td>1987</td>
<td>132,000</td>
<td>133,016</td>
<td>92,909</td>
<td>92,909</td>
<td>34,713</td>
<td>34,872</td>
</tr>
<tr>
<td>1988</td>
<td>113,500</td>
<td>115,386</td>
<td>93,939</td>
<td>93,939</td>
<td>35,911</td>
<td>35,945</td>
</tr>
<tr>
<td>1989</td>
<td>119,075</td>
<td>120,535</td>
<td>94,286</td>
<td>95,186</td>
<td>34,139</td>
<td>34,424</td>
</tr>
<tr>
<td>1990</td>
<td>87,000</td>
<td>89,600</td>
<td>72,402</td>
<td>72,846</td>
<td>33,521</td>
<td>33,660</td>
</tr>
<tr>
<td>1991</td>
<td>78,241</td>
<td>78,241</td>
<td>68,211</td>
<td>68,211</td>
<td>30,015</td>
<td>30,059</td>
</tr>
<tr>
<td>1992</td>
<td>75,000</td>
<td>77,583</td>
<td>58,208</td>
<td>58,208</td>
<td>31,831</td>
<td>31,825</td>
</tr>
<tr>
<td>1993</td>
<td>76,900</td>
<td>77,563</td>
<td>63,073</td>
<td>63,073</td>
<td>34,802</td>
<td>34,776</td>
</tr>
<tr>
<td>1994</td>
<td>68,000</td>
<td>68,039</td>
<td>53,964</td>
<td>53,982</td>
<td>32,056</td>
<td>32,016</td>
</tr>
<tr>
<td>1995</td>
<td>62,929</td>
<td>62,929</td>
<td>48,637</td>
<td>48,637</td>
<td>32,346</td>
<td>32,217</td>
</tr>
<tr>
<td>1996</td>
<td>73,400</td>
<td>73,418</td>
<td>48,206</td>
<td>48,206</td>
<td>32,173</td>
<td>32,496</td>
</tr>
<tr>
<td>1997</td>
<td>72,200</td>
<td>72,200</td>
<td>49,429</td>
<td>49,429</td>
<td>34,244</td>
<td>34,280</td>
</tr>
<tr>
<td>1998</td>
<td>79,296</td>
<td>71,732</td>
<td>55,321</td>
<td>55,321</td>
<td>34,244</td>
<td>34,280</td>
</tr>
<tr>
<td>1999</td>
<td>74,300</td>
<td>66,209</td>
<td>52,324</td>
<td>52,355</td>
<td>33,668</td>
<td>33,703</td>
</tr>
<tr>
<td>2000</td>
<td>80,000</td>
<td>80,113</td>
<td>55,000</td>
<td>55,147</td>
<td>32,417</td>
<td>32,440</td>
</tr>
<tr>
<td>2001</td>
<td>75,800</td>
<td>75,855</td>
<td>53,520</td>
<td>53,690</td>
<td>31,404</td>
<td>31,429</td>
</tr>
</tbody>
</table>


TABLE 1. ACTIVE ENLISTED RECRUITING GOALS AND SUCCESS BY SERVICE

QUALITY FORCE STANDARDS

Military recruiting is not simply a numbers game: Whereas force structure determines the number of people needed to fill military formations, the qualifications of those people in terms of knowledge, aptitudes, skills, and motivation determines the effectiveness of those units. Quality criteria take into account overall education levels and cognitive ability as measured by the Armed Forces Qualification Test, good physical health, and moral character. Some standards are common across all services, such as education and certain aptitude areas, while
others vary by service. There are two categories of DoD enlistment standards. One consists of absolute minimums or maximums set by statute or by DoD policy directives. The other comes from Defense Guidance, which provides DoD policy benchmarks used during the budgeting process. While Defense Guidance benchmarks are not rigid requirements, the Secretary of Defense monitors Service budgets for compliance and may require budget reallocations in order to meet the benchmarks. Based on many years of research and experience, the two most important qualifications for military service are aptitudes (as measured by the Armed Forces Qualification Test–AFQT) and a high school diploma.

Education: Defense Guidance says that at least 90 percent of non-prior-service accessions must have a high school diploma. Candidates with GED certificates are considered non-diploma graduates.

Aptitudes: Minimum aptitude standards are expressed in terms of categories of the AFQT, as follows: Category I is the 93-99th percentile; Category II is 65-92; Category IIIA is 50-64; Category IIIB is 31-49; Category IV is 10-30; and Category V is below the 10th percentile.

Minimum aptitude standards:
- Youth who score in Category V are ineligible to enlist by statute.
- No service may enlist more than 20 percent Category IV recruits.

Defense Guidance:
- At least 60 percent of accessions in each Service should be Category IIIA or higher.
- No Service should enlist more than 4 percent Category IV, and all should be high school diploma graduates.

Table 2 depicts the active enlisted accessions by AFQT category (percentage) from 1980 to 2000.

As noted in the Quadrennial Defense Review (QDR), our service effectiveness depends on more than just end strength; the education and aptitudes of service personnel has a direct relationship with mission performance:

The Department of Defense must recruit, train, and retain people with the broad skills and good judgment needed to address the dynamic challenges of the 21st century. Having the right kinds of imaginative, highly motivated military and civilian personnel, at all levels, is the essential prerequisite for achieving success. Advanced technology and new operational concepts cannot be fully exploited unless the Department has highly qualified and motivated personnel and officers who not only can operate these highly technical systems, but also can lead effectively in the highly complex military environment of the future.
TABLE 2. ACTIVE ENLISTED ACCESSIONS BY AFQT CATEGORY (PERCENTAGE)

<table>
<thead>
<tr>
<th>Year</th>
<th>I-IIIA</th>
<th>IIIB</th>
<th>IV</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>48.7</td>
<td>42.2</td>
<td>8.7</td>
<td>0.4</td>
</tr>
<tr>
<td>1981</td>
<td>47.3</td>
<td>31.1</td>
<td>21.3</td>
<td>0.3</td>
</tr>
<tr>
<td>1982</td>
<td>52.0</td>
<td>32.4</td>
<td>15.2</td>
<td>0.4</td>
</tr>
<tr>
<td>1983</td>
<td>57.5</td>
<td>31.4</td>
<td>10.7</td>
<td>0.4</td>
</tr>
<tr>
<td>1984</td>
<td>58.2</td>
<td>32.0</td>
<td>9.5</td>
<td>0.4</td>
</tr>
<tr>
<td>1985</td>
<td>60.2</td>
<td>31.9</td>
<td>7.5</td>
<td>0.3</td>
</tr>
<tr>
<td>1986</td>
<td>62.4</td>
<td>32.5</td>
<td>4.9</td>
<td>0.2</td>
</tr>
<tr>
<td>1987</td>
<td>67.0</td>
<td>28.2</td>
<td>4.7</td>
<td>0.2</td>
</tr>
<tr>
<td>1988</td>
<td>66.5</td>
<td>28.1</td>
<td>4.9</td>
<td>0.5</td>
</tr>
<tr>
<td>1989</td>
<td>64.4</td>
<td>28.4</td>
<td>6.4</td>
<td>0.8</td>
</tr>
<tr>
<td>1990</td>
<td>68.0</td>
<td>28.3</td>
<td>3.1</td>
<td>0.7</td>
</tr>
<tr>
<td>1991</td>
<td>72.1</td>
<td>26.5</td>
<td>0.5</td>
<td>0.9</td>
</tr>
<tr>
<td>1992</td>
<td>74.9</td>
<td>24.5</td>
<td>0.2</td>
<td>0.4</td>
</tr>
<tr>
<td>1993</td>
<td>71.1</td>
<td>27.7</td>
<td>0.8</td>
<td>0.4</td>
</tr>
<tr>
<td>1994</td>
<td>70.6</td>
<td>28.3</td>
<td>0.7</td>
<td>0.4</td>
</tr>
<tr>
<td>1995</td>
<td>70.1</td>
<td>28.8</td>
<td>0.7</td>
<td>0.5</td>
</tr>
<tr>
<td>1996</td>
<td>68.5</td>
<td>30.0</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>1997</td>
<td>68.3</td>
<td>30.3</td>
<td>1.0</td>
<td>0.5</td>
</tr>
<tr>
<td>1998</td>
<td>67.5</td>
<td>31.1</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>1999</td>
<td>65.1</td>
<td>33.0</td>
<td>1.4</td>
<td>0.6</td>
</tr>
<tr>
<td>2000</td>
<td>65.8</td>
<td>33.1</td>
<td>0.7</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Civilian Population Ages 18-23

<table>
<thead>
<tr>
<th>Year</th>
<th>I-IIIA</th>
<th>IIIB</th>
<th>IV</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>51.4</td>
<td>18.28</td>
<td>21.03</td>
<td>9.28</td>
</tr>
</tbody>
</table>


TABLE 2. ACTIVE ENLISTED ACCESSIONS BY AFQT CATEGORY (PERCENTAGE)

THE CHALLENGE

After a decade of struggling to meet recruiting goals, all services with the exception of the Marine Corps failed to meet recruiting goals by over 7,000 accessions in 1998 and 1999. There are a variety of causes for this failure, some of them within the control of military decision makers and some of them not. Nonetheless, the 1998 and 1999 failures were a call to action for military leaders to analyze recruiting practices and to develop a plan to avoid recruiting shortfalls. The strategic goal for military recruiting is clear. As Gen Hugh Shelton, Chairman of the Joint Chiefs of Staff, stated in Joint Vision 2020:

The core of the joint force of 2020 will continue to be an All Volunteer Force composed of individuals of exceptional dedication and ability. Their quality will matter as never before as our Service members confront a diversity of missions
and technological demands that call for adaptability, innovation, precise judgment, forward thinking, and multicultural understanding. The nation must continue to depend on talented individuals of outstanding character, committed to an ethic of selfless service.\textsuperscript{18}

In hindsight, the recruiting shortfalls of the late nineties were in part a consequence of the post-Cold War military drawdown. Successful recruiting, like any other endeavor, requires adequate resources. During the post-Cold War drawdown, national defense outlays as well as recruiting resources declined. Between FY 89 and FY94, the number of Army recruiters was reduced 25 percent and recruiting advertising expenditures were cut by 50 percent.\textsuperscript{19} Recruiters’ challenges are illustrated in Table 3. For example, the Army reports that, on average, recruiters make 120 contacts with specific individuals for every non-prior service soldier accessed into active duty. From those 120 contacts, 17 appointments are scheduled, than 10 appointments actually take place. Following these 10 appointments, 2.3 applicants take the enlistment test (ASVAP); 1.5 applicants pass all the enlistment requirements. Finally, one recruit will actually join the Army.\textsuperscript{20}

<table>
<thead>
<tr>
<th>Recruiting Stage</th>
<th>Army</th>
<th>Navy</th>
<th>Marine Corps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leads/Contacts</td>
<td>120</td>
<td>80</td>
<td>90</td>
</tr>
<tr>
<td>Appointments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>scheduled</td>
<td>17</td>
<td>21</td>
<td>a</td>
</tr>
<tr>
<td>Appointments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>conducted</td>
<td>10</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>ASVAP tests</td>
<td>2.3</td>
<td>2</td>
<td>a</td>
</tr>
<tr>
<td>Qualified applicants</td>
<td>1.5</td>
<td>a</td>
<td>1</td>
</tr>
<tr>
<td>Contracts</td>
<td>1.2</td>
<td>a</td>
<td>1</td>
</tr>
<tr>
<td>Accessions</td>
<td>1</td>
<td>1</td>
<td>a</td>
</tr>
</tbody>
</table>

\textsuperscript{a}. Data not tracked or not made available. Comparable data for the Air Force are not available.

TABLE 3. STAGES IN THE RECRUITING PROCESS FROM LEAD GENERATION (CONTACTS) TO ACCESSIONS (CONTRACTS)\textsuperscript{21}

Additionally, Department of Defense deliberately reduced annual accession requirements below the level needed to sustain the force to avoid involuntarily separating those who wished
Besides the resource cuts, the other trend that caught the attention of senior government officials were the widely publicized reports of a decline in young people's interest in joining the military. In 1994, in an effort to explain the increased difficulty in recruiting, the Office of the Secretary of Defense and the Army asked RAND to carry out a study that could provide an initial quick evaluation of the recruiting situation and a longer-term prediction of recruiting trends, resource changes, and prospects for the future. Rand's National Defense Research Institute then conducted a study on Military Recruiting in early 1994. RAND used a supply-and-demand model to examine recruiting difficulties, as shown in Table 4.

<table>
<thead>
<tr>
<th>Type of Factor</th>
<th>Factor</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply</td>
<td>Youth population</td>
<td>Size, composition</td>
</tr>
<tr>
<td></td>
<td>Recruiting resources</td>
<td>Recruiting, advertising, educational benefits, cash bonuses</td>
</tr>
<tr>
<td></td>
<td>Civilian opportunities</td>
<td>Unemployment rate, pay, job security, educational opportunities</td>
</tr>
<tr>
<td>Demand</td>
<td>Military opportunities</td>
<td>Occupations, terms of service</td>
</tr>
<tr>
<td></td>
<td>Recruiting resources management</td>
<td>Allocation of resources, recruiting quotas (quality, quantity), recruiter incentive programs</td>
</tr>
</tbody>
</table>

**TABLE 4. SUPPLY AND DEMAND FACTORS**

RAND identified factors influencing enlistment as supply factors if they influenced the individual's decision to enlist or the population of those who enlist, and demand factors if they reflect Department of Defense's overall accession requirements or, more generally, if they were subject to the influence of the services, Office of Secretary of Defense, or Congress.
The first question RAND sought to answer was whether the supply of potential recruits was adequate. RAND examined the supply of potential recruits and concluded that the supply of potential enlistees should be adequate to meet recruiting demands.\textsuperscript{27} A more recent study by the National Research Council in 2002 reached the same conclusion after examining demographics of the 18-year-old-population (Figure 1)\textsuperscript{28}. The National Research Council concluded that although the annual number of births has increased in recent years, children are increasingly reared by highly educated parents and by parents who have no direct experience with the armed forces. The net impact of these offsetting trends projects a small increase in expected numbers of enlistees in the next decade, implying that the supply of young persons will be large enough to meet recruitment goals.\textsuperscript{29}

![Figure 1. 18-Year-Old-Population, NRC, 3-22](image)

If the population supply is adequate, and the military still cannot meet recruiting goals, we must ask some hard questions: Why are an increasing percentage of today’s youth choosing not to serve in the military? Professional, academic, and scientific studies conducted over the past several years have explored this question; their answers share some common themes. Among the supply factors influencing enlistment decisions of today’s youth are a widening civil-military gap, until recently a strong domestic economy, high college attendance and a declining propensity to enlist among the 17-25 year old target group. Before discussing the supply factors
influencing military enlistment, we should consider propensity: How is propensity measured? What does propensity mean? What is the relationship between propensity and the behavior of enlisting in the military?

The Department of Defense and military social researchers use three main databases for the study of youth behavior.30

- **Monitoring the Future** is a nationwide study of youth attitudes and behaviors, conducted annually by the Survey Research Center at the University of Michigan. Survey samples range from approximately 14,000 to 19,000.

- **Youth Attitude Tracking Study** (YATS) is a nationwide survey of youth attitudes about various aspects of military service, their propensity to enlist, and the role of those who influence their attitudes and behavior. The Department of Defense has conducted the survey since 1975, the age range of the participants is 16-24 and the sample size is approximately 10,000.

- **The Alfred P. Sloan Study** is a nationwide longitudinal study of students conducted by the National Opinion Research Center, University of Chicago.

**PROPENSITY**

Propensity is an overall measure that summarizes the influence of a variety of factors on youth’s interest in joining the military at a given point in time.31 The primary source of information used by the Department of Defense to assess youth interest in joining the military is the Youth Attitude Tracking Study, which measures the respondents positive or negative propensity to serve in the military.32 The respondents are asked to respond to questions concerning their intent to serve on active duty in the Army, Air Force, Navy, or Marine Corps.

The respondent is asked to reply to these questions in terms of “definitely,” “probably,” “probably not,” or “definitely not.”33 Those who say “definitely” or “probably” are considered to have positive propensity for military service, the other, negative propensity.34 The propensity to enlist among high school males has been declining since the mid-1980s. In this key group for recruiting, the proportion saying “definitely” enlist has declined from 12 to 8 percent. Additionally, youth surveys from 1980 to 1999 show the number who will “definitely not” serve in the military have increased from 40 to 63 percent.35

Propensity to enlist has proven over the years to be a very consistent predictor of recruitment. A study done by Wilson and Lehnus concluded “positively propensed high school seniors are applying to enter the military about 5 times as frequently as those who indicated negative propensity.”36 The strong relationship between propensity and enlistment means that a decline in positive propensity from one year to the next should cause concern, because it
signals a decline in potential enlisted supply. Decreasing propensities to serve were initially counteracted by reduced recruiting objectives during the drawdown in force levels after Desert Shield/Desert Storm. With force levels predicated to remain stable in the near future, the decline in propensity to enlist remains a significant concern. In FY2000, Department of Defense met recruiting goals for the active force, but with much greater expenditures for recruits — about $10,000 per recruit compared with half that figure in the late 1980s.

BEHAVIOR THEORIES

As it is measured in both the YATS and Monitoring the Future, propensity is extremely similar to the construct of intention, which has played a central role in many behavior theories. Intention helps explain why some young adults are, and some are not, inclined to join the military. There are many theories of behavioral prediction, but three have most strongly influenced intention research:

Social Cognitive Theory: According to social cognitive theory, two factors serve as primary determinants underlying the initiation and persistence of any behavior. First, the person must have self-efficacy with respect to the behavior. Second, he or she must have some incentive to perform the behavior. More specifically, the expected positive outcomes of performing the behavior must outweigh the expected negative outcomes. Social cognitive theory has focused on three types of expected outcomes: physical outcomes (e.g., performing the outcome will make me healthy); social outcomes (e.g., performing the behavior will make my parents proud); and self-standards (e.g., performing the behavior will make me proud).

Theory of Reasoned Action: According to the theory of reasoned action, performance or nonperformance of a given behavior is primarily determined by the strength of one’s intention to perform or not perform that behavior. The intention to perform a given behavior is, in turn, viewed as a function of two basic factors: one’s attitude toward performing the behavior and one’s subjective norm concerning the behavior, that is, the perception that one’s important others think that one should or should not perform the behavior in question.

Health Belief Model: According to this model, the likelihood that someone will adopt or continue to engage in a given behavior is primarily a function of two factors. First, the person must feel personally threatened by some perceived outcome, such as poor job prospects in the civilian labor market. Second, the person must believe that, in addition to preventing or alleviating this threat, the benefits of taking a particular action outweigh the perceived barriers to or costs of taking that action.

Behavioral theory can help to increase understanding of the factors influencing propensity and enlistment. Using behavioral theory models Bachman, Freedman-Doan, Segal, and O’Malley (2000) conducted a major study using eight demographic variables: race/ethnicity; number of parents in household; parents’ average education; post/current residence (e.g., farm, city/large metropolitan region); religion; intentions to attend college; high school curriculum; and
high school grades.\textsuperscript{40} The two most important predictors for enlistment were race/ethnicity and college plans. Consistent with other studies, blacks were more likely than other ethnic groups to intend to join, while those with immediate college plans were least likely to indicate a propensity to join the military.\textsuperscript{41}

**PRIMARY DETERMINANTS THAT CAUSE YOUNG ADULTS TO ENLIST**

The National Research Council's study Attitudes, Aptitudes, and Aspirations of American Youth: Implications for Military Recruiting (September 2002) sought to answer identify primary determinates for enlisting by analyzing the three main databases mentioned above and then applying behavior theory. From the Monitoring the Future database, Table 5 depicts the importance respondents placed on various life goals:

<table>
<thead>
<tr>
<th>Rank</th>
<th>How important is each of the following to you in your life?</th>
<th>Males 1976-1980</th>
<th>Males 1994-1998</th>
<th>Males Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Finding purpose and meaning in my life</td>
<td>54.9</td>
<td>51.5</td>
<td>-3.00</td>
</tr>
<tr>
<td>2</td>
<td>Having lots of money</td>
<td>23.3</td>
<td>33.4</td>
<td>10.04</td>
</tr>
<tr>
<td>3</td>
<td>Making a contribution to society</td>
<td>18.0</td>
<td>21.3</td>
<td>3.24</td>
</tr>
<tr>
<td>4</td>
<td>Getting away from this area of the country</td>
<td>11.7</td>
<td>14.4</td>
<td>2.65</td>
</tr>
<tr>
<td>5</td>
<td>Living close to parents and relatives</td>
<td>8.2</td>
<td>13.0</td>
<td>4.84</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rank</th>
<th>How important is each of the following to you in your life?</th>
<th>Females 1976-1980</th>
<th>Females 1994-1998</th>
<th>Females Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Finding purpose and meaning in my life</td>
<td>72.2</td>
<td>64.8</td>
<td>-7.40</td>
</tr>
<tr>
<td>2</td>
<td>Having lots of money</td>
<td>17.6</td>
<td>23.7</td>
<td>6.09</td>
</tr>
<tr>
<td>3</td>
<td>Making a contribution to society</td>
<td>12.7</td>
<td>20.2</td>
<td>7.46</td>
</tr>
<tr>
<td>4</td>
<td>Getting away from this area of the country</td>
<td>11.9</td>
<td>14.0</td>
<td>2.15</td>
</tr>
<tr>
<td>5</td>
<td>Living close to parents and relatives</td>
<td>9.5</td>
<td>16.1</td>
<td>6.62</td>
</tr>
</tbody>
</table>

Source: Monitoring the Future.

Note: Rankings were assigned based on respondent ratings from the class years 1994 to 1996. Significance tests were calculated using t-tests with pooled variance estimates based on percentages and adjusted for design effects, \( p < .05 \).

**TABLE 5. IMPORTANCE PLACED ON VARIOUS LIFE GOALS: COMPARISON OF RANK ORDER**

The researchers admit that because of the limitation of the databases their conclusions are suggestive rather than definitive. YATS respondents were asked to indicate the importance of five randomly selected job attributes from a set of 26, such as “job security,” “getting money for education,” “preparation for future career or job,” “doing something for country,” “personal freedom,” and “a job with good pay.”\textsuperscript{42} Additionally, the respondents were asked to indicate
whether each of these five randomly selected attributes was more likely to be found “in the military,” “a civilian job,” or “equally in both.” What they found was that beliefs were more important determinates of propensity than were values. The more young adults felt that “doing something for my country” was important, the stronger their propensity to join the military. Additionally, the more people felt that a “mental challenge” was important, the lower their propensity and the more they felt that “opportunity for adventure” was important, the higher their propensity to join the military. Surprisingly, the study suggests that there is an apparent lack of relationship between propensity and attributes that have often been promoted by the military—money for education, pay, job security, and working in a high-tech environment.

These findings clearly suggest that in order to increase propensity, the recruiting command should try to increase the importance of attributes such as “doing something for my country” and “having an opportunity for adventure.” In addition, the Department of Defense should try to increase beliefs that individuals are more likely to obtain “patriotic adventure” attributes in the military than in civilian life.

The National Research Council study suggests that consideration of patriotism, adventure, external incentives, opportunities for learning, and working conditions all influence young adults intentions to join the military. These findings strongly suggest that, in order to increase propensity to enlist, it will be useful to increase:

(a) The value young adults place on “doing something for country” and on “opportunities for adventure,”

(b) Their beliefs that they are more likely to be doing something for the country and that they will have a greater opportunity for adventure in the military than in civilian life.

To illustrate this, Figure 2 shows how beliefs and values associated with “doing something for my country” relate to propensity. It indicates the percentage of young adults with positive propensity to join the military as a function of their beliefs that they are most likely to do something for the country in the military or in a civilian job (or equally or both). It also displays the degree to which they think that “doing something for the country” is important.

Consistent with the above analysis, we can infer that both importance and belief are highly related to propensity. The three bars on the left of Figure 2 indicate that those who believe that they are more likely to be doing something for the country in the military are almost 10 times more likely to have a positive propensity to join the military (23.8 percent) than those who believe that they are more likely to do something for the country in a civilian job (2.4 percent). Equally important, those who think that doing something for the country is “extremely” important
are more than three times likely to have a positive propensity (27 percent) than are those who think that “duty to country” is not at all important” (8.4 percent).

Figure 2. DO SOMETHING FOR COUNTRY

Figure 3 depicts the result of the data as it relates to “good pay.” This data shows a different picture than that shown for “doing something for country.” Those who believe that they are likely to get good pay in the military are six times as likely to have a positive propensity (31.4 percent) as those who believe they are most likely to get good pay in a civilian job (5.2 percent). Those who think that “good pay” is “extremely important” are only slightly more likely to have a positive propensity (14.1 percent) than those who think that “good pay” is “not at all” important (10 percent).

Source: Data from the Youth Attitude Tracking Study.
A final data indicator from the YATS study is worth mentioning. According to behavior theory social influencers, parents play a particularly important role in young adults' decisions to join the military. Figure 4 shows that the more young adults believe that they are likely to gain parental approval in the military (rather than in a civilian job), the more likely they are to have a propensity to join. Specifically, 40 percent of those who believe that they are more likely to gain parental approval by being in the military intend to join, while only 5.7 percent of those who believe they will gain more approval in a civilian job have a propensity to join. Incredibly, the value these young adults place on parental approval plays little or no role in influencing their propensity to enlist.

The National Research Council's study Attitudes, Aptitudes, and Aspirations of American Youth suggests that the Army strategy for recruiting over the past decade was designed to pursue those with a strong propensity for service and try to close the deal: Fish were the fish are. Although this strategy has been moderately successful over the last decade, this has come at a significant increase in resources. The study suggests that the fishing hole, or those young adults with a high propensity to enlist, needs to be restocked and enlarged. In other words, the military must develop a strategy to increase the factors influencing propensity and enlistment.
Factors that influence recruiting programs include quality accession standards, military opportunities, allocation of resources, recruiting quotas, incentive programs, and tour lengths.

**ECONOMIC FACTORS**

Economic factors such as military compensation, in-kind benefits, and the military environment all have an important effect on prospective recruits. Economic principles suggest that when the economy is strong, with low unemployment, recruiting becomes more difficult. More recruiting resources are required to achieve a given recruiting goal. Similarly, during economic downturns, recruiting becomes somewhat easier. Fewer resources are required to achieve a given recruiting goal. But predicting behavior based on economics alone does not provide the entire picture. If it did, the simple unconstrained solution would be to increase resource expenditures to solve recruiting ills. As the National Research Council concluded in their 2002 study, recruiting difficulty was in part due to a booming economy and in part due to the failure of recruiting resources to keep pace with recruiting mission. However, neither of these factors can explain a portion of the downturn. The downturn might be due to a change in attitude toward military service or other unmeasured factor. This unexplained portion causes military recruiters the most consternation and uncertainty.
The youth of today face a variety of choices, primarily among: (1) entering the civilian job market, (2) continuing education by entering college, and (3) entering military service. Currently, the greatest challenge facing military recruiting is attracting college-bound youth. The military competes directly for the same youth market that colleges attempt to attract – high school graduates that score in the upper half of the Armed Forces Qualification Test (AFQT). Recruiting efforts prior to 1999 focused on high school seniors, but since then the Army has refocused its main effort on the 565,000 two-and four-year college drop outs. As the military seeks further to target this market, several key policy issues become paramount. As Charles Moskos observes in, “What Ails the All-Volunteer Force,” the biggest disincentive for college youths is the long enlistment. He advocates a 15-month or 18-month enlistment option, with a focus on humanitarian or peacekeeping missions. Moskos conducted his own survey among his 430 students in his introductory sociology class at Northwestern University and concluded that propensity to enlist doubled for the two-year option and tripled for the 15-month option. The Army’s transition into the college market has played an important role in achieving FY2000 volumetric and quality recruitment mission.

CIVIL–MILITARY GAP

Although it is hard to measure conclusively, there is a strong perception that a gap exists between members of the military and the civil society it serves. Demographics among current enlisted and officer forces show a trend towards conservatism not shared by the rest of society. While this revelation may not be surprising, it does support the perception that a gap exists. Fewer and fewer National leaders in Congress, business, the media, and other professions have prior military service. As Senator John McCain, a member of the Armed Services Committee, has pointed out, “Most Americans don’t care that much about national security and defense issues anymore.” As the global war on terrorism continues and the likelihood of war with Iraq grows, American’s concern with security and defense rises. But it is uncertain how long the appetite will continue. Even so, the premise that elected officials will take a greater interest in those issues their constituents believe are important is an absolute. As Matthew Morgan points out in, “Army Recruiting and the Civil-Military Gap,” American society seems to view the peacetime military as irrelevant to the major issues of popular life. So they pay little attention to military affairs and are less familiar and comfortable with the military, which might become a self-perpetuating trend.

Closing the Civil-Military gap would assist our armed forces in meeting recruiting challenges. The more American society understands and accepts the roles and missions of
their Armed Forces, the more likely they would consider military service an acceptable career path. Charles Moskos articulates the problem precisely when he advocates that casualty acceptance is at the root of our recruiting challenges:

He argues that casualty acceptance is not found in the cause itself, but in who is willing to die for that cause. Only when the privileged classes perform military service does the country define the cause as worth young people’s blood. The advent of the all-volunteer force ensured that the children of our national elites would not be found in the military, especially in the enlisted ranks. This social reality, more than any other factor, has lowered our country’s willingness to accept casualties. Citizens accept hardships only when their leadership is viewed as self-sacrificing. If we want ourselves to accept combat casualties, there are only two ways. Bring back a draft that starts conscriptions at the top of the social ladder. Or establish recruiting appeals that will garner some share of privileged youth.57

Moskos advocates that U.S. recruiting goals and the policies in place to support those goals must appeal to the higher echelons of America’s social-economic-educational classes.

Most research to date has focused only on the beliefs concerning the benefits, (or positive attributes) of joining the military.58 There is, however, one very important potential negative consequence of joining the military: one could be injured or killed. We have no data on the implications of this negative belief. If future evidence shows that fear of injury or death is a critical determinant of propensity, then different strategies and messages should address this finding.59

FACTORS LINKED TO RECRUITING SUCCESS

Two categories of factors are linked to recruiting success: The first class involves “doing more,” meaning investing more resources in traditional recruiting activities. The second class involves “doing differently,” meaning engaging in innovative recruiting activities or modifying the ways traditional activities are carried out.60

DOING MORE

Research indicates that recruiting success is responsive to additional expenditures in the number of recruiters, dollars spent on advertising, size of enlistment bonus, dollars spent on funding subsequent education and pay.61 You get what you pay for. But finding the right mix of these expenditures is critical in today’s constrained budgetary environment. We cannot afford to expend scarce resources - - whether labor, money, or organizational energy -- on activities that do not demonstrably contribute to the mission. There is a “can-do” culture in the military
that says if you work harder and smarter, you can accomplish the mission. But the “can-do”
culture can only take an organization so far. When the Army failed to fulfill its recruiting mission
in the late 1990s, it suffered the effects of not providing adequate resources to accomplish the
mission. Current research has indicated that military recruiters are utilizing the resources at
their disposal in an efficient and effective manner. Recruiting is hard work, and it promises to
get even harder in the future. Committing more resources where it makes sense and where it is
efficient and effective will lighten the load on those doing the heavy work and will be necessary
to maintain the all-volunteer force into the 21st century.

DOING DIFFERENTLY

The Army should seriously consider two different recruiting tactics:

EDUCATIONAL ENTICEMENTS

The Army has recently targeted as potential recruits those 17-25 year olds who are in
college or who have started and left college for one reason or another. Targeting this group is a
move in the right direction, but there is also a need to update our policies to make service to
country more attractive to this group. Short-term enlistments and simultaneous enrollment in
college programs should be part of the long-term solution. Tactical commanders will probably
resist implementing simultaneous enrollment programs that take soldiers away from the unit’s
daily missions. Commanders are already over-tasked and under-resourced; they face high
operations and personnel tempo rates. To make a simultaneous enrollment program
successful, higher headquarters must grant relief from other requirements. Commanders must
broaden their perspectives and view their soldiers’ time in the college classroom as value added
time beneficial to the army.

PRIMARY ADVERTISING CAMPAIGN

In the area of advertising, Department of Defense leadership should embark on an
aggressive primary advertising campaign geared at the intrinsic values of service to country. A
primary demand campaign focuses on information that promotes general interest in military
service whereas selective demand focuses on unique or differentiating characteristics of each
service. The targeted audience for this campaign should be the population with a negative
propensity towards military service. It is important to target this population because studies
have shown that approximately 46 percent of those who enlist came from the two negative
intention groups. With the exception of advertising by the Marine Corps, most advertising has
focused on extrinsic incentives, paying little attention to intrinsic incentives. The Army is proud
to claim itself a value-based institution, yet their advertising messages enticing individuals to join
emphasizes extrinsic factors instead. The Department of Defense and our elected officials, with support from individual services, should spearhead this primary advertising campaign. “Ultimately, it is the responsibility of national leadership to determine the military’s mission and to articulate that mission and the value of military service in ways that make it attractive to the public----including mothers, fathers, and prospective recruits.”

Recruiting is a complex and difficult business, at the heart core of the Army’s non-negotiable contract with the American people to fight and win our Nation’s battles. There is no single path to recruiting success, nor do we have unlimited resources to waste hastily in pursuit of these important goals. To meet its recruiting challenges, the Army must pursue both a course of “doing more” and a course of “doing differently.” The path ahead will be difficult and full of obstacles. For the recruiters knocking on the door of American’s sons and daughters seeking their service, the challenge is great. They need all the support and backing the nation can muster.


6 National Research Council (2002), 8-1.


8 Taken from TRADOC Web page www.tradoc.army.mil/, 19 December 2002.

9 Taken from USAAC Web page www.usaac.army.mil/, 17 December 2002.


13 National Research Council (2002), 4-1.

14 National Research Council (2002), 4-1.

15 National Research Council (2002), 4-1.


17 National Research Council (2002), 2-17.


National Research Council, 8-4.

National Research Council (2002), 8-22.


Orvis, 1.

Orvis, 2.

Orvis, 8.

Orvis, 7.

Orvis, 3.


National Research Council (2002), 3-10.

National Research Council (2002), 6-2.

Orvis, 5.

Orvis, 19.

Orvis, 20

Orvis, 20.


National Research Council (2002), 7-1.


National Research Council (2002), 7-2.

41 National Research Council (2002), 7-8.
42 National Research Council (2002), 7-9.
44 National Research Council (2002), 7-10.
45 National Research Council (2002), 7-10.
46 National Research Council (2002), 7-12.
47 National Research Council (2002), 7-12.
48 National Research Council (2002), 7-12.
50 National Research Council (2002), 5-8.
51 National Research Council (2002), 5-30.
52 Department of the Army, “College Continuation & Persistence Rates,” USAREC Program Analysis and Evaluation Directorate slide presentation (Fort Knox, Kentucky: USAREC, undated), 4.
58 National Research Council (2002), 7-14.
60 National Research Council (2002), 9-19.
61 National Research Council (2002), ES-5.
64 National Research Council (2002), 9-17.
ABBREVIATIONS

BIBLIOGRAPHY


Parameters (Summer 2001): 29-47.


