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# RESEARCH MEMORANDUM

## THE MISSING LINK IN DOD RECRUIT ATTAINABILITY PROJECTIONS

Robert F. Lockman  
L. E. Curran, Cdr., USN

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*Naval Planning and Management Division*

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ABSTRACT

↙ A link between youths' attitudes toward military service and their subsequent enlistment behavior was tested. It was used to project DoD enlistments through the year 2000 under conservative assumptions. Enough qualified volunteers should be available to meet the DoD accession requirements programmed for the future.

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## BACKGROUND

A recent CNA study called attention to the improvement in youth attitudes toward the military since the mid-1970s. Relatively large fractions of male youth today express favorable attitudes toward military service, and current recruiting goals require less than half of the young males who say they are "likely to enlist" [1]. Unfortunately, the link between intentions and enlistments has been missing. Research by the RAND Corporation now has linked enlistment intentions on Youth Attitude Tracking Surveys (YATS) to subsequent enlistments [2]. This link should be useful in projecting future enlistments.

To test the robustness of the link, we applied it to two other surveys that have probed the attitudes of young men toward enlistment. The resulting estimates of enlistment rates for these different samples agreed with one another as well as with the actual enlistment rate found by RAND in following up the YATS. We think these results lend confidence in using the RAND link to project future enlistments.

We applied the link to population projections of 17-to-21-year-old males through the year 2000 to estimate voluntary enlistments. Then we adjusted these estimates with applicant disqualification rates. Finally, we compared the adjusted estimates with programmed military requirements for non-prior-service males to see if enough qualified volunteers would be available to man an all-volunteer force for the rest of this century.

## ESTABLISHING A LINK BETWEEN ENLISTMENT INTENTIONS AND ACTUAL ENLISTMENTS

RAND's research linking enlistment intentions to actual enlistment behavior was published in December 1982. Data from the Youth Attitude Tracking Survey (YATS), administered to samples of 16-to-21-year-old males semiannually from spring 1976 to spring 1978, were matched with Military Enlistment Processing Command (MEPCOM) records of enlistments through December 1981. Later, the follow-up period was extended through December 1982 [3]. For our analysis, it ranged from 4 years 9 months to 6 years 9 months.

Across the combined YATS samples of nearly 17,000 respondents:

- 3.3 percent said they definitely intended to enlist. Of these, 34.4 percent did.
- 23.7 percent said they probably would enlist. Of these, 17.5 percent did.
- 73 percent said they definitely or probably would not enlist. Of these, 5.5 percent enlisted anyway.

By December 1982, the total enlistment rate for the combined YATS samples was 9.3 percent.

The YATS enlistment intention categories and their corresponding enlistment percentages for ages 16 to 21 are shown in table 1. Both decline with age.

#### TESTING THE LINK ON OTHER YOUTH ATTITUDE SURVEYS

The RAND Corporation analyzed enlistment intentions of young males in semiannual YATS waves from Spring 1976 to Spring 1978. The CNA study of the future recruiting market cited data on enlistment attitudes from two other surveys: high school seniors (HSS) surveyed annually from 1976 to 1981 [4], and the National Longitudinal Survey (NLS) of the 1979 youth cohort [5]. The enlistment intention questions were almost the same in all three surveys. The items are reproduced in table 2.

Demographically, the three survey samples were similar in racial distribution and mean age, but they differed in age range and education. Sixty-five percent of YATS respondents were 16 to 18 years old, 70 percent of the high school respondents were 18, while the National Longitudinal Sample respondents were evenly distributed from ages 15 to 21. All of the high school respondents were seniors, compared to 41 percent of the YATS respondents and to nearly 50 percent of the National Longitudinal Survey respondents. Because of these variations in age and education, we expected differences in enlistment intentions across the three samples, and indeed that was what we found.

We multiplied the enlistment intention rates of all three samples by the corresponding YATS actual enlistment rates and got the estimated enlistment rates shown in table 3. Despite the differences in enlistment intentions, the total enlistment rates turned out to be about the same for all three samples, 9.3 percent. This finding lends confidence in using the YATS link between intentions and enlistments to estimate the numbers of male enlistees out to the year 2000.

#### USING THE LINK TO PROJECT ENLISTMENTS

In using the link between intentions and enlistments to estimate future enlistments, we chose to err on the side of caution. We dropped 16-year-olds from consideration. They are asked about their enlistment intentions before they are old enough to enlist, and their highly positive responses would inflate the pool of volunteers. Then we examined responses to 12 YATS waves between fall 1976 and fall 1982 to find the least positive enlistment intention for each age, regardless of wave, as a worst case [6]. The data are shown in table 4. (We also selected the year with the most positive intentions, 1982, for the sake of comparison.)

TABLE 1

YOUTH ATTITUDE TRACKING SURVEY:  
INTENTION AND ENLISTMENT RATES BY AGE<sup>a</sup>

Intention	Age 16 (3,759)		Age 17 (3,987)		Age 18 (3,214)	
	Percent	Enl. b Percent enl.	Percent	Enl. b Percent enl.	Percent	Enl. b Percent enl.
Definitely will serve	5.5	37.7 2.1	4.7	38.7 1.8	2.9	33.7 1.0
Probably will serve	35.2	20.2 7.1	28.3	21.5 6.1	20.3	17.0 3.5
Negative <sup>c</sup>	59.2	7.7 4.6	67.1	6.2 4.2	76.8	6.8 5.2
Total	99.9	13.8	100.1	12.1	100.0	9.7

Intention	Age 19 (2,485)		Age 20 (1,921)		Age 21 (1,341)	
	Percent	Enl. b Percent enl.	Percent	Enl. b Percent enl.	Percent	Enl. b Percent enl.
Definitely will serve	1.5	23.7 0.4	1.0	5.3 0.1	1.0	0.0 0.0
Probably will serve	16.7	9.7 1.6	14.9	7.3 1.1	11.0	8.2 0.9
Negative <sup>c</sup>	81.8	4.2 3.4	84.1	3.0 2.5	88.0	2.5 2.2
Total	100.0	5.4	100.0	3.7	100.0	3.1

<sup>a</sup>Combines five semiannual surveys, spring 1976 - spring 1978, tracked through December 1982.

<sup>b</sup>Percentage of intention category eventually enlisting.

<sup>c</sup>Combines "probably will not serve" and "definitely will not serve."

TABLE 2

ENLISTMENT INTENTION ITEMS IN THREE YOUTH SURVEYS

YATS	HSS	NLS
<p>Youth Attitude Tracking Survey, semi-annually Spring 1976 - Spring 1978</p>	<p>High school seniors, annually -- 1976-1981</p>	<p>National Longitudinal Survey youth cohort, 1979 with 1980 follow-up</p>
<p>"How likely is it that you will be serving in the military in the next few years?"</p>	<p>"How likely is it that you will serve in the armed forces after high school?"</p>	<p>"Do you think, in the future, that you will:"</p>
<ul style="list-style-type: none"> <li>• Definitely will serve</li> </ul>	<ul style="list-style-type: none"> <li>• Definitely will</li> </ul>	<ul style="list-style-type: none"> <li>• Definitely try to enlist</li> </ul>
<ul style="list-style-type: none"> <li>• Probably will serve</li> </ul>	<ul style="list-style-type: none"> <li>• Probably will</li> </ul>	<ul style="list-style-type: none"> <li>• Probably try to enlist</li> </ul>
<ul style="list-style-type: none"> <li>• Probably will not serve</li> </ul>	<ul style="list-style-type: none"> <li>• Probably won't</li> </ul>	<ul style="list-style-type: none"> <li>• Probably not try to enlist</li> </ul>
<ul style="list-style-type: none"> <li>• Definitely will not serve</li> </ul>	<ul style="list-style-type: none"> <li>• Definitely won't</li> </ul>	<ul style="list-style-type: none"> <li>• Definitely not try to enlist in the military</li> </ul>

TABLE 3

ESTIMATED ENLISTMENT RATES FROM THREE YOUTH SURVEYS

<u>Intention</u>	<u>Enlistment intention rate</u>			YATS actual enl. rate	<u>Estimated enlistment rate = intention rate x YATS enl. rate</u>		
	<u>YATS</u>	<u>HSS</u>	<u>NLS</u>		<u>YATS</u>	<u>HSS</u>	<u>NLS</u>
Definitely enlist	3.3	7.5	5.1	34.4	1.1	2.6	1.8
Probably enlist	23.7	12.8	19.1	17.5	4.2	2.2	3.3
Negative	73.0	79.7	75.8	5.5	4.0	4.4	4.2
Total	--	--	--	--	9.3	9.2	9.3

TABLE 4

YOUTH ATTITUDE TRACKING SURVEY:  
LOWEST POSITIVE INTENTION AND ENLISTMENT RATES BY AGE

Intention	Age 17		Age 18		Age 19	
	Percent	Enl. <sup>a</sup> Percent enl.	Percent	Enl. <sup>a</sup> Percent enl.	Percent	Enl. <sup>a</sup> Percent enl.
Definitely will serve	2.8	38.7 1.1	1.9	33.7 0.6	0.6	23.7 0.1
Probably will serve	24.2	21.5 5.2	17.2	17.0 2.9	14.1	9.7 1.4
Negative <sup>b</sup>	73.0	6.2 4.5	80.9	6.8 5.5	85.3	4.2 3.6
Total	100.0	10.8	100.0	9.0	100.0	5.1

Intention	Age 20		Age 21	
	Percent	Enl. <sup>a</sup> Percent enl.	Percent	Enl. <sup>a</sup> Percent enl.
Definitely will serve	0.5	5.3 0.0	0.0	0.0 0.0
Probably will serve	10.5	7.3 0.8	8.5	8.2 0.7
Negative	89.0	3.0 2.7	91.5	2.5 2.3
Total	100.0	3.5	100.0	3.0

<sup>a</sup>From table 1: percentage of intention category eventually enlisting.  
<sup>b</sup>100 minus "definitely will serve" and "probably will serve" percentages.

Intention rates from the worst case and best wave are compared with the average rates we used in developing the intention-enlistment link in table 5. The differences between the worst and average cases decline with age, implying that the intentions of the younger respondents are less stable than those of the older ones.

TABLE 5  
YATS ENLISTMENT INTENT RATES  
(Percent)

<u>Age</u>	<u>Worst case</u>	<u>Average</u>	<u>Best year</u>
17	10.8	12.1	13.5
18	9.0	9.7	10.3
19	5.1	5.4	5.8
20	3.5	3.7	3.9
21	3.0	3.1	3.5

Finally, we used the worst case in projecting the pool of potential volunteers for military service from 1975 through 2000. The results are shown in table 6. We multiplied population data [7] for males aged 17 to 21 by the worst case enlistment rates to obtain the number of estimated volunteers. Continuing in our conservative vein, we multiplied the sums of these estimates by .65, the average proportion of applicants who qualified for enlistment from 1976 through 1982.\* Then we compared the estimated number of qualified volunteers with actual DoD enlistments from 1975 through 1983 and programmed requirements thereafter.

The worst-case supply of qualified volunteers is compared with either DoD enlistments or programmed accession requirements in figure 1. For the years with the smallest youth cohorts, 1993 and 1994, qualified volunteers (336,000) exceed programmed accession requirements (294,000) by 14 percent.

Over the seven-year span of YATS data from 1976 to 1982, we found that relative military/civilian pay and, particularly, the 16-to-19-year-old male unemployment rate correlated highly with the percentage of

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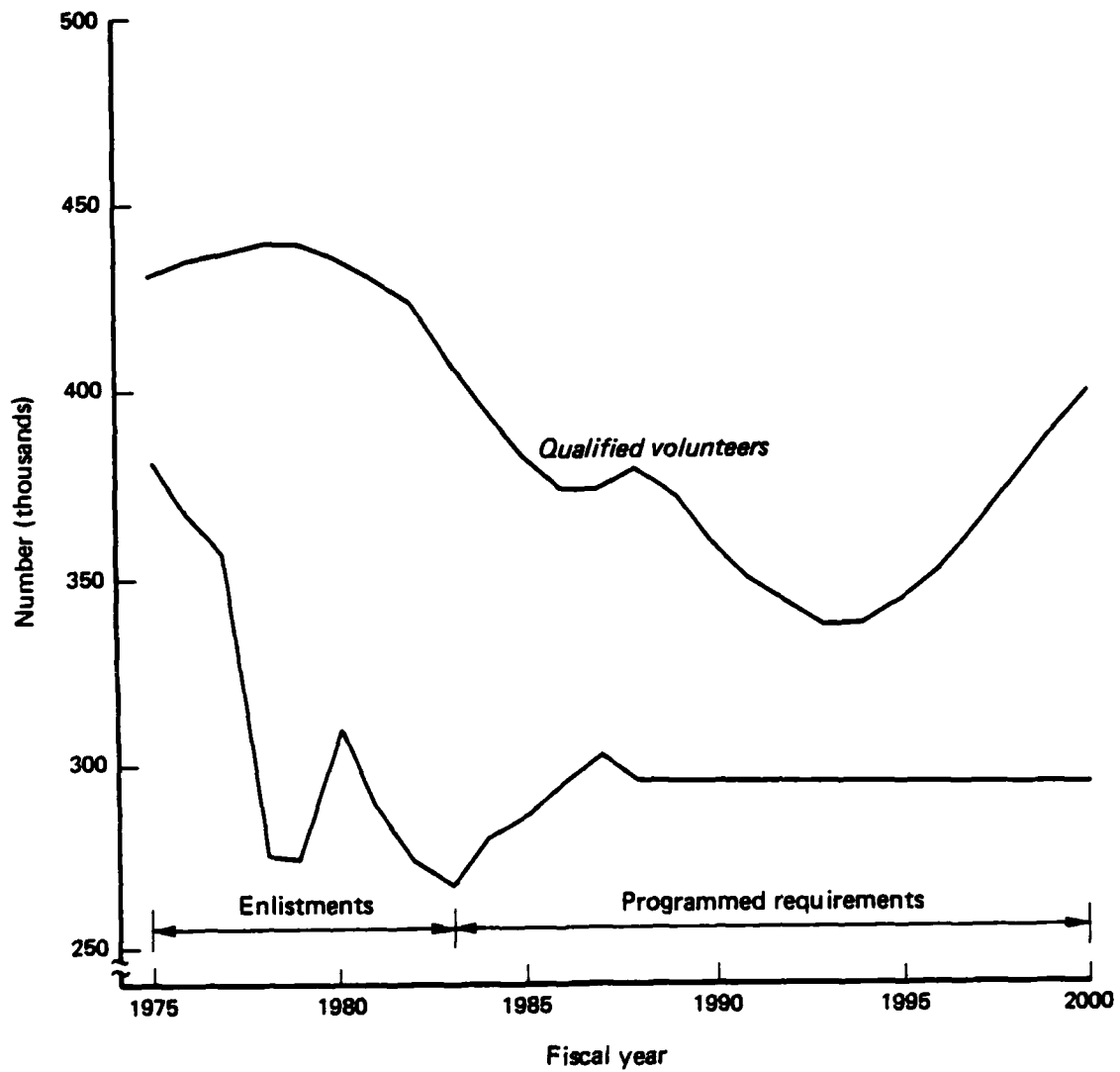
\* This percentage was calculated from data provided by the Defense Manpower Data Center, Monterey, CA.

TABLE 6

MALE YOUTH POPULATION, (VOLUNTEERS), AND ENLISTMENT REQUIREMENTS, FY 1975-2000 (Thousands):  
 WORST CASE ENLISTMENT INTENTIONS AND QUALIFICATION

Fiscal Year	Age					Total volunteers		Enl. require <sup>b</sup>
	17	18	19	20	21	Avail.	Qual. <sup>a</sup>	
1975	2147 (232)	2146 (193)	2085 (106)	2106 (74)	2006 (60)	(665)	432	382
1976	2141 (231)	2150 (194)	2163 (110)	2131 (75)	2046 (61)	(671)	436	367
1977	2136 (231)	2143 (193)	2166 (110)	2210 (77)	2070 (62)	(673)	437	356
1978	2169 (234)	2138 (192)	2159 (110)	2214 (77)	2146 (64)	(677)	440	274
1979	2128 (230)	2171 (195)	2154 (110)	2206 (77)	2150 (65)	(677)	440	274
1980	2196 (226)	2130 (192)	2188 (112)	2201 (77)	2143 (64)	(671)	436	310
1981	2068 (223)	2098 (189)	2146 (109)	2236 (78)	2136 (64)	(663)	431	286
1982	1977 (214)	2077 (187)	2113 (105)	2193 (77)	2171 (65)	(651)	423	271
1983	1873 (202)	1979 (178)	2086 (106)	2161 (76)	2130 (64)	(626)	407	269
1984	1820 (197)	1874 (169)	1994 (102)	2132 (75)	2098 (63)	(606)	394	280
1985	1781 (192)	1822 (164)	1889 (96)	2039 (71)	2071 (62)	(585)	380	286
1986	1803 (195)	1783 (160)	1836 (94)	1932 (68)	1980 (59)	(576)	374	294
1987	1848 (200)	1805 (162)	1797 (92)	1878 (66)	1876 (56)	(576)	374	301
1988	1894 (205)	1850 (167)	1819 (93)	1838 (64)	1824 (55)	(584)	380	294
1989	1735 (187)	1895 (171)	1864 (95)	1860 (65)	1785 (54)	(572)	372	294
1990	1641 (177)	1736 (156)	1910 (97)	1906 (67)	1807 (54)	(551)	358	294
1991	1607 (174)	1643 (148)	1750 (89)	1953 (68)	1851 (56)	(535)	348	294
1992	1646 (178)	1609 (145)	1656 (84)	1790 (63)	1896 (57)	(527)	343	294
1993	1624 (175)	1648 (148)	1622 (83)	1694 (59)	1738 (52)	(517)	336	294
1994	1655 (179)	1626 (146)	1661 (85)	1660 (58)	1646 (49)	(517)	336	294
1995	1705 (184)	1657 (149)	1639 (84)	1700 (60)	1612 (48)	(525)	341	294
1996	1772 (191)	1707 (154)	1671 (85)	1676 (59)	1651 (50)	(539)	350	294
1997	1854 (200)	1774 (160)	1721 (88)	1709 (60)	1628 (49)	(557)	362	294
1998	1933 (209)	1856 (167)	1789 (91)	1760 (62)	1660 (50)	(579)	376	294
1999	1986 (214)	1934 (174)	1871 (95)	1829 (64)	1709 (51)	(598)	389	294
2000	2019 (218)	1987 (179)	1950 (99)	1913 (67)	1776 (53)	(616)	400	294

<sup>a</sup>The proportion of available volunteers who are qualified (.65) was derived from historical relationships. See text.  
<sup>b</sup>1975 to 1982 are actual; 1984-1989 are from DoD budget submission; 1990-2000 are estimated constant.



**FIG. 1: WORST-CASE SUPPLY OF QUALIFIED MALE YOUTH VOLUNTEERS vs. DoD ENLISTMENTS AND REQUIREMENTS, 1975-2000**

positive enlistment intentions of YATS fall waves (see table 7). These measures are more objective than survey responses, but we were not able to link them directly to enlistments here.

#### CONCLUDING COMMENTS

Our estimates of the qualified applicant pool for DoD enlisted accessions rest on several assumptions: the stability of the enlistment intention-behavior link, the validity of the worst enlistment intention case, and currently programmed accession requirements for the AVF.

CNA work cited earlier also showed that shrinking youth cohorts will cause real wages to rise 9 to 11 percentage points by 1994. Since youth wages correlate with enlistment intentions, appropriate military pay increases also are assumed in our projections.

Still, our conservative estimates suggest that a sufficient pool of willing and qualified 17-to-21-year-old males will be available for military service in an all-volunteer force throughout this century.

TABLE 7  
 PAY, UNEMPLOYMENT, AND YATS DATA, 1976 TO 1982

<u>Year</u>	<u>Pay<sup>a</sup> mil/civ.</u>	<u>Unemployment rate:<sup>b</sup> 16-19 yr- old males</u>	<u>YATS:<sup>c</sup> percent positive enlistment intentions</u>
1976	1.13	19.2	21.1
1977	1.12	17.3	22.3
1978	1.04	15.8	20.7
1979	1.02	15.9	20.5
1980	1.05	18.3	24.6
1981	1.13	20.1	25.9
1982	1.18	24.4	28.2

Note: Pay correlates .85 with unemployment and .66 with YATS; unemployment correlates .88 with YATS.

<sup>a</sup>From CNA Study 1168, September 1982, p. A-7. Military pay is Regular Military Compensation (RMC) for unmarried E-1 with less than 2 years of service; Civilian pay is median year-round, full time employment for 14-to-19-year-old males (average age 18).

<sup>b</sup>Calculated from the "Economic Report of the President," February 1984, Table B-30, p. 256.

<sup>c</sup>YATS fall waves.

#### REFERENCES

- [1] CNA, Memorandum 82-1137, "The Market for Military Recruits," by Aline O. Quester and Robert F. Lockman, 24 Sep 1982
- [2] The RAND Corporation, RAND Note N-1954-MRAL, "Forecasting Enlistment Actions From Intention Information: Validity and Improvement," by Bruce R. Orvis, Dec 1982
- [3] Personal communication with Dr. Bruce R. Orvis, The RAND Corporation, 2 May 1983
- [4] Survey Research Center, Institute for Social Research, The University of Michigan, "Monitoring the Future: Questionnaire Responses from the Nation's High School Seniors," 1975 -1981 editions
- [5] National Opinion Research Corporation, University of Chicago, and Center for Human Resource Research, Ohio State University, "National Longitudinal Survey of Labor Force Behavior, Youth Survey, 1980," NORC-4300, January 1980
- [6] Personal communication with Dr. Bruce R. Orvis, The RAND Corporation, 20 Feb 1984
- [7] Bureau of the Census, U.S. Department of Commerce, "Current Population Estimates and Projections," Series P-25, numbers 704 (Projections of the Population of the United States: 1977 to 2050, issued July 1977) and 721 (Estimates of the Population of the United States by Age, Sex, and Race: 1970 - 1977), issued April 1978)

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