Emerging Issues in USMC Recruiting: Comparing the Socioeconomic Characteristics of Military Prospects and Non-Prospects

Cathleen M. McHugh • Anita U. Hattiangadi



4825 Mark Center Drive • Alexandria, Virginia 22311-1850

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Henry S. Siffis

Henry S. Griffis, Director Workforce, Education and Training Team Resource Analysis Division

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Since the beginning of the All-Volunteer Force, there have been concerns that the military might be particularly attractive to disadvantaged¹ groups who face poorer civilian opportunities than others (e.g., see Quester and Gilroy²). This concern that the military is disproportionately made up of disadvantaged groups becomes most acute during times of conflict when there are a significant number of casualties. In fact, this concern has led some to call for a return to a draft.³

There also are media reports that suggest that the military "lures" new recruits—the assumption being that those interested in joining the military are perhaps more disadvantaged (and, therefore, more susceptible) than others.

¹We do not formally define "disadvantaged" but use it in the sense that one group is behind another in some positive characteristic. For instance, we would say group A is disadvantaged compared with group B in terms of parental education if group A has lower parental education levels than group B.

² A. O. Quester and C. L. Gilroy. *America's Military: A Coat of Many Colors*, 2001 (CNA Research Memorandum D0004368.A1).

³ In February 2006, Representative Charles Rangel introduced a bill in Congress to reinstate the draft saying, "Right now, the only people being asked to sacrifice in any way are those men and women who with limited options chose military service.... A draft would ensure that every economic group would have to do their share."



Is the military disproportionately made up of disadvantaged groups? Examining this question entails comparing those who are in the military (or want to join it) with some representative group.

One approach is to compare military data on actual enlistees with a nationally representative sample of youth. An example is the annual Department of Defense (DoD) publication, *Population Representation in the Military Services*. One disadvantage is that the data on enlistees' backgrounds are fairly limited. For example, they do not provide information on the characteristics of an enlistee's parents. Furthermore, it is difficult to construct an appropriate comparison group. It is not correct to compare enlistees with a nationally representative sample of youth because enlistees are not a random sample of this population; they are more likely than the general population to be male and have a high school diploma and less likely to be dropouts or college graduates.

An approach—used by Kane (2005)⁴—that enriches the data available on enlistees' background is to obtain local area characteristics of enlistees from Census data and compare these characteristics with those of a national sample. Although this method provides extensive data on all enlistees, it still suffers from difficulties in constructing an appropriate comparison group.

The approach that we follow in this work is to use a national longitudinal dataset and identify both prospects (those who plan to enlist in the military) and non-prospects within that sample. This approach provides detailed data on military prospects and allows the construction of an appropriate comparison group. Its disadvantage, however, is that it provides information on only a sample of military prospects, not all actual enlistees. We supplement our work with another national sample that allows us to compare prospects who enlist with prospects who do not enlist and to compare the outcomes of those who enlist with the outcomes of those who do not enlist.

⁴ T. Kane. *Who Bears the Burden? Demographic Characteristics of U.S. Military Recruits Before and After 9/11.* Washington, DC: The Heritage Foundation (Center for Data Analysis Report #05-08), 2005.



We use the Education Longitudinal Study of 2002 (ELS:02) to examine whether military prospects are disadvantaged compared with non-prospects. It is a national sample of high school sophomores in 2002 who were interviewed again in 2004. The dataset includes information on demographics (of both the individual and the school), aptitude, school participation, and preferences for future post-secondary education (PSE). This dataset allows us to compare male high school seniors in 2004 who planned to enlist with a similar group of men who instead planned to work full time. If prospects are disadvantaged compared with non-prospects, we would expect this to show up as differences in these aspects of their backgrounds.



We identify prospects and non-prospects in the ELS:02 dataset using self-reported intended enlistment behavior. We define prospects as those high school seniors (in 2004) who said that they were not attending school after graduation because they were planning to join the military. We define non-prospects as high school seniors (in 2004) who said that they were not attending school after graduation and were planning to work full time.

We excluded both high school dropouts and females from our sample. High school dropouts are less likely than high school graduates to join the military because there are caps on the number of dropouts who can enlist in each Service. Females simply are less likely than males to join the military. Including these groups would skew our results.



How representative is our sample of the overall population of military prospects? For our analysis of prospects, we examine high school seniors who said they planned to enlist. Therefore, our sample will not be representative of *all* military prospects—for example, some high school dropouts do enlist. But tabulations from FY00 through FY02 indicate that between 81 and 84 percent of accessions (DoDwide) were high school diploma graduates.⁵ That said, we use a dataset that is designed to be nationally representative of high school seniors. As such, it should be representative of youth who:

- Were high school sophomores in 2002.
- Were high school seniors in the spring of 2004.
- Were male.
- Did not intend to go to PSE right after high school.
- Were not high school dropouts.
- As seniors, said that:
 - They planned to enlist (prospects).
 - They planned to work full time (non-prospects).

⁵ Tabulations by the Defense Manpower Data Center, January 2003.



We compared the background characteristics of prospects and non-prospects. These characteristics can be grouped into three broad categories: home background, high school experiences, and attitudes about PSE. We focus on characteristics that have not been examined in previous work.

If military prospects are disadvantaged compared with non-prospects, we would expect them to have lower parental education levels, be more likely to come from single-parent families, and attend lower quality schools.

We also examined how military prospects compare with non-prospects in terms of attitudes and personality. For instance, we wanted to determine if military prospects are more likely than non-prospects to participate in and be leaders of high school athletics because those characteristics have been found to increase a student's wages later in life (Barron et al., Kuhn and Weinberger).^{6,7} If those who plan to join the military are doing so because they face poorer civilian opportunities, we would expect to see that military prospects are less likely to participate in and be leaders of high school athletics.

We also document whether finances played a role in prospects' decisions not to immediately attend PSE after high school graduation and how military prospects compare with non-prospects in terms of their future PSE plans.

⁶ J. M. Barron et al. "The Effects of High School Athletic Participation on Education and Labor Market Outcomes." *The Review of Economics and Statistics*, 82 (3), 2000.

⁷ P. Kuhn and C. Weinberger. "Leadership Skills and Wages." *Journal of Labor Economics*, 23 (3), 2005.



We first examined parental education levels across the two groups. If military prospects are disadvantaged compared with non-prospects, we would expect them to have lower parental education levels. In fact, we find the converse is true: military prospects are slightly less likely to have parents who are dropouts or hold only a high school degree. They are slightly more likely than non-prospects to have parents with some college, a B.A., or more.

To examine the statistical significance of these differences, we first used a chisquare test to determine whether the distributions of parental education levels were similar across the two groups. Second, we used a t-test to examine whether the percentage of parents with a B.A. or more was the same across the two groups. All of our statistical analyses account for the ELS's weighting scheme. We found that neither the distribution of educational levels nor the percentage of parents with a B.A. or more was statistically different across the two groups.⁸

We also examined this variable for white, black, and Hispanic subgroups. White prospects were more likely than white non-prospects to have parents with a B.A. or more (27 versus 19 percent, respectively) and this result was statistically significant with a p-value equal to 0.10. For the black and Hispanic subgroups, none of the differences in parental education were statistically significant.⁹

⁸ The p-values for distribution of educational levels and percentage of parents with a B.A. or more are 0.43 and 0.15. We say results are statistically significant if p-values are $\leq .10$. A p-value of 0.08 means that there is only an 8-percent likelihood that the differences occurred by chance.

⁹ For the distribution of educational levels, the p-value was 0.72 for the black subgroup and 0.55 for the Hispanic subgroup. For the percentage of parents with a B.A. or more, the p-value was 0.60 for the black subgroup and 0.22 for the Hispanic subgroup.



Next, we examined family composition. If military prospects are disadvantaged compared with non-prospects, we would expect them to be more likely to come from single-parent families. Again, we find no evidence of this: military prospects are slightly less likely to come from families with both the mother and father present, but this difference is not statistically significant. Furthermore, there is no statistically significant difference in the distribution of family composition across the two groups.¹⁰

When we examined white, black and Hispanic subgroups, we again found no statistically significant differences between military prospects and non-prospects.¹¹

¹⁰ The p-value for the percentage of families with the mother and father present is 0.31. The p-value for the distribution of family composition is 0.39.

¹¹ For the white subgroup, the p-value for the percentage of families with the mother and father present is 0.73; the p-value for the distribution of family composition is 0.43. For the black sub-group, the p-value for the percentage of families with the mother and father present is 0.80; the p-value for the distribution of family composition is 0.93. For the Hispanic subgroup, the p-value for the percentage of families with the mother and father present is 0.54; the p-value for the distribution of family composition is 0.93.



Our first "school experience" variables are math and reading standardized test scores.¹² We find that military prospects score higher than non-prospects in both reading and math, and these differences are statistically significant.¹³

We find that white prospects score 3 points higher on the reading test and 2.5 points higher on the math test compared with white non-prospects. These differences are statistically significant.¹⁴ We find no statistically significant difference between either the reading or math test scores for the Hispanic subgroup, and we find no statistically significant difference between the reading test scores for the black subgroup.¹⁵ We find that black prospects score 4 points higher on math than non-prospects, and this difference is statistically significant.¹⁶

¹² Completing the Education Longitudinal Study (ELS) questionnaire involved taking a series of cognitive tests, including reading and math. The test scores were scaled to have a mean of 50 and a standard deviation of 10.

¹³ The p-value for reading is 0.03; the p-value for math is 0.08.

¹⁴ The p-value for reading is 0.004; the p-value for math is 0.01.

¹⁵ For the Hispanic subgroup, the p-value for reading is 0.19; the p-value for math is 0.89. For the black subgroup, the p-value for reading is 0.95.

¹⁶ The p-value for this difference is 0.01.



Another school characteristic of interest is the degree of urbanization. If military prospects are disadvantaged compared with non-prospects, we would expect them to be more likely to come from rural or urban areas versus suburban areas. In fact, we find no statistical difference in the degree of urbanization between military prospects and non-prospects.¹⁷ This is true for the white, black, and Hispanic subgroups as well.¹⁸

¹⁷The p-value for the distribution of the degree of urbanization is 0.24.

¹⁸ For the white subgroup, the p-value for the distribution of the degree of urbanization is 0.47. This p-value is 0.99 for the black subgroup and 0.34 for the Hispanic subgroup.



We proxy disadvantaged schools by the percentage of students receiving free or reduced-price lunch. This percentage is tied to family income and is an indication of the type of population the school serves. Schools that have more than 50 percent of their student body receiving free or reduced-price lunch also are more likely to be Title I schools that serve primarily disadvantaged students.¹⁹

We present these results by race/ethnicity. The vast majority of white students attended schools where less than 50 percent of the student body received free or reduced-price lunch. This varied slightly between white prospects and white non-prospects and the difference was statistically significant.²⁰ There were no statistically significant differences for Hispanics.²¹ The differences in the percentage of students receiving free or reduced-price lunch between black prospects and black non-prospects are large. Black prospects are more likely to attend schools with smaller proportions of the student body receiving free or reduced-price lunch compared with black non-prospects. This difference is statistically significant and suggests that black non-prospects, rather than black prospects, are the disadvantaged group.²²

¹⁹ Fifty-six percent of schools that have more than 50 percent of the student body receiving free or reduced-price lunch are Title I schools. In contrast, only about 20 percent of schools that have less than 50 percent of the student body receiving free or reduced-price lunch are Title I schools.

²⁰ The difference has a p-value of 0.04. The difference between white prospects and white non-prospects who attend schools where less than 30 percent of the student body receive free or reduced-price lunch is not statistically significant. The p-value for this difference is 0.13.

²¹ The p-values for the differences are 0.54 (less than 50 percent) and 0.12 (less than 30 percent).

 $^{^{22}}$ The p-value for the difference between black prospects and black non-prospects who attend schools where less than 30 percent (less than 50 percent) of the student body receive free or reduced-price lunch is 0.04 (0.08).



We also examined the percentage of teachers who had state or advanced professional certificates. If military prospects were disadvantaged compared with non-prospects, we would expect them to be more likely to attend schools with a lower proportion of certified teachers.

We found that white prospects were more likely than white non-prospects to come from schools with a higher percentage of certified teachers, and this difference was statistically significant.²³ Thus, on this criterion, white prospects appear more advantaged than white non-prospects. The differences for black prospects versus black non-prospects and for Hispanic prospects versus Hispanic non-prospects were not statistically significant.²⁴

²³ This difference had a p-value of 0.02.

²⁴ For the black subgroup, this difference had a p-value of 0.31. For the Hispanic subgroup, this difference had a p-value of 0.69.



Next, we examined differences in participation in high school interscholastic sports by race/ethnicity. As mentioned earlier, participants in high school athletics have been found to have higher wages than non-participants. If young people were joining the military because they faced lower civilian wages than those who did not join, we would expect prospects to be less likely than non-prospects to participate in athletics. In fact, we find the opposite. Military prospects are more likely to participate in sports than non-prospects of all races/ethnicities, and these differences are statistically significant for both white and black students.²⁵ Again, military prospects appear advantaged relative to non-prospects in terms of their sports participation.

Conditional on participating in sports, black prospects also are more likely than black non-prospects to be leaders in sports. The probabilities of being a sports captain are 51 percent for a black prospect who participates in sports and 2 percent for a black non-prospect sports participant. This difference is not statistically significant for white or Hispanic sports participants.²⁶ This result should be viewed only as suggestive because sample sizes for the sports leadership variable are very small.²⁷

²⁵ The p-values for this difference are equal to 0.005, 0.03, and 0.43, respectively, for the white, black, and Hispanic subgroups.

²⁶ The p-values for this difference are equal to 0.65, 0.005, and 0.76, respectively, for the white, black, and Hispanic subgroups.

²⁷ For the black subgroup, there were only 7 sports captains in the dataset (6 were military prospects). The white subgroup had 40 sports captains (19 were military prospects); the Hispanic subgroup had 11 sports captains (6 were military prospects).



We also were interested in determining if there were differences in military prospects' and non-prospects' reasons for not pursuing post-secondary education immediately after high school. The ELS asked whether a survey participant was going to attend PSE right after high school. If the participant answered no, it asked him to identify, with a yes or no, whether a series of reasons for not attending school applied. Two of the reasons related to finances:

- You can't afford to go on to school.
- You need to help support your family.

If either of these statements applied to the respondent, we classified him as not attending PSE due to finances. If military prospects are disadvantaged compared with non-prospects, we would expect them to be more likely to cite finances as a reason for not attending PSE immediately after high school. In fact, we find that military prospects of all races were much less likely to indicate that they were not attending PSE due to finances. The differences for white prospects versus white non-prospects and Hispanic prospects versus Hispanic non-prospects were statistically significant.²⁸ There was not a statistically significant difference for black prospects versus black non-prospects.²⁹

²⁸ For the white subgroup, this difference had a p-value of 0.001. For the Hispanic subgroup, this difference had a p-value of 0.001.

²⁹ For the black subgroup, this difference had a p-value of 0.49.



Finally, we examined whether there were differences in military prospects' and nonprospects' plans for future education. Rather than using this as a measure of relative disadvantage, we use it with our analysis on outcomes for actual enlistees (vice prospects) after they are out of the military. We find that military prospects are more likely than non-prospects to plan to attain more education in the future. This distribution of preferences is statistically significant between the two groups.³⁰ Differences were not statistically significant for the black and Hispanic subgroups.³¹

³⁰ The p-value for the difference in this distribution is 0.004.

³¹ The p-value for the difference in this distributions is 0.007 for the white subgroup, 0.41 for the black subgroup, and 0.68 for the Hispanic subgroup.



To summarize our findings from the ELS:02 dataset, we find that there are no statistically significant differences between prospects and non-prospects in:

- Parental education levels (for blacks and Hispanics), family composition (for all groups), or degree of urbanization (for all groups)
- Reading (for blacks and Hispanics) and math test scores (for Hispanics)
- Degree of school disadvantage (for Hispanics), share of certified teachers (for blacks and Hispanics), or participation in athletics (for Hispanics)
- Finances for attending PSE (for blacks).

We find that prospects are statistically *less* likely than non-prospects to be disadvantaged in:

- Parental education levels (for whites)
- Reading (for whites) and math test scores (for whites and blacks)
- Degree of school disadvantage (for whites and blacks), share of certified teachers (for whites), or participation in athletics (for whites and blacks)
- Finances for attending PSE (for whites and Hispanics).

Finally, we find that prospects are more likely than non-prospects to have future education plans.



We also are interested in how prospects who enlist compare with prospects who do not enlist and whether the outcomes of enlistees differ from those of non-enlistees. To address these questions, we used a second dataset, the National Education Longitudinal Study of 1988 (NELS:88). It is a national sample of 8th graders in 1988 with follow-up surveys in 1990, 1992, 1994, and 2000. The outcomes we examine are educational attainment and wages 8 years after high school graduation.



We constructed a sample of military prospects using the NELS:88 dataset to determine how many prospects (those who said in their senior year that they would enlist) had actually served on active duty within about a year and a half after graduation. We found that 64 percent of military prospects had actually served on active duty. One reason for this discrepancy may be that we could not differentiate between active duty and Reserve/National Guard duty in constructing the sample of military prospects in the ELS:02.³² As a result, we did not make this distinction in the NELS:88 sample so that it would be as close as possible to the ELS:02 sample.

We split those who had not served on active duty into two categories: those who attended some PSE during this period and those who had worked full or part time without attending PSE during this period. Prospects who had not served on active duty were more likely to attend PSE rather than work full or part-time.

We also used this sample to compare the characteristics of prospects who enlist with those of prospects who do not enlist. We concentrate on the following characteristics: parental education levels, presence of both parents in the household, standardized test scores, degree of school urbanization, participation in sports, and main reason for joining the military.³⁴ We find no statistically significant differences between prospects who enlist and prospects who do not enlist. This suggests that our findings for military prospects may hold for actual military recruits.

³² This distinction cannot be made because students were asked only if the planned to join "the military." ³⁴ We examined these characteristics because they were similar to characteristics examined in our ELS:02 analysis and they were similarly defined in ELS:02 and NELS:88. One of the responses for "main reason for joining the military" was "money for education." Thus, this variable is somewhat comparable to the ELS:02 variable measuring whether finances played a role in the decision not to attend PSE.



Next, we examined outcomes for actual enlistees after they were out of the military. We were particularly interested in whether they were more likely than a nonenlistee comparison group to attend PSE. Recall that we found from the ELS:02 that military prospects were more likely than non-prospects to plan on continuing their education.

We used the NELS dataset for this analysis because it has information on actual enlistees 8 years after they graduated from high school, not just those who planned to enlist. Furthermore, we were able to constrain our sample to those who enlisted in the active-duty forces.

We constructed a sample of male graduates who enlisted and compared it with male graduates who were in the labor force and not attending PSE after high school (the non-enlistee comparison group). We excluded those who attended PSE within a year after graduation and excluded those out of the labor force for the entire year and a half after graduation. Our wage analysis further restricts the sample to only those who were working full time.



Those who served on active duty were more likely to attend PSE than those who did not serve but were in the labor force after high school (the non-enlistee comparison group). This difference is statistically significant with a p-value of 0.002. Furthermore, this difference persists even after controlling for a variety of demographic variables. We project the probability of ever attending PSE using a logistic regression controlling for race, math test scores, socioeconomic status as a high school sophomore, and locus of control as a sophomore³⁵ and obtain results strikingly similar to the simple means presented above. Using our logistic regressions, we find that the probability of attending PSE is 63 percent for enlistees and 49 percent for those in the non-enlistee comparison group. This difference has a p-value of 0.004. This result should be interpreted as follows: given two men in our sample of the same race, with the same math test score, socioeconomic status, and locus of control, if one of them enlisted and one did not, the man who enlisted would be more likely to attend PSE than the man who had joined the labor market and not enlisted.

Enlistees also are more likely than those in the non-enlistee comparison group to be *currently* enrolled in PSE, and this difference is statistically significant.³⁶

³⁵ Locus of control is a measure of how much people believe that their outcomes are a result of their own actions versus a result of factors outside their control (such as luck). Someone with a low locus of control would believe that forces outside his or her control were responsible for outcomes, whereas someone with a high locus of control would feel responsible for his or her own outcomes. There is some evidence that youth with a high locus of control are more likely to invest in PSE (see M. Coleman and T. DeLeire, "An Economic Model of Locus of Control and the Human Capital Investment Decision," *The Journal of Human Resources*, 38 (3), 2003).

³⁶ The p-value for the difference is 0.08.

Enlistees with some PSE earn more than the non-enlistee comparison group with some PSE in simple wage analysis		
	Enlisteesc	omparison group
Annual wage for those working full-time	\$29,770	\$28,717
Annual wage for those working full-time		
with some PSE	\$30,991	\$27,971
analysis, which would take into account for the sample is constrained to those wo	nt the level of prking full time	PSE attained.
For those with some PSE, the differen	ce is significa	ant at the 10% level

Another outcome of interest is the wage of those who enlisted versus those from the non-enlistee comparison group. Small sample sizes constrained our analysis to a simple comparison of means. We were able to compare the average wage of enlistees versus those in the non-enlistee comparison group, conditional on working full time, and did not find a statistically significant difference.

When we constrained the sample to those with some past PSE, we found that enlistees had significantly higher wages than those in the non-enlistee comparison group. This effect was statistically significant at the 10-percent level.



In conclusion, we find no compelling evidence that 2004 male high school seniors who planned to enlist (prospects) were disadvantaged compared with those who planned to work full time (non-prospects).

We do find evidence that those who actually enlist in the military are more likely than those who do not enlist but join the labor market (the non-enlistee comparison group) to attend PSE.

Finally, we find that enlistees with PSE earn about \$3,000 more per year than those in the non-enlistee comparison group with PSE.

Taken together, these results suggest that military prospects are not disproportionately disadvantaged. Rather, they are similar to non-prospects in many ways. Furthermore, enlistees are more likely than those in the non-enlistee comparison group to pursue PSE after they have left military service, and they are more likely to earn higher wages (conditional on having PSE).

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