Officer Retention Rates Across the Services by Gender and Race/Ethnicity

Abstract

The MLDC has been tasked with assessing the Services' ability to *increase* continuation rates for minorities and women. As a first step toward this goal, this issue paper examines continuation rates (measured by cumulative continuation rates) for officers in the Army, the Navy, the Marine Corps, and the Air Force by gender and race/ethnicity. Although the language in the MLDC charter suggests that continuation rates among minority race and ethnicity groups are lower than among whites, this does not appear to be the case, especially among blacks and Hispanics. However, the evidence presented here does suggest that, on average, continuation rates are lower among women than among men.

The MLDC charter has one specific task that is directly relevant to retention: "Measure the ability of current activities to increase continuation rates for ethnic- and gender-specific members of the Armed Forces."

Implicit in this task is the assumption that continuation rates vary by race and ethnicity and by gender such that minorities and women have lower continuation rates than white men. The purpose of this issue paper (IP) is to use comparable data across all four Department of Defense (DoD) Services—the Army, the Navy, the Marine Corps, and the Air Force—to estimate continuation behavior among minority and female officers who served in the armed forces between 2000 and 2008 and to compare their rates with those of whites and men. This IP should be seen as a supplement to the briefings provided by Service representatives at the January 2010 meeting of the MLDC in San Antonio, Texas.[1]

We need to understand what raw continuation rates can and cannot tell us about racial/ethnic and gender differences in officer continuation behavior.[2] In a separate IP (Military Leadership Diversity Commission, 2010), we reviewed the methodological limitations of using raw rates to inform policy decisions. First, we noted that even though differences across groups may be statistically significant, they may not be meaningful from a policy perspective. Second, race/ethnicity and gender groups may vary on other important characteristics that raw rates are not able to address.

Nonetheless, the raw continuation rates reported in the previous IP show us three important things. First, these raw rates allow us to see whether there are average, aggregate differences between men and women and between minorities and whites and whether those differences are large or small. Second, these raw rates can be used to indicate demographic differences that merit additional attention, especially with respect to what the underlying cause or causes of those differences may be. Third, these rates can show us the most-recent trends in continuation.

Data

Data for this IP come from a personnel file, called the Proxy Personnel Tempo (PERSTEMPO) File, provided by the Defense Manpower Data Center (DMDC). The file is built using extracts from the active-duty personnel and pay files maintained by DMDC. We focus on fiscal years (FYs) 2000 through 2008.[3]

Measurement

Consistent with other IPs produced by the MLDC, we use the following race/ethnicity categories:[4]

- white non-Hispanic
- black non-Hispanic
- Asian and Pacific Islander (Asian/PI) non-Hispanic

MLDC Research Areas

Definition of Diversity
Legal Implications
Outreach & Recruiting
Leadership & Training
Branching & Assignments
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Retention
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This issue paper aims to aid in the deliberations of the MLDC. It does not contain the recommendations of the MLDC.

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- other non-Hispanic (which includes American Indians, Alaska natives, and individuals of more than one race)
- Hispanic.

Although retention can be calculated in a number of ways, this IP focuses on *continuation rates*, which are calculated as the percentage of officers in the same Service observed at year t and again at year $t + 1$. Calculating continuation rates is relatively straightforward and is the most common measure of retention for officers. Keep in mind, however, that continuation rates do not account for an officer's service obligation, so separation can be voluntary or involuntary. That is, some members choose to leave at the end of their service obligation whereas others are passed over for promotions and are forced to leave active-duty service per the Defense Officer Personnel Management Act (DOPMA).

Because continuation rates vary by years of service (YOS) (Warner, 2006) and tend to decline over time as a result of both voluntary and involuntary losses, these rates are often calculated separately by each YOS. This IP presents continuation rates from YOS 0 (less than one complete YOS) to YOS 30.[5] Such continuation rates by YOS are known as *conditional rates*. So, for example, the continuation rate of officers with YOS 5 measures the proportion of officers with YOS 4 who remained on active duty for a fifth year.

Conditional rates can also be presented as *cumulative continuation rates* (CCRs). CCRs are defined for each year of service as the probability that an officer accession will remain on active duty in a specific component through that year of service. These are not continuation rates for any single accession cohort but rather estimates for *synthetic cohorts*. Synthetic cohorts combine data from all accession cohorts to simulate continuation behavior if a cohort behaved like all the individuals who appeared in a particular FY.

We use data from FY 2000–FY 2008 in order to focus on recent officer continuation patterns. Averaging over multiple fiscal years "smoothes" continuation rates and helps to ensure that the focus is on general patterns rather than the random fluctuations that may have occurred in any single FY.

Interpreting the Shape of a CCR Curve

Before examining rates by demographic subgroups, it is worth nothing that, regardless of gender, race/ethnicity, or branch of Service, CCR curves decline as YOS increases. The curves have a slight downward slope from YOS 0 to YOS 3 or 4, and this is followed by a steeper decline from that point to YOS 10. At YOS 10, the curves level off and are almost flat until YOS 19. At that point, after an officer is completely vested in the military retirement system, the slope of the CCR drops off again from YOS 20 to YOS 22 but ultimately flattens as it approaches YOS 30.

This distinctive shape of CCR curves is the result of various features of officer personnel management as defined by Title 10 and DOPMA. The general downward trend can be explained by DOPMA's up-or-out system in which officers must be promoted in order to continue past certain YOS milestones. Promotion to ranks O2 and O3 is based on being "fully qualified," and promotion to the rank of O4 and beyond is based on being "best qualified." Further, DOPMA defines specific promotion probabilities at each rank, and those probabilities decrease at higher ranks. CCRs also decline over time because members voluntary resign their commissions or move to the Guard or Reserve components for any number of reasons. In addition, some officers leave involuntarily for such reasons as health or behavioral problems. Taken together, all of these explanatory factors result in CCRs of less than one at all YOS points. Therefore, CCRs become successively lower each year.

Other features of the officer personnel management system address key points in officer career progression and define the inflection points seen in CCR curves (i.e., where they change slope). First, we see consistently high continuation rates before YOS 3 but steep declines from YOS 4 through YOS 10. DOPMA defines a minimum service requirement (MSR) of 6–8 years for most officers, but many officers can leave active duty before then if they transfer to a reserve unit.[6] And, as noted earlier in this section, early attrition can also be attributed to a failure to pass training, to a failure to fulfill the requirements needed to advance to the rank of O2 or O3, or to health or behavioral problems.

The second inflection point occurs after YOS 10, where CCR curves level off. Officers who remain on active duty beyond the MSR are also likely choosing the military as a long-term career. Between YOS 10 and YOS 20, officers become increasingly motivated to stay to qualify for full retirement benefits. The third inflection point occurs after YOS 20, when CCR curves drop precipitously. At this point, military members become vested in the retirement system and may voluntarily retire with benefits.

The promotion system also affects interpretation of the CCR curves in another key way. The first competitive promotion point is O4, which occurs at roughly YOS 10. Until this point, promotion is guaranteed for all who are fully qualified and present no issues. This means that differences in conditional and cumulative continuation from YOS 0 to YOS 10 are primarily the result of differences in retention behavior rather than in the promotion system. Beyond YOS 10, however, differences in continuation rates are the combined result of retention and promotion policies and outcomes.

Officer Continuation Rates by Gender

We begin by examining CCRs by Service and gender across FY 2000–FY 2008, as shown in Figures 1–4. In all of the figures, women have lower continuation rates than men. That is, regardless of Service branch, the red lines are always lower than the orange lines.[7]

During the first three years of service, men and women have similar continuation rates. By the time officers have completed their fourth year of service, however, gender differences in continuation rates begin to emerge and increase

with YOS through roughly YOS 8 to YOS 12, depending on the branch of Service. By YOS 10, the percentage-point difference between male and female CCRs is 10 in the Army, 15 in the Navy, and 20 in both the Marine Corps and the Air Force. In other words, although continuation rates decrease as YOS increase for both men and women, women's continuation rates decline at a faster rate than men's. This difference in slopes is likely the result of retention rather than promotion because it occurs before the first competitive promotion point.[8]

Beyond YOS 12, the gender gap begins to narrow. By YOS 19, when officers will reach the 20-year mark within the next year, the gap is 10 percentage points in the Army, 13 percentage points in the Navy, 18 percentage points in the Marine Corps, and 15 percentage points in the Air Force. These roughly parallel cumulative continuation rates suggest

Figure 1. Cumulative Continuation Rates for Men and Women in the Army, FY 2000–FY 2008

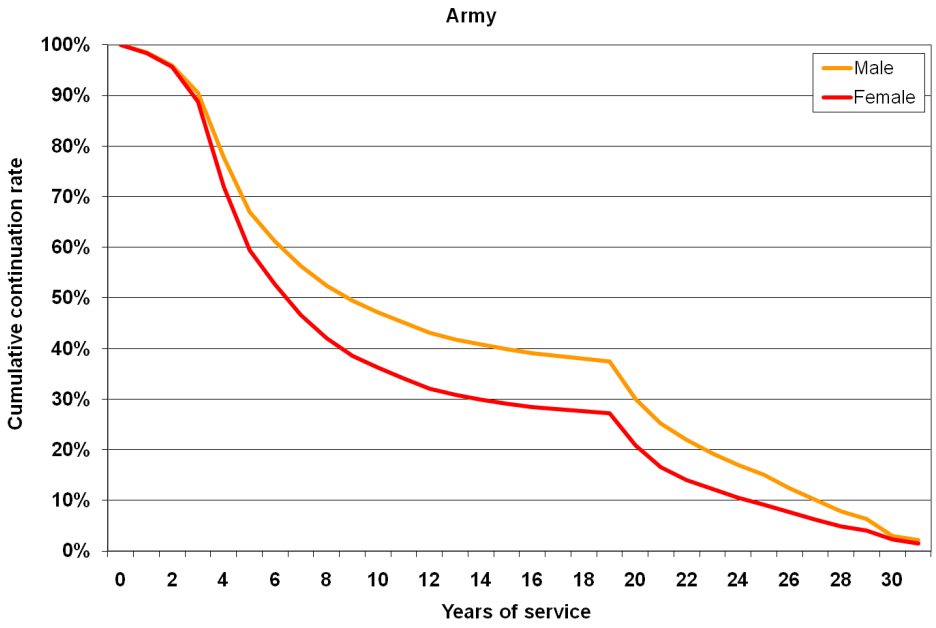
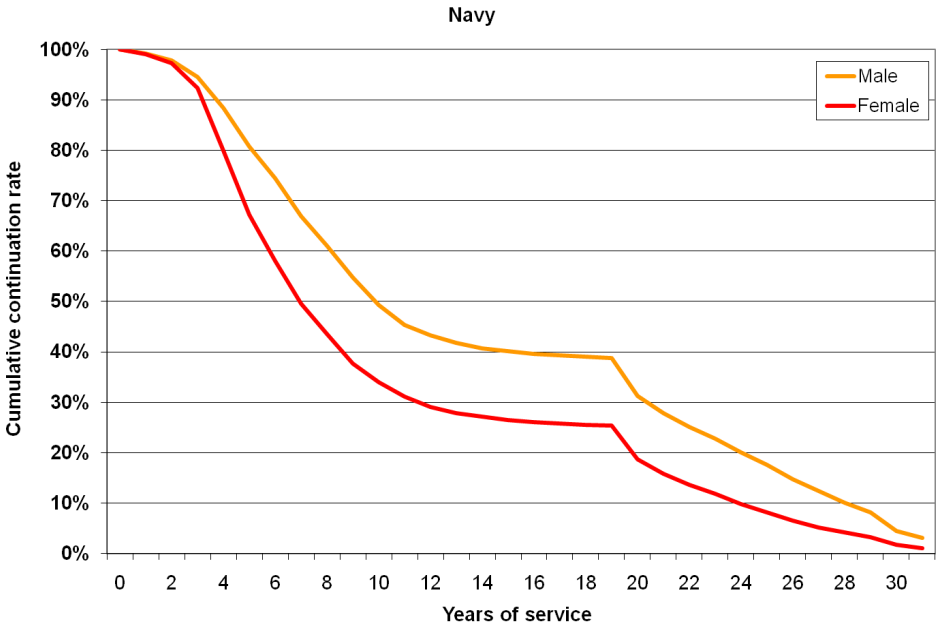


Figure 2. Cumulative Continuation Rates for Men and Women in the Navy, FY 2000–FY 2008



that continuation behavior is similar for men and women during these years.

After YOS 20, the gender gap narrows at an even faster pace. At YOS 30, the difference in CCRs between men and women is less than 5 percentage points across all components (although we caution that the sample of men and women who remain on active duty past the 25-year mark is a small and select group of people). This convergence suggests that women's continuation rates outpace those of their male counterparts during this period.

Officer Continuation Rates by Race/Ethnicity

Figures 5–8 present CCRs by race/ethnicity across Service branches.[9] After YOS 4, blacks and Hispanics seem to have consistently higher rates of continuation than whites and other minority groups. The difference between blacks and

Figure 3. Cumulative Continuation Rates for Men and Women in the Marine Corps, FY 2000–FY 2008

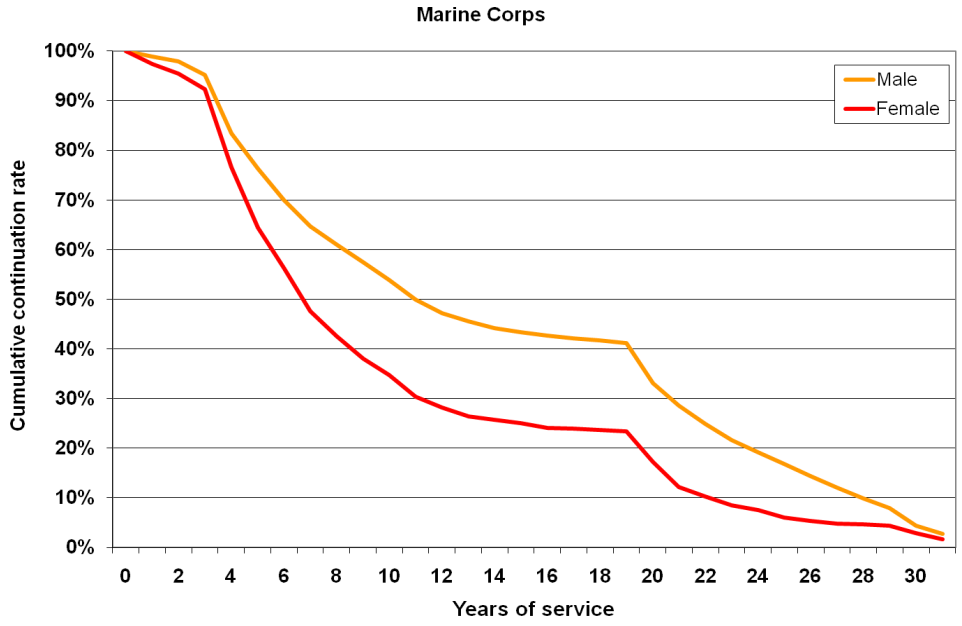
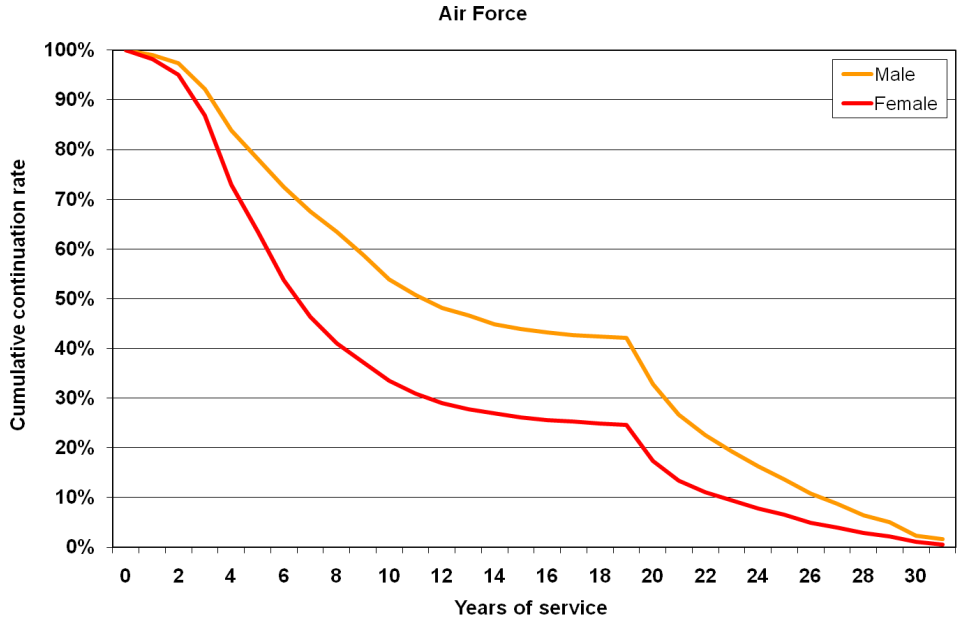


Figure 4. Cumulative Continuation Rates for Men and Women in the Air Force, FY 2000–FY 2008



Hispanics and whites becomes more pronounced as YOS increases but tapers again after reaching YOS 20. The one exception to this trend is found in the Air Force, where blacks have consistently *lower* continuation rates than whites, although the gap does close after YOS 20.

The picture for Asians/PIs is more complicated. In the Army, Asian/PI continuation rates are very similar to those of whites, especially after YOS 13. In the Navy, Asian/PIs and whites have similar continuation rates across all YOS. In the Marine Corps and the Air Force, Asian/PIs have higher continuation rates than whites, but this difference does not emerge until after roughly YOS 8 to YOS 10. Those in the other non-Hispanic race/ethnicity group have lower continuation rates than do whites and other minority groups in both

Figure 5. Cumulative Continuation Rates in the Army, by Racial/Ethnic Status, FY 2000–FY 2008

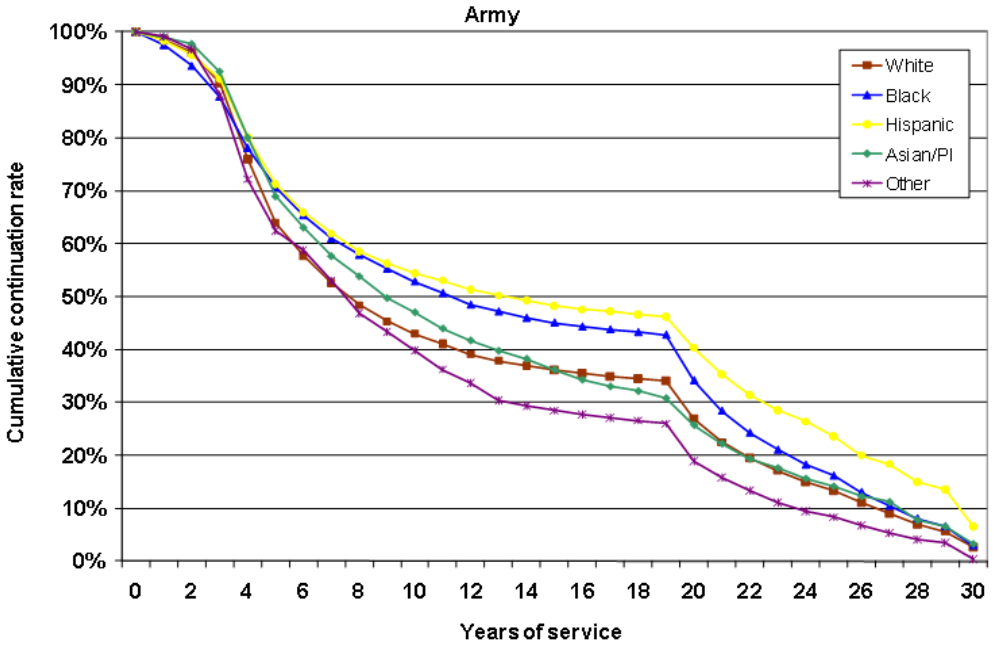
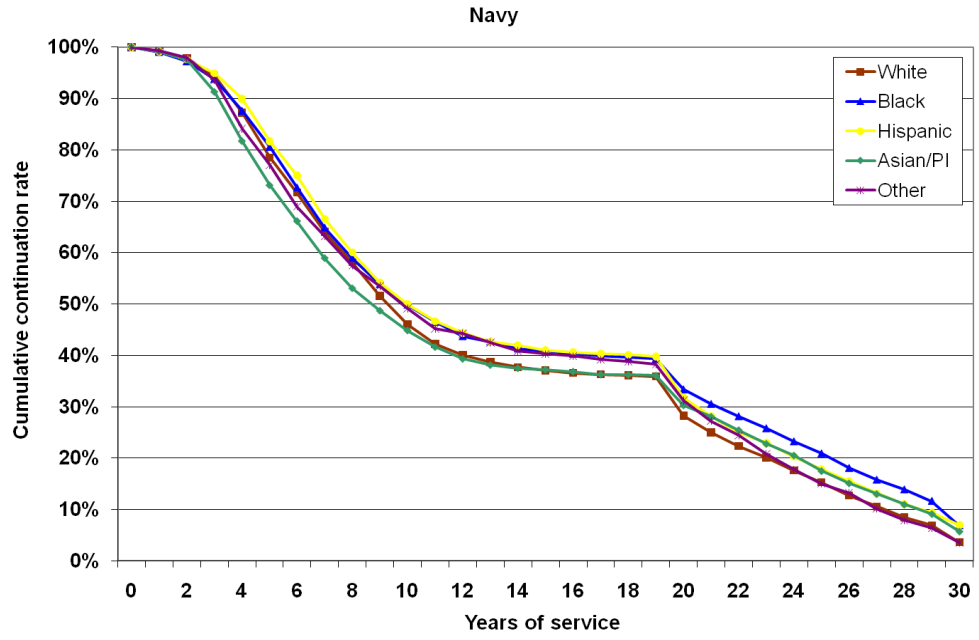


Figure 6. Cumulative Continuation Rates in the Navy, by Racial/Ethnic Status, FY 2000–FY 2008



the Army and the Air Force, but continuation rates among this group in the Navy track much closer with those of blacks and Hispanics. In the Marine Corps, this group's continuation rates track much closer with those of whites.

Two other patterns are worth noting. First, the spread of continuation rates across race/ethnicity groups is larger for the Army and the Air Force than for the Navy and the Marine Corps. Second, continuation rates among minority officers, primarily blacks and Hispanics, are highest in the Air Force, followed by the Army, the Marine Corps, and the Navy.[10]

Conclusion

The purpose of this IP was to show raw officer continuation rates across DoD components by gender and race/ethnicity. We present CCRs by YOS to assess whether women and

Figure 7. Cumulative Continuation Rates in the Marine Corps, by Racial/Ethnic Status, FY 2000–FY 2008

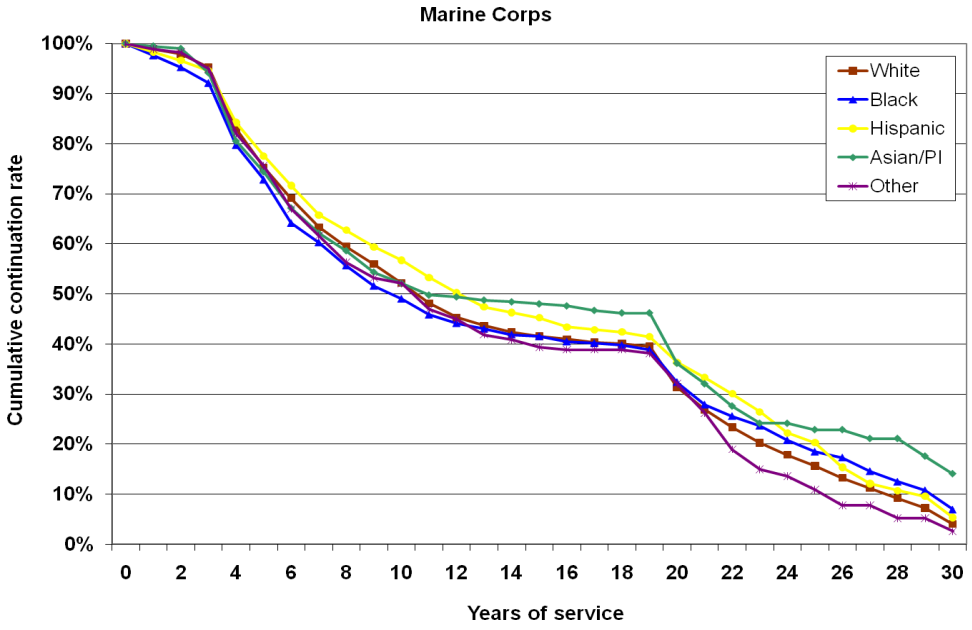
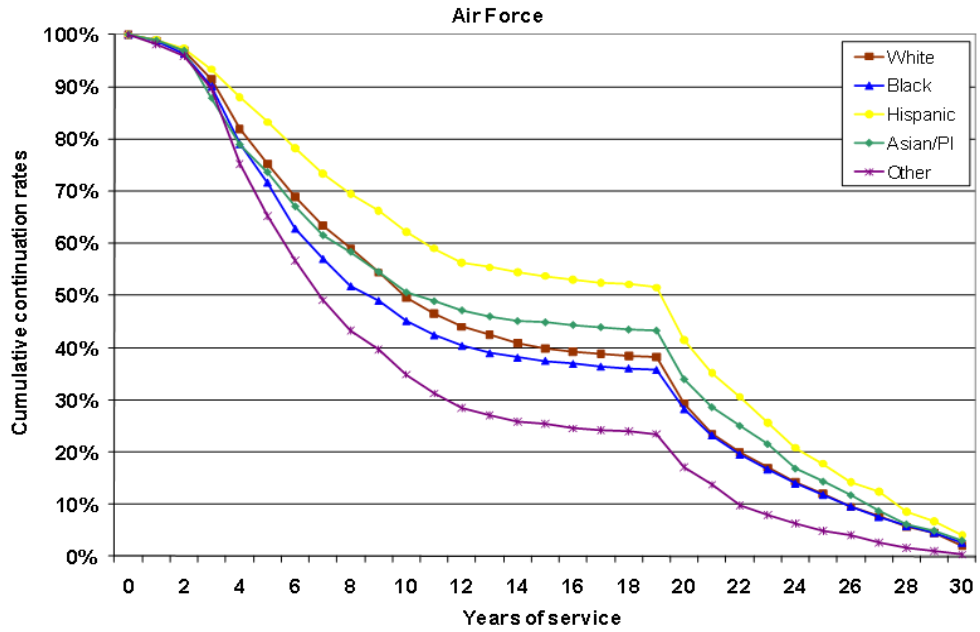


Figure 8. Cumulative Continuation Rates in the Air Force, by Racial/Ethnic Status, FY 2000–FY 2008



minorities are less likely to remain in active-duty service through a certain point in their military careers. Two general conclusions can be made:

- Continuation rates among women are lower than among men. On average, regardless of Service branch, women's CCRs are lower than men's for every YOS beyond YOS 2 or YOS 3. The divergence occurs during YOS 3 through YOS 10, which indicates that the career-long difference in cumulative continuation is the result of early career differences in retention during this period. Given the consistency of gender differences in CCRs, more investigation of the reasons for these discrepancies is warranted.
- On average, blacks' and Hispanics' CCRs are greater than or equal to whites' rates at every YOS point, while Asian/PIs' and others' rates are less than or equal to whites' rates. There are some exceptions (most notably, blacks in the Air Force), but, in general, these data indicate that retention among minority officers is not lower than among whites, which indicates that there is no immediate need for a policy response.

Notes

[1]These presentations can be retrieved from http://mldc.whs.mil/index.php/activities/january-meeting. Continuation rates from the Coast Guard are not presented in this IP because DMDC does not collect comparable data for that component. Similar rates can be obtained from the Coast Guard presentation on the MLDC web page. Another IP focuses on reenlistment rates among enlisted servicemembers.

[2]*Raw continuation rates* refers to rates that do not control for other demographic factors (e.g., marital status or educational attainment) that may be associated with race/ethnicity and gender as well as continuation behavior.

[3]Because of differences in the data-cleaning procedures and measurement techniques used by individual MLDC subcommittees, some results using the same data sources may be slightly inconsistent across IPs.

[4]See MLDC (2009). For the present analysis, Asian and Pacific Islander are combined into a single category because data collected before 2003 do not separate Pacific Islanders from Asians. For convenience we refer to white non-Hispanic as *white*, black non-Hispanic as *black*, etc.

[5]However, it is important to remember that YOS is not always equivalent to rank. That is, not all officers with high tenure make it to the highest officer (i.e., flag) ranks.

[6]Depending on their training, some officers may incur longer MSRs.

[7]The annual rates from which the cumulative rates are calculated are presented in Appendix A, and CCRs are presented in Appendix B.

[8]This may not be true if women are not becoming fully qualified or are leaving in anticipation of *not* being promoted.

[9]The annual rates from which the cumulative rates are calculated are presented in Appendix C, and CCRs are presented in Appendix D.

[10]Although black continuation rates are lower than those of whites in the Air Force, blacks in the Air Force remain on active duty at higher rates than do blacks in the other branches. At the same time, blacks in the other Services still have higher continuation rates than do their white counterparts.

[11]The results depicted here are consistent with those presented during Service briefings to the MLDC in February 2010. See endnote 1.

References

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