

The Relationship Between Colocation and Reenlistment in the Marine Corps (Vol. 1)

Lauren Malone, Cathy Hiatt, and Ann Parcell

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Molly McIntosh, Director
Navy Compensation and Personnel Policy
Resources and Force Readiness Division

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The Relationship Between Colocation and Reenlistment in the Marine Corps (Vol.1)

October 2018

Lauren Malone

with

Cathy Hiatt and Ann Parcell



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In this annotated briefing, we examine the relationship between colocation and reenlistment in the Marine Corps. This analysis is part of a larger CNA project titled “The Effects of Personnel Policy Changes on Budgets and Manpower Inventories” sponsored by the Office of the Assistant Secretary of the Navy (Financial Management and Comptroller) (ASN(FM&C)).

Background for study

- As defense budgets were tightened in recent years, all Department of the Navy (DON) budget categories were required to be managed more effectively and efficiently
- Active duty personnel make up a large share of the DON budget
 - FY18 President's Budget baseline submission for FY18
 - Navy = \$135.4 billion; Marine Corps (MC) = \$23.5 billion
 - Military Personnel, Navy (MPN) account = \$29.3 billion (21.6% of Navy total)
 - Military Personnel, MC (MPMC) account = \$13.4 billion (57.0% of MC total)
 - MPN and MPMC do not include the costs of recruiting, training, quality-of-life programs, and other personnel costs
- DON also seeks to increase female share of accessions and inventory
 - Historically, women have not retained as well as men
 - Increasing female shares must be balanced with cost containment
- Goal of study is to identify cost-effective policies that increase retention to improve personnel system efficiency
 - Study organized around four issues related to cost of DON servicemembers
 - Three of four issues directly address female share of active component



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In the larger project, we aim to identify and explore ways to reduce personnel costs while maintaining or even improving retention. The impetus for the project is that military personnel costs, including those in the Department of the Navy (DON), are quite large and are always under scrutiny. DON must continuously strive to make the personnel system more effective and efficient.

Additionally, DON has pushed to increase the female share of accessions and inventory. This has implications for retention and manning. Historically, female servicemembers in DON have not retained as well as men. In addition, pregnancy and operational deferment, along with higher female limited duty rates, can make manning more challenging.

The research agenda for this project revolves around four issues related to the cost of DON uniformed personnel. (These four main issues are briefly described in the next slide.) In particular, the sponsor is interested in how costs may change as the female share of the uniformed personnel in DON increases; three of the four issues directly relate to the female share of the active component inventory.

Colocation: 1 of 4 issues addressed in a larger study

- Issues to be addressed
 1. How will increasing female shares of Navy and MC accessions and inventory affect manning and personnel costs?
 2. How will change in maternity leave policy for uniformed personnel affect manning and personnel costs?
 3. *What is the relationship between colocation and retention?*
 4. Are there nonmonetary personnel policy changes and management actions that might be more cost-effective tools for increasing retention?



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These are the four main issues to be addressed in the larger project.

In this annotated briefing, we address issue number three. *Colocation* in the USMC is when two servicemembers who are married to each other (also known as a dual-military marriage) are assigned to units no further than 50 miles apart. A dual military couple is not colocated if the units to which they are assigned are greater than 50 miles apart.

Our analysis is motivated by the possibility that, as the share of women in the services increases, there may be an increase in dual-military marriages, as well as an increase in the demand for colocation. Therefore, it is increasingly important to examine the third question above—that is, to know whether the decision of servicemembers in dual-military marriages to reenlist may be affected by colocation. In this annotated briefing, we specifically examine the following aspects of this question:

- How prevalent is colocation among enlisted Marine-Marine couples?
- How does colocation of enlisted Marine-Marine couples affect reenlistment decisions?

The remaining three issues in the larger study are addressed in other research documents.

Approach

- Use Marine Corps enlisted personnel records to identify Marines married to other military personnel
- Determine whether the couple is colocated by comparing unit zip codes for their assigned locations each quarter
 - Colocated if locations are 50 miles apart or less
 - Not colocated
 - For unit zip codes without latitude/longitude information (e.g., APOs), we use geolocation codes (first 3 digits of zip code)
- Determine when the enlisted Marine-Marine spouses make reenlistment decisions using CNA's reenlistment decision file
- Estimate effect of colocation on the probability of reenlistment
- Consider the costs and benefits of colocation



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Our approach is to use Marine Corps personnel records to identify Marines who are married to other service personnel, including other Marines. We focus on enlisted Marines because the Marine Corps' enlisted force is the largest in the Marine Corps' active component and has the greatest share of women (greater than the female share of commissioned officers and of warrant officers). In addition, we limit our analysis to Marine-Marine couples, since we only information on spouses' unit location for Marines who are married to other Marines.

Per Marine Corps policy, we define an enlisted Marine-Marine couple as being colocated if the two Marines' assigned locations are within 50 miles of each other. For 6 percent of the sample, we were not able to calculate a mileage distance, since we did not have the latitudes and longitudes for at least one of the Marines' units. The most common reason for this was that the unit address was an Air/Army Post Office (APO) or Fleet Post Office (FPO), neither of which has zip codes indicating the exact location of a unit. In other cases the unit was located in a foreign country to which zip codes do not apply or the unit zip code was simply not listed on the Marine's personnel file. In these cases, we compared the three-digit geo-location codes of the Marine and his or her spouse. The couple was determined to be colocated if the geo-location codes matched.

Using CNA's decision file, we determined the marital and colocation status of Marines at the time of their reenlistment decisions. We then estimated the relationship between colocation and the probability of reenlistment. We considered the costs and benefits of colocation compared with other reenlistment incentives.

This annotated briefing presents our enlisted Marine-Marine results. An earlier report presented the enlisted Navy-Navy results.¹

¹ DAB-2018-U-016844-Final

Summary of findings: colocated v. noncolocated

- We estimate that only *certain* colocated Marines are more likely to reenlist than their noncolocated counterparts at a statistically significant rate
 - Zone A: 3.7 ppts for women, no difference for men
 - Zone B: no difference for women, 5.2 ppts for men
 - Zone C: 5.0 ppts for women, no difference for men



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Our estimates suggest that colocation is associated with a higher estimated propensity to reenlist for certain groups only—namely, Zone A women, Zone B men, and Zone C women. Specifically, at the Zone A reenlistment decision, colocated female Marines are 3.7 percentage points (ppts) more likely to reenlist than their noncolocated counterparts (40 vice 36.3 percent). The estimated effect for men is insignificant: colocated and noncolocated Zone A male Marines reenlist at different but statistically indistinguishable rates (50.9 vice 47.8 percent).

At Zone B, our estimates suggest that colocated men are 5.2 ppts more likely to reenlist than their noncolocated counterparts (81.5 vice 76.3 percent), while we find no statistically significant difference in the estimated probability of reenlisting for colocated vice noncolocated women (70.6 vice 69.2 percent). At Zone C, the difference in the estimated probability of reenlisting for colocated vice noncolocated women is 5.0 ppts (87.8 vice 82.7 percent). For men, the difference is 0.9 ppts (91 vice 90 percent), but it is not statistically significant.

Summary of findings: married vs. single

- Male Marines married to other Marines are the most likely to reenlist, regardless of colocation status
- Compared to single female Marines, collocated female Marines have the *same* likelihood of reenlisting in Zone A and a *greater* likelihood in Zones B, C
- In all zones, other married female Marines are statistically *no more likely* to reenlist than single female Marines; in some zones, they are actually *less* likely to reenlist
 - Includes noncollocated women married to other Marines, women married to other-service spouses, and women married to civilian spouses
 - Suggests it may be difficult for female Marines to continue service while married to a non-Marine spouse
- Single female Marines have a *higher* estimated probability of reenlisting than single male Marines in Zone A; similar probabilities in Zones B and C



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We also compared male and female Marines in the different marital categories to their respective single counterparts.

For married male Marines, we find that they are more likely to reenlist than their single male counterparts, regardless of whether they are married to a civilian spouse, a collocated Marine spouse, a noncollocated Marine spouse, or an other-service spouse.

For female Marines, however, the differences between single and married reenlistment rates are less consistent across the various spouse types. Among married female Marines, only those who are married to other Marines *and* are collocated are more likely than their single counterparts to reenlist. Single female Marines have higher estimated reenlistment rates than female Marines with civilian spouses and spouses in other services (statistical significance varies somewhat by zone). Single female Marines have higher estimated reenlistment rates than female Marines with noncollocated Marine spouses in Zones A and C, and although noncollocated female Marines have higher estimated reenlistment rates than their single counterparts in Zone B, the difference is not statistically significant.

The overall single v. married comparisons for female Marines suggests that, on average, female Marines may have a harder time maintaining their service career while married to a non-Marine or a Marine with whom they are not collocated than male Marines do.

Finally, we report an unexpected result: at the Zone A decision point, single female Marines have a notably *higher* estimated probability of reenlisting than single male Marines (40 percent v. 25 percent). Single Marines make up the majority of male Marines and a plurality of female Marines at the Zone A decision point, so this finding summarizes the reenlistment behavior of a significant portion of first-term decision-eligible Marines.

Identifying enlisted Marine-Marine marriages, locations, and reenlistment decisions

- In September 2017, there were 6,403 active component (AC) Marines whose personnel records indicated that they were married to military spouses
- About 4,132 of those enlisted Marines were married to other AC Marines, creating 2,066 Marine-Marine enlisted couples*
- We repeated this process and identified all Marine-Marine enlisted couples from FY05 to FY17
- We found assignment locations (and distances between the locations) for nearly all
- We merged the colocation information and Marine reenlistment decisions from FY05 to FY17

*In September 2017, there were 34 AC Marine Corps enlisted/Marine Corps officer marriages and 62 Marine Corps enlisted/Marine Corps warrant officer marriages.



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To put our analysis in context, we present some basic statistics on the number of Marine-Marine enlisted marriages as of September 2017. Using the Marine Corps' enlisted personnel records from the Total Force Data Warehouse (TFDW) for the quarter ending September 2017, we found 6,403 enlisted Marines who had military spouses. Among these 6,403 Marines, about 64 percent, or 4,132, were married to other active component (AC) enlisted Marines. The remaining 2,271 Marines were either married to non-Marine servicemembers (we expect that most fall in this category), had an invalid spouse SSN, were married to a Marine officer, or were married to a Marine who recently left the service and the dependent relationship and spouse SSN had not yet been updated on their file. For these reasons we are ultimately able to identify a Marine spouse for only 4,132 of the 6,403 enlisted Marines with military spouses, allowing us to identify 2,066 enlisted Marine-Marine *marriages* in September 2017.

We were able to identify the assignment locations for each spouse (and thus the distance between them) in nearly all of the 2,066 enlisted Marine-Marine couples. Specifically, of the 4,132 AC enlisted Marines who we identified as being married to other AC enlisted Marines, we were able to identify zip codes and therefore compute distance for 94 percent of them. Colocation for the remaining 6 percent was defined by whether the two Marines had the same three-digit geo-location code.

We repeated this process for all quarters from FY05 through FY17 to identify all enlisted Marines married to other enlisted Marines in this time period. We then calculated the distance between assignment locations for the spouses and merged this information into a file containing each Marine's decision history.

Sample sizes by colocation/marital status subgroup

Colocation/marital status			Zone A decisions		Zone B decisions		Zone C decisions	
			Number	Percentage	Number	Percentage	Number	Percentage
Military spouse	Marine spouse	Colocated	9,023	3.50%	2,414	3.84%	1,203	3.78%
		Not colocated	1,166	0.45%	454	0.72%	191	0.60%
	Other service spouse	Colocation unknown	3,531	1.37%	1,110	1.77%	450	1.42%
Civilian spouse			107,330	41.68%	42,518	67.70%	24,204	76.12%
Single			136,441	52.99%	16,309	25.97%	5,751	18.09%
TOTAL			257,491		62,805		31,799	



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Our final sample includes all Marines who made reenlistment decisions some time between FY05 and FY17. Each enlisted Marine is coded as being in one of the following colocation categories, which are a combination of marital and colocation statuses:

1. Married to another Marine and assigned to a location within 50 miles of spouse's assignment (colocated)
2. Married to another Marine and assigned to a location more than 50 miles away from spouse's assignment (not colocated)
3. Married to a non-Marine Corps military spouse (colocation unknown)
4. Married to a civilian spouse
5. Single*

The data are organized as a 13-year collection of snapshots of decisions (i.e., a cross-sectional dataset) rather than as observations that follow each Marine over time (i.e., a longitudinal dataset). At the time of Zone A decisions, roughly 3.5 percent of our sample is colocated compared to 3.8 percent at the time of Zone B and Zone C decisions. In Zone A, the majority of decision-making Marines are single, whereas in Zone B and C decisions the majority have civilian spouses. Overall, our sample consists of about 257,000 Zone A decisions, 63,000 Zone B decisions, and 32,000 Zone C decisions.

*If Marines followed the marital patterns in the overall U.S. population, there should be a growing number of unmarried Marine couples in our sample of single Marines over time. However, the compensation policies for uniformed servicemembers favor married couples over unmarried couples, so our expectation is that there is a lower rate of unmarried couples in the uniformed services than in the general population.

Gender differences in marital status and colocation

- At Zone A, the majority of men are single; at Zones B and C, a sizable majority of men have a civilian spouse
- At all zones, the plurality of women are single; there is no majority
- At all zones, a higher percentage of women than men are married to military spouses (e.g., at Zone A, 35% vice 3%)
- At all zones, a higher percentage of women than men are married to Marine spouses (e.g., at Zone A, 28% vice 2%)
- Additional details in backup slides



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We highlight some key differences between the male and female samples. First, at Zone A, a majority of men and a plurality of women are single (53.5 and 45.1 percent, respectively). Among older Marines at later decision points, men are more likely to be married than women. At Zone B, 75.3 percent of men are married vice 57.4 percent of women. At Zone C, 83.4 percent of men are married vice 58.8 percent of women.

Although their overall marriage rates are lower, the female Marines in our sample are much more likely than men to be married to another servicemember. For example, at Zone A, the share of women who are married to military spouses is more than 11 times greater than that for men (35 percent vice 3 percent). At Zones B and C, the share of Marines married to military spouses stays relatively constant for both women and men, with the shares being 8.5 and 11 times greater for women, respectively.

Similarly, the women in our sample are much more likely than the men to be married to another Marine. At Zone A, the share of women who are married to a Marine Corps spouse is more than 13 times greater than the share of men who have Marine Corps spouses (28.7 percent vice 2.2 percent). At Zones B and C, the share of both women and men who are married to other Marines grows somewhat for women and stays relatively constant for men. The female share is 12.3 times greater than the male share in Zone B and 13.9 times greater in Zone C.

Two backup slides present the colocation status subsamples for both women and men.

Reenlistment model and factors we control for

- We estimate the probability of reenlisting for Marines in Zones A, B, and C separately using nonlinear regression analysis
- In addition to colocation/marital status, we control for
 - Marine Corps career characteristics
 - Armed Forces Qualification Test (AFQT) score, occupational field (first 2 digits of Primary Military Occupational Specialty (PMOS)), Selective Reenlistment Bonus (SRB) level, paygrade, time in grade, length of service, previous combat and non-combat deployments, current deployment status
 - Promotions/demotions in past 12 months
 - Medical accounting code in previous 12 months
 - Non-deployable in previous 12 months
 - Marine demographics
 - Gender, age, race/ethnicity, children, education level, citizenship status
 - Economy and time trend
 - CNA economic index (collapses nine U.S. economic measures into one index, with three measures being most influential: unemployment rate, 3-month Treasury bill, and 10-year Treasury note)
 - Fiscal year of decision

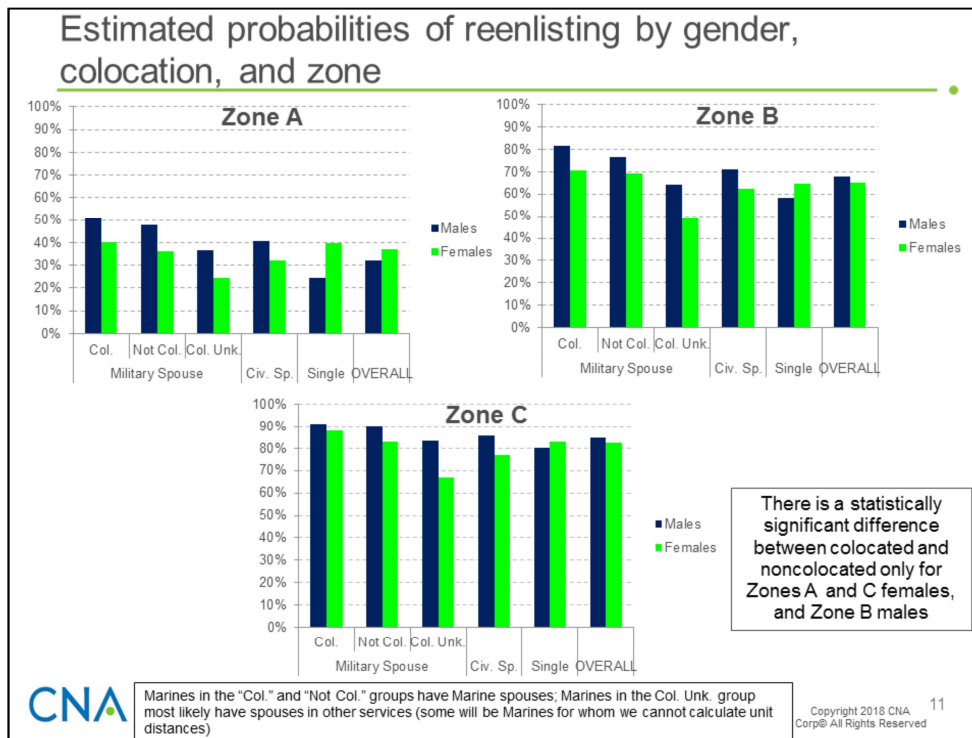


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We model the likelihood of reenlistment as a function of such factors as Marine demographics, Marine career characteristics, and our variables of interest—the colocation/marital status categories. We estimate three separate models (one each for Zones A, B, and C) to allow the influence of each factor on reenlistment decisions to differ by zone. We use nonlinear regression to estimate the models because, after extensive testing, we found that a nonlinear model fit the data better than a linear model. A more detailed description of our modeling methodology can be found in the accompanying research memorandum, *The Relationship Between Colocation and Reenlistment in the Marine Corps: Technical Background (Vol. 2)* (DRM-2018-U-017652-Final).

The list of model factors includes AFQT score, the Marine’s PMOS, the maximum level of SRB offered to the Marine at the decision point, paygrade, time in grade, years of service, total number of previous combat and noncombat deployments, and whether the Marine (a) was deployed at the time of decision, (b) had been promoted or demoted in the previous 12 months, or (c) had a medical accounting code in the previous 12 months. We include gender, age, race, ethnicity, whether the Marine has dependent children, education level, and citizenship status. We also include the CNA index of the strength of the U.S. economy for the decision quarter and an FY indicator, which measures trends in other factors that may affect a Marine’s reenlistment decision, such as Marine Corps-wide reenlistment opportunities and operational tempo. Finally, we have categorical variables denoting the Marine’s colocation status at the time of decision. We also interact gender with the colocation variables, which allows us to determine whether there are differential effects of colocation on reenlistment decisions for men and women. See the accompanying research memorandum for additional details and citations of previous research.

We use data from the previously described samples of Marines to estimate each of our reenlistment models. Each model yields an estimated reenlistment rate for each Marine in each sample and allows us to estimate the effect of each factor on the probability of reenlisting.



The charts on this slide summarize the average estimated reenlistment probabilities by gender and colocation/marital status for each of the three zones. Controlling for other factors that might affect the estimated probability of reenlisting, male reenlistment rates are higher than female reenlistment rates in all zones and colocation/marital statuses with three exceptions: single Marines in Zones A, B, or C. The single female and single male reenlistment rates in Zones A, B, and C are 40 percent vs. 24.5 percent; 65 percent vs. 58 percent; and 83 vs. 80 percent, respectively.

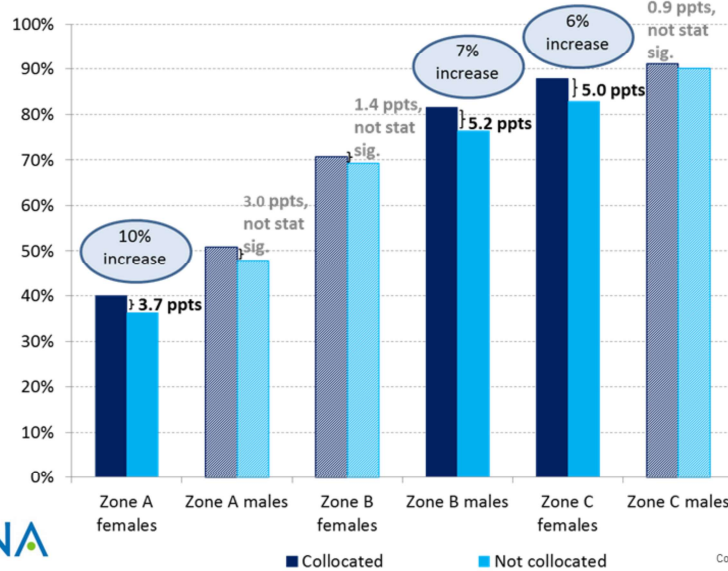
The figures also show that, for men, collocated Marines have the highest reenlistment rates in all zones, although the difference between the collocated and noncollocated reenlistment rates is only statistically significant in Zone B. For women, collocated Marines also have the highest reenlistment rates, although they are only statistically significantly higher than those for noncollocated female Marines in Zones A and C. Thus, the collocated and noncollocated have similar reenlistment behavior in half of the zone/gender cases.

The colocation-unknown group has noticeably lower reenlistment rates, especially for women. We suspect that this is because the majority of those with colocation-unknown status have Army, Navy, or Air Force spouses, and spouses in different services may be less likely to be collocated. The lower reenlistment rate experienced by those with an unknown colocation status appears greater for female Marines than for male Marines. Perhaps this is because when dual military couples decide that one spouse will leave the armed services, it is the woman who is more likely to do so. This conjecture, of course, is speculative, although this is a relatively common outcome for married couples in the civilian workforce.

The differences in the estimated probabilities of reenlisting between men and women in the same colocation/marital status category and zone are statistically significant at the 10 percent level or better for all categories and zones. See the accompanying research memorandum for details.

Difference in the estimated reenlistment probabilities for collocated vice noncollocated Marines

- Estimates are for Marines in dual-Marine marriages who made a reenlistment decision in FY05-FY17. collocated is defined as within 50 miles.



In this slide, we focus on the correlation between the estimated probability of reenlisting and collocation. The key takeaway is that there are statistically significant and sizable impacts of collocation on estimated reenlistment probabilities in only three cases: for Zone A females, Zone B males, and Zone C females.

The dark blue (left-hand) bars represent estimated reenlistment probabilities for collocated Marines and the light blue (right-hand) bars represent estimated reenlistment probabilities for their noncollocated counterparts. Each pair of bars compares the estimated reenlistment probabilities for collocated and noncollocated Marines within a gender and zone subsample (e.g., the first two bars compare estimated reenlistment probabilities for collocated and noncollocated Zone A women). The pairs of bars that have been grayed out indicate cases for which the differences between the collocated and the noncollocated Marines are not statistically significant.

In three of the six cases, the estimated reenlistment probabilities are higher for collocated Marines than for noncollocated Marines, all else equal. In these cases, the differences are statistically significant at the 10-percent level. See the accompanying research memorandum for details.

The largest percentage increase in the reenlistment rate occurs for Zone A women. They are 3.7 percentage points (ppts) more likely to reenlist than their noncollocated counterparts, resulting in a 10-percent increase in their overall reenlistment rate. The corresponding numbers are 5.2 ppts and 7 percent for Zone B men and 5.0 ppts and 6 percent for Zone C women.

Conclusions from colocation estimates

- We estimate that certain colocated Marines are more likely to reenlist than their noncolocated counterparts
 - Estimated Zone A rate increase is 3.7 ppts for women; none for men
 - Estimated Zone B rate increase is 5.2 ppts for men; none for women
 - Estimated Zone C rate increase is 5.0 ppts for women; none for men



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We estimate that, on average, *certain* colocated Marines are more likely to reenlist than their noncolocated counterparts. These effects are more pronounced for women than for men, in the sense that two groups of female Marines have reenlistment rates that are correlated with being colocated (those in Zones A and C) while only one group of male Marines do (those in Zone B). In addition, there is a noticeably smaller share of all male Marines in Marine-Marine marriages compared with the share of all female Marines in Marine-Marine marriages, suggesting that male Marines, on average, will be less affected by colocation policy.

At Zone A, we estimate that colocated female Marines have a reenlistment rate that is 3.7 ppts higher than that of their noncolocated counterparts, while we find no statistically significance for men. At Zone B, we estimate that colocated men are 5.2 ppts more likely to reenlist than their noncolocated counterparts, while we find no statistically significant difference for women. At Zone C, the estimated colocation effect is about 5.0 ppts for women but insignificant (and thus indistinguishable from zero) for men. These findings suggest that, if the Marine Corps expands its colocation of dual-Marine spouses, it could experience slightly improved retention, especially for women.

Conclusions from single v. married estimates

- As compared to their single Marine counterparts, these Marines have higher reenlistment rates:
 - Male
 - Marines married to other Marines (regardless of colocation)
 - Marines married to civilian spouses
 - Female
 - Marines married to other Marines *and* collocated in Zones B and C
- *Married* Marines are among the most likely to reenlist, except:
 - Female Marines whose spouses are in other services or are civilians
 - Suggests it may be too difficult to maintain these marital arrangements as a female Marine
- At Zone A, single female Marines have higher reenlistment rates than other females *and* single males



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We also compared estimated reenlistment rates of single vice married Marines. For men, we find that in all zones, married male Marines, including those married to a civilian spouse, another Marine (regardless of colocation status), or to another service spouse, have the higher reenlistment rates than single Marines.

For women, collocated female Marines have higher reenlistment rates than their single counterparts in all zones. Noncollocated female Marines have lower reenlistment rates than single female Marines in Zone A, but they have higher rates in Zone B. In Zone C, the noncollocated rate is lower than the single rate, but not by much.

There is more consistency in the difference between the reenlistment rates for female Marines with civilian spouses or with spouses in other services and single female Marines across zones. The estimated average reenlistment rates for female Marines with these types of spouses are lower than their single female counterparts in every zone. This suggests that it may be more difficult for female Marines to maintain these marital arrangements alongside their USMC career compared with their male counterparts.

Finally, as we have noted, single female Marines have higher reenlistment rates than single male Marines in all zones, with the most notable difference occurring in Zone A.

Summary and concluding thoughts

- Three of the six estimated relationships between colocation and reenlistment for each zone by gender are positive and statistically significant (as compared to the noncolocated spouses)
 - There are effects in Zones A and C for women and in Zone B for men only
- More generally, the Marine Corps needs to continue to pursue policies that man the force efficiently while helping all Marines achieve both career and family aspirations, especially as more women are brought into the Corps
- This may mean exploring the how the Marine Corps could improve colocation with other-service spouses



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We show that colocation of enlisted Marine-Marine couples positively affects the estimated probability of reenlisting in *some* cases, other factors held constant. The estimated colocation effects are statistically significant for women making reenlistment decisions in Zones A and C and for men in Zone B.

As compared to their single counterparts, married male Marines are consistently and significantly more likely to reenlist, regardless of the specific *type* of marriage they are in. By contrast, as compared with their single female counterparts, married female Marines are *less* likely to reenlist at all zones if they are married to a civilian or a non-Marine servicemember. However, female Marines in colocated Marine-Marine marriages are *more* likely to reenlist in all zones than their single counterparts.

We conclude that colocation may not be the most effective policy tool for increasing retention for men, but for women, it appears that it could be offsetting some of the challenges of navigating a Marine Corps career and marriage to another Marine.

We find that, on average, colocation is associated with higher reenlistment rates, although not consistently for all zones and both genders. This suggests that the Marine Corps should consider collocating married Marines among its policy options to increase reenlistment rates. We also recommend that the Marine Corps explore ways to increase colocation rates.

At a minimum, it is important to continue exploring policy options that simultaneously (1) efficiently man the force and (2) help Marines achieve their career and family aspirations. Those Marines who can achieve both their career and family aspirations while serving appear to be more likely to reenlist.

Backup slides

Male sample sizes

Marital status			Zone A		Zone B		Zone C	
			N	Percent	N	Percent	N	Percent
Military spouse	Marine spouse	colocated	4,699	1.96%	1,231	2.11%	616	2.06%
		Not colocated	549	0.23%	225	0.39%	110	0.37%
	Other service spouse	colocation unknown	2,380	0.99%	927	1.59%	382	1.28%
Civilian spouse			103,992	43.28%	41,482	71.25%	23,784	79.72%
Single			128,683	53.55%	14,358	24.66%	4,943	16.57%
TOTAL			240,303	100.0%	58,223	100.0%	29,835	100.0%

- As is the case for the whole sample, the majority of Zone A men are single; the majority of Zone B and C men have civilian spouses.
- Colocation for men will be an issue for less than 5 percent of the force—singles and civilian spouses together make up more than 95 percent of the sample in all three zones.
- The colocated percentages for men are lower than for the whole sample.



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In this slide and the next, we present the male and female samples by colocation/marital status subgroups for Zone A, B, and C decisions. Our male sample consists of about 240,000 Zone A decisions, 58,000 Zone B decisions, and 30,000 Zone C decisions. Note that some men make a Zone A decision early in our sample period and make a Zone B decision later in the sample period (the same is true for some men at the Zone B and Zone C decision points).

As is true for the overall sample, the majority of Zone A men are single, whereas the majority of Zone B and C men have civilian spouses. We highlight one other observation about the male sample: a smaller percentage of men is colocated compared with the percentage of colocated Marines in the whole sample. Specifically, at the Zone A decision point, 3.50 percent of the entire sample is colocated, compared with 1.96 percent of men; at the Zone B decision point, 3.84 percent of the entire sample is colocated, while only 2.11 percent of men are; and at the Zone C decision point, 3.78 percent of the entire sample is colocated vice 2.06 percent of men. This suggests that female colocation rates are higher than male colocation rates in all three zones, as we confirm on the next slide.

Female sample sizes

Marital status			Zone A		Zone B		Zone C	
			N	Percent	N	Percent	N	Percent
Military spouse	Marine Spouse	colocated	4,324	25.16%	1,183	25.82%	587	29.89%
		Not colocated	617	3.59%	229	5.00%	81	4.12%
	Other service spouse	colocation unknown	1,151	6.70%	183	3.99%	68	3.46%
Civilian spouse			3,338	19.42%	1,036	22.61%	420	21.38%
Single			7,758	45.14%	1,951	42.58%	808	41.14%
TOTAL			17,188	100.0%	4,582	100.0%	1,964	100.0%

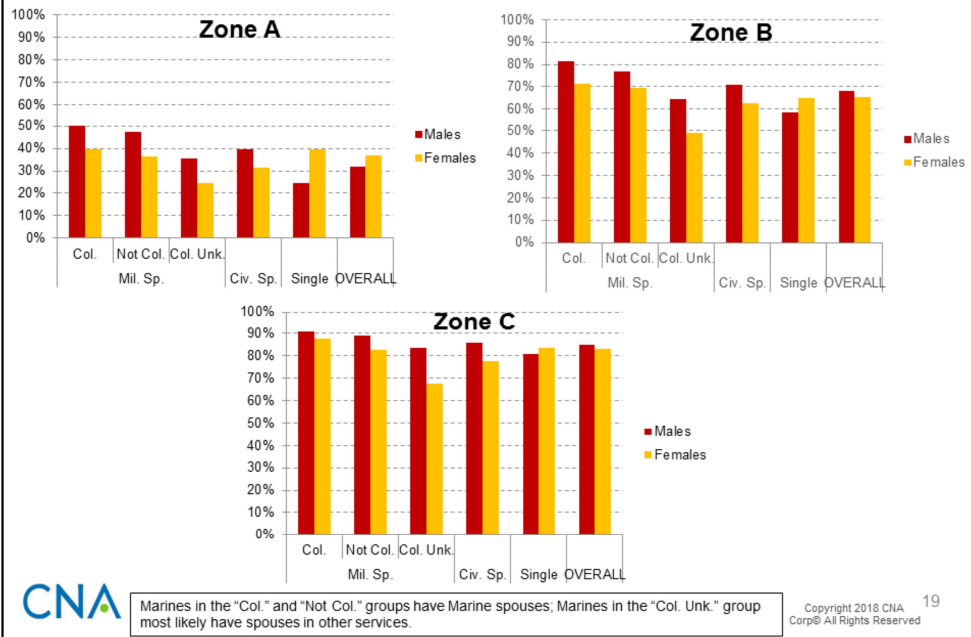
- A noticeably higher percentage of women than men are colocated (and have military spouses).
- Lower percentages of women than men have civilian spouses
- There are higher percentages of single women than men in Zones B and C, but a higher percentage of single men than women in Zone A.



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Our sample contains far fewer women than men. There are roughly 17,000 women making Zone A decisions, 4,500 women making Zone B decisions, and 2,000 women making Zone C decisions (compared to 240,000, 58,000, and 30,000 men in Zones A through C, respectively). We note several other key differences between the female and male samples. First, a noticeably higher percentage of women than men are colocated—25 percent at the Zone A and B decision points and nearly 30 percent at the C decision point, compared with about 2 percent at each decision point for men. Second, a plurality of women is single at the time of their Zone A decision (no majority is achieved). Likewise, a plurality of women are *also* single at their Zone B and C decisions. By contrast, the majority category for men shifts to civilian spouse in the later zones.

Reenlistment rates, by gender, colocation, and zone, not adjusted for other factors



For context, the figures in this slide show the simple cross-tabulations of reenlistment rates by gender and colocation/marital status for each of the zones. We do not control for other factors that could influence reenlistment rates, such as PMOS, paygrade, and number of deployments.



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