Marine Corps Deployment Tempo and Retention from FY04 through FY07

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Executive summary

The Global War on Terror has become the Long War, and the increase in operational tempo that enlisted Marines and Marine officers have experienced since 9/11 is expected to continue. Although the Marine Corps exceeded its aggressive FY07 endstrength goal, it is critical that we continue to monitor the relationship between deployment tempo and retention.

In this paper, we analyze how deployments, either by total days or location, influence reenlistment and retention. We look at the reenlistment decisions of enlisted Marines between FY04 and FY07 and the retention decisions of Marine officers between December 2006 and December 2007. In our multivariate regressions we control for a number of characteristics that could influence reenlistment and retention decisions, including, dependent status, race, and ethnicity. We focus particularly on dependent status since participants in December 2006 and January 2007 focus groups mentioned differences in the deployment tempo of Marines *with* and *without* dependents.[1] We use two deployment measures in our regressions:

- Number of deployments to areas within the Iraq/Afghanistan country groups[2] and
- Non-crisis days deployed[3]

1. Those focus groups are documented in the companion paper to this report [1].

2. The groups include Iraq, Algeria, Bahrain, Dijbouti, Egypt, Iran, Israel, Jordan, Kuwait, Oman, Pakistan, Qatar, Saudi Arabia, Spratly Islands, Turkey, United Arab Emirates, and Uzbekistan (Iraq group) and Afghanistan, Armenia, Georgia, Kyrgyzstan, and Tajikistan (Afghanistan group). We use the term Iraq/Afghanistan country groups because the majority of Marines who deploy to any country in these groups typically also serve in Iraq or Afghanistan during that deployment spell.

Findings for First Term Alignment Program (FTAP) enlisted Marines

For FTAP Marines, we estimated two logistic reenlistment regressions: one for all FY04–FY07 decisions and one restricted to FY07 decisions (which we isolated because, in that year, the Marine Corps began its push to increase endstrength to 202,000). In this effort, many Selective Reenlistment Bonuses (SRBs) were increased and all recommended and eligible FTAP Marines were allowed to reenlist.

As in past studies, we continue to see differences in reenlistment rates between Marines *with* and *without* dependents. For example, the retention of single Marines *without* dependents is more negatively influenced by multiple deployments. This finding may seem counterintuitive, considering the extent of press coverage on family separations caused by deployment. However, it is worth noting that Marines *without* dependents have consistently averaged more deployed days than Marines *with* dependents. Although this gap has decreased over time, it was still present in FY07, when 59 percent of Marines *without* dependents deployed more than 300 days, whereas only 52 percent of Marines *with* dependents did the same.[4]

Reenlistment and deployments to Iraq/Afghanistan groups

Below we summarize our findings from the logistic reenlistment regressions for FTAP Marines with deployments to the Iraq/Afghanistan country groups.

- When we look at all FTAP reenlistment decisions in the FY04–FY07 period, additional deployments to Iraq/Afghanistan

3. *Non-crisis deployed time* includes: (1) operational days *not* spent in Iraq/Afghanistan country groups, (2) exercise days, (3) unit training days, (4) home station training days, and (5) mission support temporary duty (TDY) days. Any day that a Marine is engaged in one of these five activities and is not at home in his or her bed at night is counted as a non-crisis deployed day.

4. The Commandant of the Marine Corps (CMC) has taken steps to address differences in deployment tempo with his *Every Marine Into the Fight* ALMAR of 23 January 2007 [2].

country groups are predicted to decrease reenlistments. Each additional deployment decreased reenlistment:

  - By 1.0 percentage points for Marines *with* dependents
  - By 5.9 percentage points for Marines *without* dependents

- When we restrict the analysis to FY07 decisions, we find that each additional deployment:
  - Increases reenlistments by 1.5 percentage point for Marines *with* dependents
  - Decreases reenlistments by 3.2 percentage points for Marines *without* dependents

Reenlistment and non-crisis days deployed

Not all of the time spent away from home is spent in deployments to Iraq or Afghanistan. Here we look at the effect on reenlistment of non-crisis deployed days.

- When we look at all FTAP reenlistment decisions in the FY04–FY07 period, we find that an additional 100 days deployed in non-crisis areas:
  - Has no statistically significant effect on reenlistments for Marines *with* dependents
  - Decreases reenlistments by 2.1 percentage points for Marines *without* dependents
- When we restrict the analysis to FY07 decisions, we find each additional 100 days deployed in non-crisis areas:
  - Has no statistically significant effect on reenlistments for Marines *with* dependents
  - Decreases reenlistments by 2.3 percentage points for Marines *without* dependents

Findings for second- and third-term Marines

Among career Marines, we estimate that additional non-crisis deployed days have either no effect or a small positive effect on reenlistment.

Findings for Marine officers

Deployments continue to be positively correlated with Marine officer retention, whether the officer is retirement or non-retirement eligible. Still, there is some concern that continued operational demands will begin to affect retention—particularly for young officers coming off their initial service obligations.

Background

Since FY03, enlisted Marines and Marine officers have undergone an extended period of continual deployments—primarily to the Iraq/Afghanistan country groups. This increase in operational tempo raised concerns about reenlistment and continuation in the Marine Corps. To address these concerns, CNA started tracking and documenting the retention effects correlated with higher operational tempo in 2003. In addition to ongoing quantitative analysis, CNA has been conducting ongoing qualitative analysis through focus groups with enlisted Marines and Marine officers. The companion paper to this report [1] documents analysis of focus groups conducted in December 2006 and January 2007. This report summarizes conclusions drawn from our statistical work on deployments and reenlistment/continuation over the FY04–FY07 period.

By the time Marines reach their first reenlistment decision, the vast majority have deployed at least once. Table 1 lists the number of recommended and eligible Marines by reenlistment term, fiscal year of reenlistment eligibility, the share of each cohort who deployed at all, and the share who deployed to the Iraq/Afghanistan country groups.

The share of Marines who have deployed increased from FY04 to FY07—from 89 percent of first-term Marines in FY04 to 92 percent in FY07. There has been an even larger increase in the share of second- and third-term Marines deploying—from 81 percent of second- and third-term Marines in FY04 to 92 percent, in FY07.[5] We define "share deployed" broadly to include anyone who has engaged in any category of deployment.[6]

5. These are deployments in their second and third terms, respectively.

6. There are five categories of time spent deployed (DEPTEMPO): operational days, exercise days, unit training days, home station training days, and mission support TDY days. Any day that a Marine is engaged in one of these five activities and is not at home in his or her bed at night counts as a deployed day.

Table 1. Number of Marines in FY04–FY07 by term, share deployed, and share deployed to Iraq/Afghanistan country groups[a]

Term	Year	Total number of Marines	Percentage of Marines	
			Share deployed[b]	Share deployed to Iraq/ Afghanistan country groups
First-termers (Zone A)	FY04	20,718	89	58
	FY05	19,895	91	69
	FY06	20,730	92	76
	FY07	25,623	92	78
Second-termers (Zone B)	FY04	4,986	81	35
	FY05	5,067	88	49
	FY06	5,268	89	60
	FY07	6,355	92	73
Third-termers (Zone C)	FY04	2,542	83	36
	FY05	2,176	89	46
	FY06	2,625	92	58
	FY07	3,567	92	69

a. Deployment data begin in FY01. Thus, these are the percentages of Marines who have deployed in the period from FY01 through FY07. For each Marine, we count only deployments within the 1,461 day window before a Marine has to make a reenlistment decision, so, for second- and third-term Marines, we're looking at deployments since their last reenlistment decision.

b. The increase in the total number of Marines in each zone from FY06 to FY07 was partially due to Marines reenlisting early. A change in the rules allowed recommended and eligible first-term Marines slated to reenlist in FY08 to reenlist in FY07. In FY07, 3,911 first-term Marines reenlisted early. In addition, in FY07 more second and third-term Marines reenlisted early compared with FY04-FY06. For example, in FY06 1,586 second-term Marines reenlisted early compared with 2,665 in FY07. In FY06, 982 third-term Marines reenlisted early compared with 1,853 in FY07.

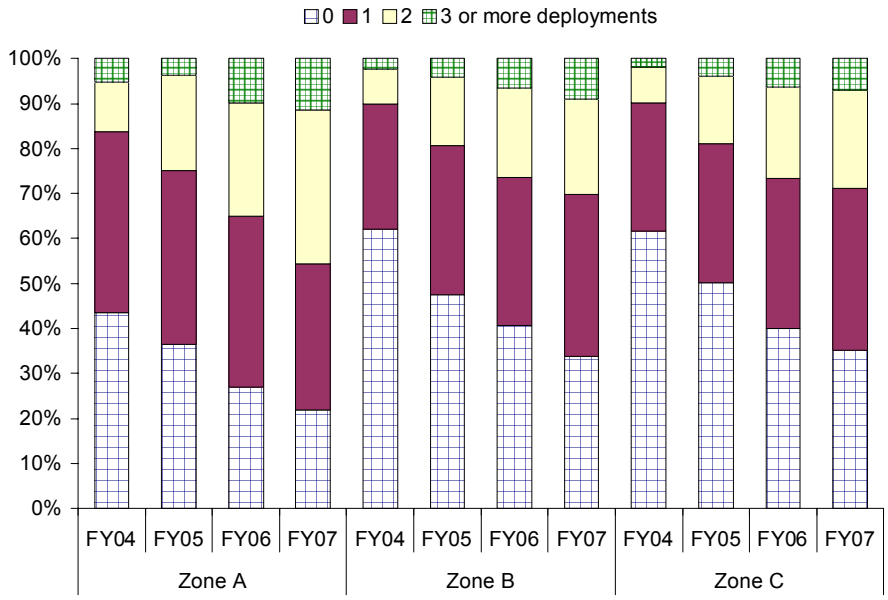
A more restrictive measure of deployment is to look just at those primarily associated with the War on Terror. Thus table 1 also lists the share who have deployed to the Iraq/Afghanistan country groups.[7]

7. The groups include Iraq Algeria, Bahrain, Dijbouti, Egypt, Iran, Israel, Jordan, Kuwait, Oman, Pakistan, Qatar, Saudi Arabia, Spratly Islands, Turkey, United Arab Emirates, and Uzbekistan (Iraq group) and Afghanistan, Armenia, Georgia, Kyrgyzstan, and Tajikistan (Afghanistan group). We use these groupings because most Marines who deploy to any of the above-listed countries typically serve in Iraq or Afghanistan during that deployment spell.

From FY04 to FY07, the share of recommended and eligible first-term Marines who deployed to the Iraq/Afghanistan country groups increased from 58 percent to 78 percent. The share of second- and third-term Marines deploying to these country groups increased even further—from 35 percent and 36 percent among second- and third-term FY04 Marines to 73 percent and 69 percent of second- and third-term Marines, respectively.

For those who have deployed, there has been an increase in the number of times deployed. Figure 1 shows the share of Marines, by reenlistment decision and fiscal year of decision, who have experienced none, one, two, or three or more deployments. Over the past 4 years, the share of Marines experiencing no deployments has shrunk, while the share experiencing three or more deployments has increased. For example, among zone A Marines making decision in FY04, 5.4 percent had deployed three or more times, and by FY07 that share had increased to 11.5 percent.

Figure 1. Share of Marines by number of deployments, fiscal year of decision, and reenlistment term



In January 2007, President Bush announced that the Marine Corps would grow to 202,000 Marines by FY11 [3]. Since then, in addition to meeting the deployment needs associated with the Long War, the

Marine Corps has increased the force through recruitment and retention efforts.[8]

One tool that has been used to increase reenlistment is the Selective Reenlistment Bonus (SRB). Between 1 October 2006 and 23 June 2007, all reenlisting Marines—in addition to those designated as SRB-eligible—received a $10,000 reenlistment bonus. The bonus was announced 26 February 2007 but was retroactively given to Marines who had reenlisted between 1 October 2006 and 26 February 2007.

On 7 June 2007, the Marine Corps switched from announcing SRB amounts in the form of levels to announcing flat-rate dollar amounts.[9] Effective 24 June 2007, the Marine Corps changed the reenlistment bonus amounts to either $10,000 *or* the predetermined SRB. In addition, at that time, the Marine Corps allowed Marines eligible for reenlistment in FY08 to reenlist early. Each of these events is likely to have affected reenlistment behavior so regressions we account for reenlistment bonuses in our multivariate.

Previous research on deployment tempo

In this paper, as in [4, 5], we examine how deployment experience influences reenlistment decisions among recommended and eligible Marines at the end of their first term (FTAP), as well as at the end of their second and third terms (Subsequent Term Alignment Plan or STAP). The authors of [4] found that, for FY04 FTAP Marines, deployments to a crisis area and more days deployed were associated with lower reenlistment rates. These negative effects on reenlistment were much larger for Marines without dependents than they were for Marines with dependents.

As was the case with FY04 FTAP Marines, in [5] the authors estimated that, for FY05 FTAP Marines, the impact of operational tempo on

8. In fact, the Marine Corps now estimates that it will achieve a 202,000 active-duty Marine force by the end of FY09.

9. See MARADMIN 349/07. With SRB levels, the total SRB amount was computed as (Monthly Basic Pay x Number of months reenlisting x SRB level)/12.

reenlistment rates differed for those with and without dependents. As deployed days increased, Marines without dependents were less likely to reenlist and Marines with dependents were somewhat more likely to reenlist. Marines both with and without dependents were less likely to reenlist the more times they deployed to the Iraq/Afghanistan country groups, but the negative effects of such deployments were much larger for Marines without
dependents. As noted in the summary, given the substantial press coverage of family separations caused by deployments, this finding may appear counterintuitive; however, it is important to note that Marines without dependents averaged more deployed days than Marines with dependents.

Unlike FTAP Marines, deployments for career Marines reenlisting in FY04 had little effect on their reenlistment rates [4]. Among career Marines making reenlistment decisions in FY05, deployments to the Iraq/Afghanistan country groups (or the number of deployed days) had small positive effects on reenlistment rates [5]. For Marine officers making continuation decisions in FY04 or FY05, the effects were similar deployed days or deployments to a crisis area were positively associated with continuation [4, 5]. Among all groups, Marines with no deployed days were less likely to reenlist or be retained than those with some deployed time [4, 5].

The findings from CNA's statistical analyses are consistent with discussions with Marines in focus groups, whose participants, in 2004 and 2005, made statements that supported the empirical finding that single Marines deploy more. However, it was not clear whether this was caused by single Marines volunteering for deployments or by their commanders identifying them for deployments. Many of the FTAP Marines who had not deployed indicated that they were interested in doing so, and many of the FTAP Marines who had not deployed worked in nondeployable billets. The study recommended exchanges between heavy deployers and nondeployers [6].

Similar topics were discussed in the 2007 focus groups, with participants further stressing the issues and problems of not deploying at all or deploying too frequently [1]. For example, those who had not deployed at all worked in nondeployable billets for long hours to fulfill the mission and many were interested in deploying but hadn't

been given the opportunity. The Commandant of the Marine Corps (CMC) has taken steps to address these issues with his *Every Marine In the Fight* ALMAR [2]. In addition to deployments, retention issues involving non-unit deployments and CONUS quality of life were raised in these focus groups—issues that are not analyzed in this paper.

In this paper

In this paper, we use FY04 through FY07 data to examine whether time spent deployed influences continuation behavior. For reenlistment rates, we examine only reenlistment decisions among recommended and eligible Marines. We limit our discussion to major findings; supporting statistical work is available in the appendix. We use data from the Contingency Tracking System (CTS), Personnel Tempo (PERSTEMPO) files, and CNA's personnel files[10] to specifically examine:

- Reenlistment decisions in FY04, FY05, FY06, and FY07 for first-, second-, and third-term Marines
- Officer continuation decisions from December 2006 to December 2007.

The decision to reenlist is influenced by more than just DEPTEMPO. Although we cannot control for every factor that will influence reenlistment (e.g., patriotism or a Marine's civilian job opportunities), we can control for a number of factors in our multivariate logistic regressions to try to isolate how much reenlistment is actually influenced by DEPTEMPO. The deployment measures we use in our regressions are deployments to areas within the Iraq/Afghanistan country groups and days deployed to non-crisis areas.

10. In response to 10 U.S.C §991, the Services began keeping deployment information in October 2000. The Defense Manpower Data Center (DMDC) built the PERSTEMPO file from Service-supplied data. Based on pay records, DMDC builds the CTS, which includes information on crisis deployments, i.e. deployments to Iraq/Afghanistan country groups. We matched enlisted reenlistment data (from CNA's retention database) with the deployment and crisis data, building datasets for FY04, FY05, FY06, and FY07. We also matched the PERSTEMPO and CTS data to officer personnel files to track officer retention between December 2006 and December 2007.

FTAP Marines

Factors influencing reenlistment rates

Figure 2 shows reenlistment rates for first-term Marines from FY04 to FY07. The reenlistment rate of first-term Marines was significantly higher in FY07 (42 percent) compared with the reenlistment rates in FY04, FY05, and FY06 (which ranged between 26 and 27 percent). The higher reenlistment rate in FY07 is likely due to three factors:

1. Between FY04 and FY06, reenlistments were restricted and the Marine Corps required that a recommended and eligible Marine have a "boatspace" to reenlist. In FY07, all caps were lifted and all recommended and eligible Marines were allowed to reenlist.
2. Higher SRB amounts were offered in FY07 [7].
3. Recommended and eligible first-term Marines slated to reenlist in FY08 were allowed to reenlist in FY07, resulting in a larger pool of Marines recommended and eligible to reenlist in FY07 than in past years. In our descriptive statistics and multivariate regressions we include everyone who reenlisted in FY07 even those who reenlisted early. Excluding those FTAP Marines who reenlisted early, we find that the FY07 reenlistment rate was 31 percent, still higher than in the past four years.

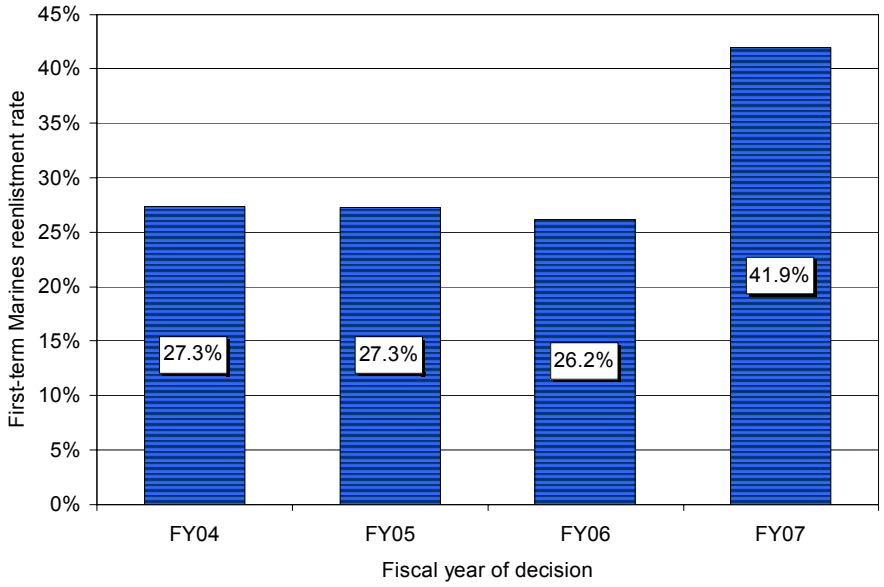
All three factors contributed to the significantly higher reenlistment rate in FY07 (see figure 2) and helped the Marine Corps exceed its endstrength goal in that year.

Days deployed and deployments to the Iraq/Afghanistan country groups

Overall, there has been an increase in the total number of days that FTAP Marines have deployed (see table 2). Since FY05, the share of

reenlistment-eligible Marines who has deployed more than 400 days has increased. Among those reenlisting in FY04, 28 percent had experienced over 400 days deployed, and that share increased to 31 percent in FY05, to 34 percent in FY06, and to 42 percent in FY07.

Figure 2. Reenlistment rate of FTAP Marines by fiscal year of decision[a]



a. For our analysis of FY07 data, we include all FTAP Marines who reenlisted in FY07 even those slated to reenlist in FY08. If we exclude those who reenlisted early, then the reenlistment rate for FY07 is 31.3 percent.

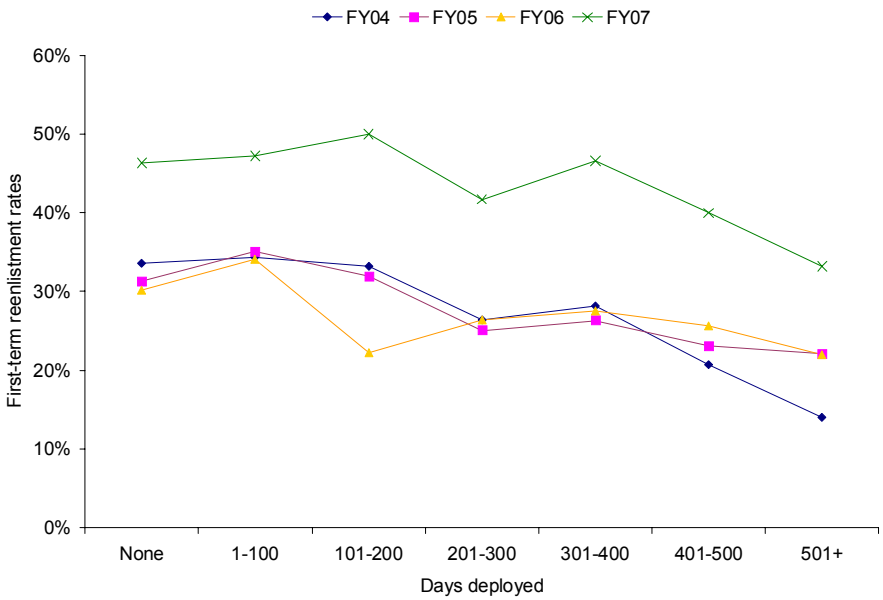
Table 2. Share of FTAP Marines by fiscal year of decision and total number of days deployed[a]

		Percentage of first-term Marines by total days deployed						
FY	Number	None	1–100	101–200	201–300	301–400	401–500	Over 500
FY04	20,718	11.5	15.8	13.2	17.5	14.4	16.3	11.3
FY05	19,895	9.3	12.9	14.2	18.7	13.5	15.7	15.7
FY06	20,730	8.1	10.3	13.9	18.5	14.8	17.8	16.6
FY07	25,623	7.7	10.1	7.9	19.0	13.6	22.3	19.4

a. Includes crisis and non-crisis days deployed.

Figure 3 shows the reenlistment rate of FTAP Marines by total days deployed from FY04 to FY07. For FTAP Marines who deployed more than 200 days, deployment is negatively correlated with reenlistment. Reenlistments in FY04, FY05, and FY07 follow a similar pattern—a dip in reenlistment rates for Marines who deployed for 201 to 300 days and then a steady decrease for Marines who deployed over 400 days. Reenlistments in FY06 followed a slightly different pattern, with a dip at 101 to 200 days deployed and a very slight decrease in reenlistment rates for deployed days over 400. Despite the increase in deployments and time spent deployed over the past 4 years, this figure shows that the reenlistment rate of FTAP Marines reenlisting in FY07 is significantly higher than in the previous 3 fiscal years.

Figure 3. FTAP reenlistment rates by year of decision and total number of days deployed[a]



a. Includes crisis and non-crisis days deployed.

The number and share of FTAP Marines participating in deployments to the Iraq/Afghanistan country groups has increased from FY04 to

FY07 (see table 3).[11] More FY07 FTAP Marines deployed to the Iraq/Afghanistan country groups and more times than in the previous 3 fiscal years.

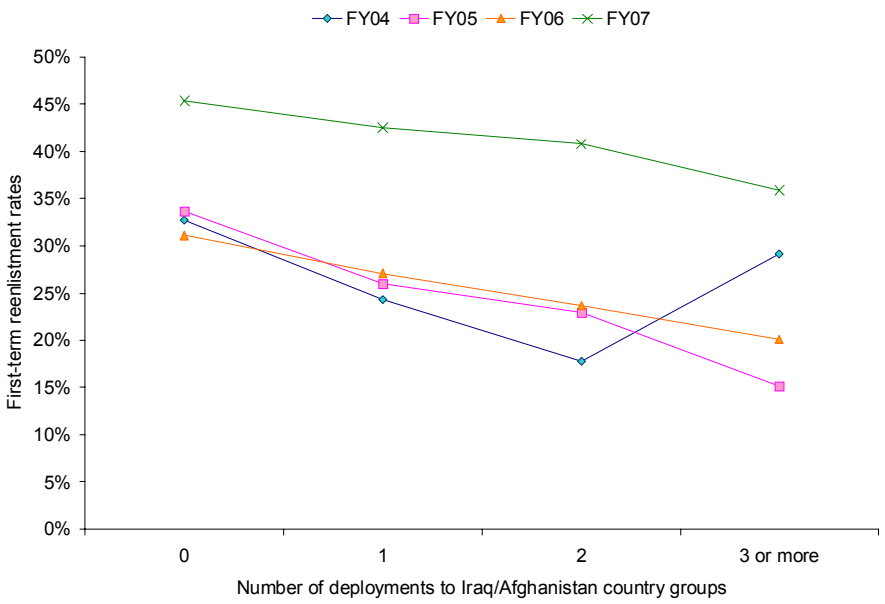
Table 3. Share of FTAP Marines by fiscal year of decision and number of deployments to the Iraq/Afghanistan country groups

		Percentage of first-term Marines by deployments to Iraq/Afghanistan			
FY	Number	None	1	2	3 or more
FY04	20,718	42.0	49.8	7.8	0.4
FY05	19,895	31.0	39.4	27.6	2.0
FY06	20,730	24.0	32.1	34.1	9.8
FY07	25,623	22.3	33.2	35.1	9.4

For FY04, FY05, and FY07, there was a negative relationship between the number of deployments to the Iraq/Afghanistan country groups and reenlistment rates (see figure 4). For FTAP Marines making reenlistment decisions in FY04, only 73 had deployed three or more times to the Iraq/Afghanistan country groups. The reenlistment rate among this small group of Marines was very high (see figure 4). By FY07 over 2,400 FTAP Marines had experienced three or more deployments to the Iraq/Afghanistan country groups. For FY07, the reenlistment rate among FTAP Marines who had not deployed to countries within the Iraq/Afghanistan country groups was 45 percent compared with 36 percent among Marines who had three or more deployments to these areas.

11. We used DMDC's crisis file to determine the number of deployments to the Iraq/Afghanistan country groups. We look at deployments to the Iraq/Afghanistan country groups because a majority Marines deploy to countries within that group but eventually serve in Iraq or Afghanistan.

Figure 4. FTAP reenlistment rates by fiscal year of decision and number of deployments to Iraq/Afghanistan country groups

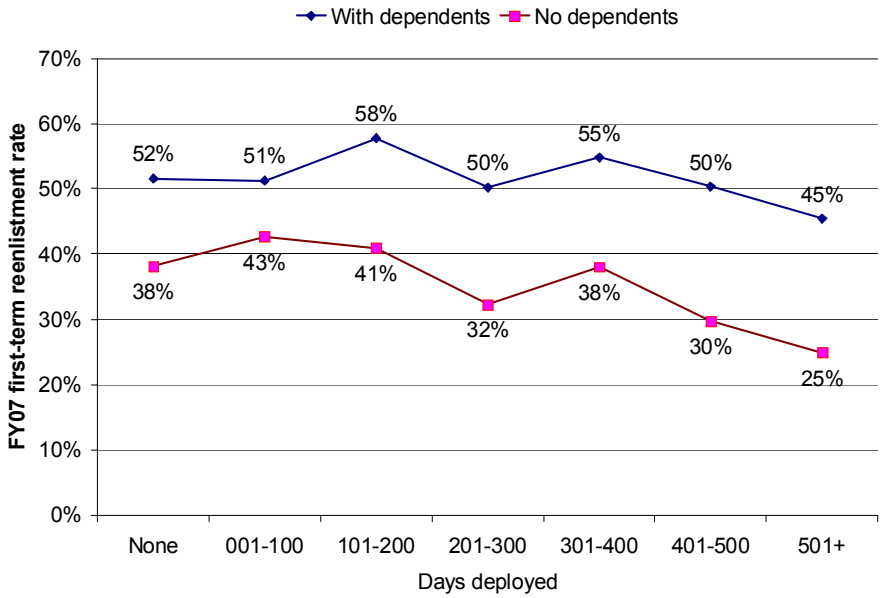


The presence of dependents

Of FY04, FY05, and FY06 FTAP Marines, 47 percent had dependents; among FY07 FTAP Marines, the share was 50 percent. Figure 5 shows that the presence of dependents was positively correlated with reenlistment. Focusing on FY02, FY03, and FY04 reenlistments, the authors of [4] find that the reenlistment rate of Marines with dependents is higher than that of Marines without dependents. In fact, in every year since 1980, the reenlistment rate of Marines with dependents has been higher than the reenlistment rate of Marines without dependents.[12] When looking at the FY07 data, we find a similar relationship: the reenlistment rate of FTAP Marines with dependents is higher than that of FTAP Marines without dependents. In addition, a higher share (59 percent) of FTAP Marines without dependents deployed more than 300 days compared with 51 percent of FTAP Marines with dependents. Like [4], we find a larger negative reenlistment effect of DEPTEMPO on Marines without dependents than on Marines with dependents.

12. CNA's Marine Corps personnel data began in 1980.

Figure 5. FTAP FY07 reenlistment rates by dependent status and total days deployed[a]



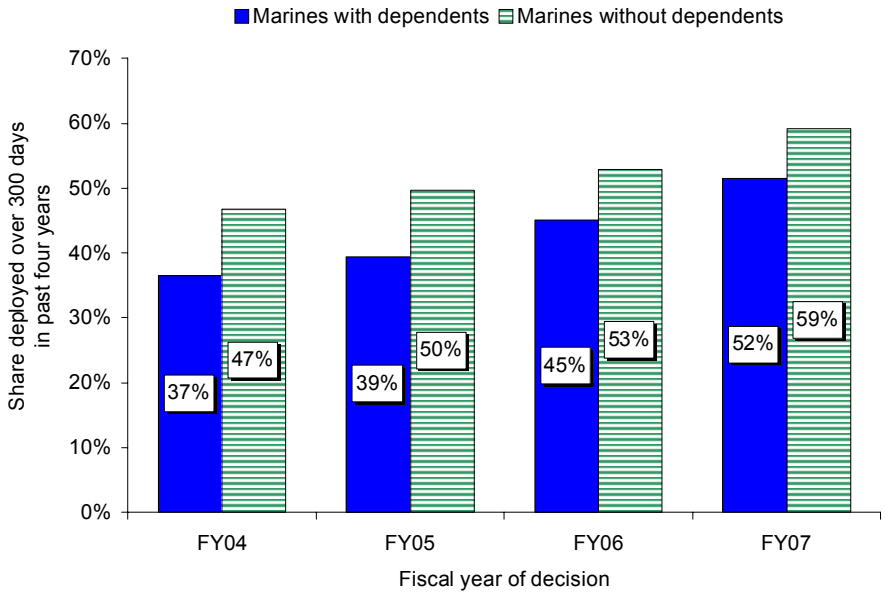
a. Includes crisis and non-crisis days deployed.

Overall, Marines without dependents are more heavily deployed (see table 4 and figure 6). A higher share of FTAP Marines without dependents also deploy to the Iraq/Afghanistan country groups. For example, in FY04, 56 percent of FTAP Marines with dependents deployed to the Iraq/Afghanistan country groups compared with 58 percent of Marines without dependents. In FY07, the share for those with dependents increased to 76 percent compared with 79 percent among those without dependents.

Table 4. Share of FTAP Marines by presence of dependents, fiscal year of decision, and deployment experience

	Marines with dependents				Marines without dependents			
	FY04	FY05	FY06	FY07	FY04	FY05	FY06	FY07
Number	9,616	9,259	9,805	12,896	11,102	10,636	10,925	12,727
Percentage								
Ever deployed	85.7	88.4	89.6	90.6	90.9	92.8	94.0	94.0
Deployed to Iraq/ Afghanistan	55.6	66.7	73.7	76.2	58.0	71.1	78.0	79.3

Figure 6. Share of FY07 FTAP Marines deployed over 300 days in the past 4 years



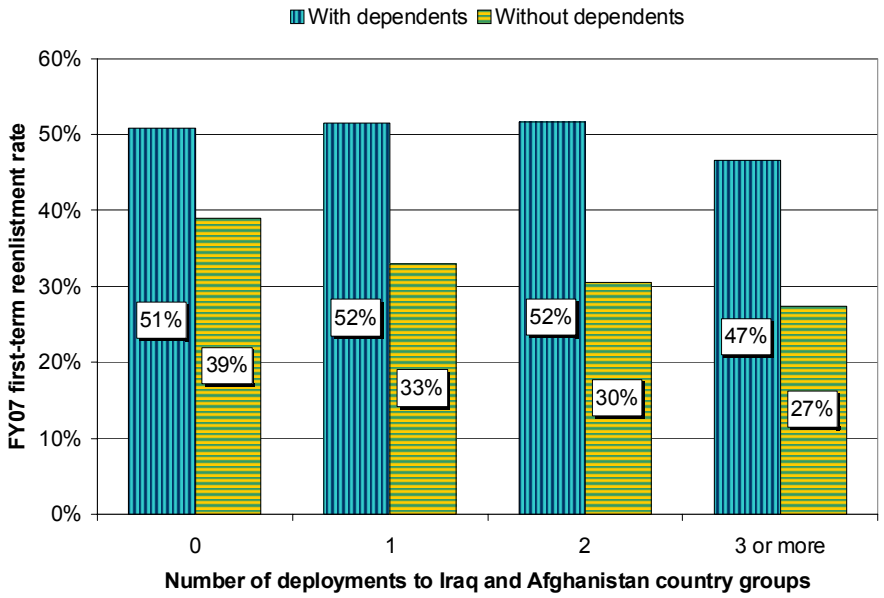
As with days deployed, first-term Marines with dependents are much more likely to reenlist than their counterparts without dependents (see figure 7). There is a 4-percentage-point difference between the unadjusted reenlistment rate of Marines with dependents with zero and three or more deployments to the Iraq/Afghanistan country groups. In comparison, the difference is 12 percentage points between Marines without dependents who deployed zero and three or more times to the Iraq/Afghanistan country groups.

Multivariate analysis of FTAP reenlistment probabilities

FY04 through FY07 FTAP reenlistments

In this subsection, we discuss our multivariate logistic regression findings for FTAP Marines using FY04 to FY07 data. In our regressions, we control for factors—such as age and dependent status—that can affect reenlistment in order to isolate the effect of a particular variable on reenlistment probability. Our models include variables on SRB level, race, ethnicity, paygrade, presence of dependents, and

Figure 7. FTAP FY07 reenlistment rates by deployments to the Iraq/ Afghanistan country groups



fiscal year (see the appendix). The deployment tempo variables we include are number of days deployed to non-crisis areas and number of deployments to the Iraq/Afghanistan country groups.

All of the demographic characteristics examined had statistically significant effects on reenlistment probabilities. Male FTAP Marines were 1.2 percentage points less likely to reenlist than their female counterparts. Having one dependent increases the predicted probability of reenlisting by 3.7 percentage points, and each additional dependent (up to four dependents) increases the reenlistment probability by about 4 percentage points.

Blacks are more likely to reenlist than whites (by 16 percentage points), as are Hispanics, who are estimated to reenlist at a rate 3.5 percentage points higher than whites. Corporals are 13 percentage points more likely to reenlist than Lance Corporals and 2 percentage points less likely to reenlist than Sergeants.

FTAP reenlistment rates in FY07 were 14 percentage points higher than for any of the previous 3 fiscal years—even when accounting for SRBs, differences in demographics, and so on.

We measure DEPTEMPO by deployed days (number of deployed days, in hundreds) to non-crisis areas and number of deployments to the Iraq/Afghanistan country groups. From our logistic regressions, we can estimate the effect of each DEPTEMPO variable holding demographic and the other DEPTEMPO characteristics constant. Because Marines with and without dependents deploy (on average) for different lengths, we looked at deployment factors by the presence of dependents.

Non-crisis days deployed are negatively correlated with reenlistment for first-term Marines both with and without dependents. However, there is more of an effect among Marines without dependents. The reenlistment rate of first-term Marines without dependents decreases by 2.1 percentage points for each additional 100 days spent deployed to a non-crisis area. Among first-term Marines with dependents, each additional 100 non-crisis days deployed has a negative effect on reenlistment; however, that effect is small and not statistically significant.

Deployments to the Iraq/Afghanistan country groups are negatively correlated with FTAP reenlistment. As with non-crisis days deployed, we find more of an effect among Marines without dependents. For Marines without dependents, we predict that an additional deployment to the Iraq/Afghanistan country groups would reduce reenlistment by 5.9 percentage points. Among Marines with dependents, an additional deployment to the Iraq/Afghanistan country groups is predicted to decrease reenlistment by 1 percentage point.

FY07 FTAP reenlistment

We also examined FY07 data separately since the reenlistment rate in FY07 was significantly higher than in past years (see figure 2). In FY07, 25,613 Marines were recommended and eligible for reenlistment and, of those, 42 percent reenlisted.[13] In addition, a higher share of first-term Marines deployed (see figure 1). From FY04 to FY07, the

13. In our FTAP multivariate regressions we include early FY08 reenlisters, Marines who were slated to reenlist in FY08 but decided to reenlist in FY07.

share of recommended and eligible first-term Marines who deployed to the Iraq/Afghanistan country groups increased from 58 percent to 78 percent (see table 1).

Our logistic regressions yield results on demographic characteristics that are similar to our results for FY04 to FY07. For example, we estimate that blacks are 17 percentage points more likely to reenlist than their white counterparts. Corporals are 13 percentage points more likely to reenlist than Lance Corporals. Having one dependent increases the predicted probability of reenlisting by 5.2 percentage points and each additional dependent, up to four dependents, increases the probability by about 5 percentage points.

As with our FY04 to FY07 logistic regression results, we find more of a negative effect of deployment tempo on reenlistment for first-term Marines without dependents. Non-crisis days deployed are negatively correlated with reenlistment for first-term Marines without dependents. We predict the reenlistment rate of first-term Marines without dependents decreases by 2.3 percentage points for each additional 100 days spent deployed to a non-crisis area. The effect of non-crisis days deployed on reenlistment for first-term Marines with dependents are not statistically different from zero.

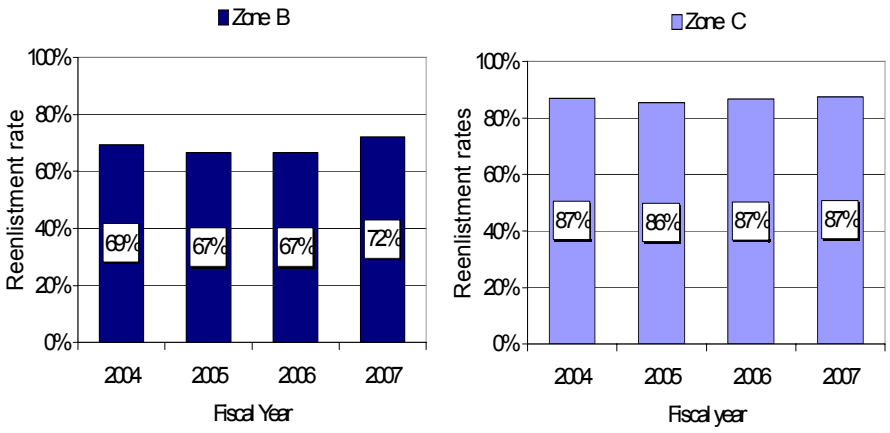
The results for deployments to the Iraq/Afghanistan country groups are mixed. We predict that, among FY07 first-term Marines without dependents, each additional deployment to the Iraq/Afghanistan country groups decreases reenlistment by 3 percentage points. For Marines with dependents, each additional deployment to the Iraq/Afghanistan country groups is predicted to increase reenlistment by 1.5 percentage points.

Career Marines

Factors influencing reenlistment rates

Career Marines have higher reenlistment rates than first-term Marines and, as figure 8 shows, the longer a Marine stays in the Corps, the more likely he or she is to reenlist. The second-term reenlistment rate decreased slightly from 69 percent in FY04 to 67 percent in FY05 and FY06; however, in FY07, it increased to 72 percent. The increase in second-term Marines' reenlistment rates in FY07 could be due to the increase in FY07 SRB levels. For all 4 years, the reenlistment rate among third-term Marines is extraordinarily high at 86 to 87 percent. Unlike for first- and second-term Marines, the reenlistment rate for third-term Marines has not changed much during this 4-year period.

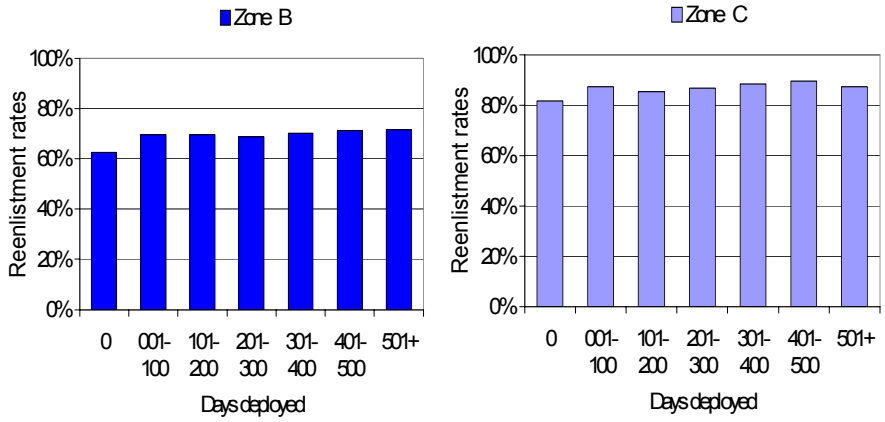
Figure 8. FY04–FY07 reenlistment rates for second-term (zone B) and third-term (zone C) Marines



For our deployment variables, we tracked Marines over the past 4 fiscal years to determine the number of days spent deployed and the number of deployments experienced. For first-term Marines, 4 years is roughly equivalent to the Marine's first term or entire experience within the Marine Corps. On average, for second- and third-term Marines, the past 4 years corresponds with the period since their last reenlistment decision.

The relationship between days deployed in the past 4 years and reenlistment is slightly different for second- and third-term Marines than for FTAP Marines. For each of the years examined, the reenlistment rate among second- and third-term Marines is higher for those who have deployed than for those who have not deployed since their last reenlistment decision. Among deployers, there is not a clear relationship between days deployed and retention (see figure 9). However, as noted in our statistical analysis later in this section, there is a slight positive relationship between retention and non-crisis days deployed for second-term and third-term Marines.

Figure 9. FY04 to FY07 reenlistments by total days deployed for second-term (zone B) and third-term (zone C) Marines[a]



a. Includes crisis and non-crisis days deployed.

We also examined the relationship between the number of deployments to the Iraq/Afghanistan country groups and reenlistment. For career second-term Marines, reenlistment rates increase with the number of deployments to those areas during their second term of service. For third-term Marines, there is no difference in the reenlistment rates between those who have not deployed to any country within the Iraq/Afghanistan country groups in the past 4 years and those who have deployed once. Among third-term Marines who have deployed within the Iraq/Afghanistan country groups in the past 4 years, reenlistment rates increase with the number of deployments (up to four deployments).

Many Marines serve in CONUS billets during their second term of service. For Marines making zone B reenlistment decisions between FY04 and FY07, 45 percent did not deploy to the Iraq/Afghanistan country groups, 33 percent deployed once, 17 percent deployed twice, and 5 percent deployed three or more times. For Marines making third-term (zone C) reenlistment decisions between FY04 and FY07, 46 percent had not deployed, 33 percent had deployed once, 17 percent had deployed twice, and 4 percent had deployed three or more times to the Iraq/Afghanistan country groups. Figure 10 shows that reenlistment probabilities are positively related to deployments among those who have deployed to these areas.

Figure 10. FY04–FY07 reenlistments by deployments to the Iraq/Afghanistan country groups for second-term (zone B) and third-term (zone C) Marines

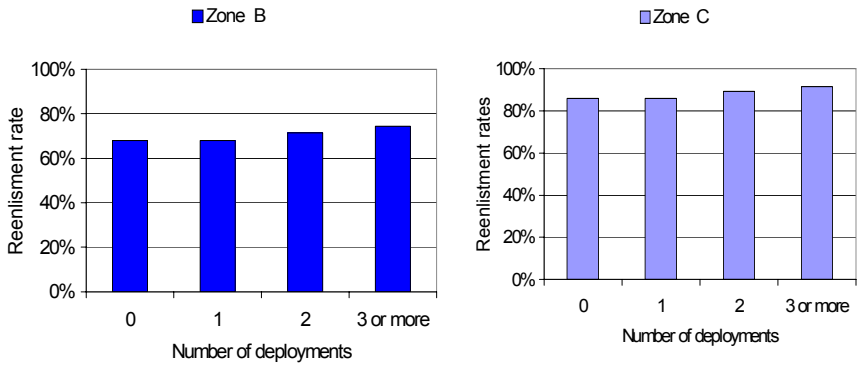
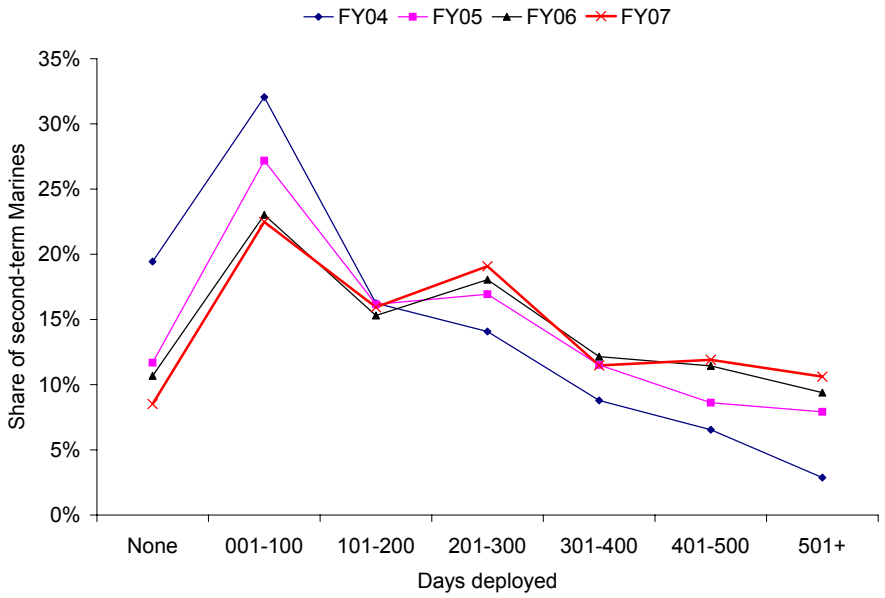


Figure 11 shows the share of second-term Marines who have deployed at different levels. As noted earlier in table 1, the total number and percentage of Marines deploying has increased between FY04 and FY07. Figure 11 shows that the increase in the share of Marines deployed has been coupled with an increase in the share who have deployed 200 or more days.

Figure 11. Share of second-term Marines by total days deployed and fiscal year of reenlistment[a]

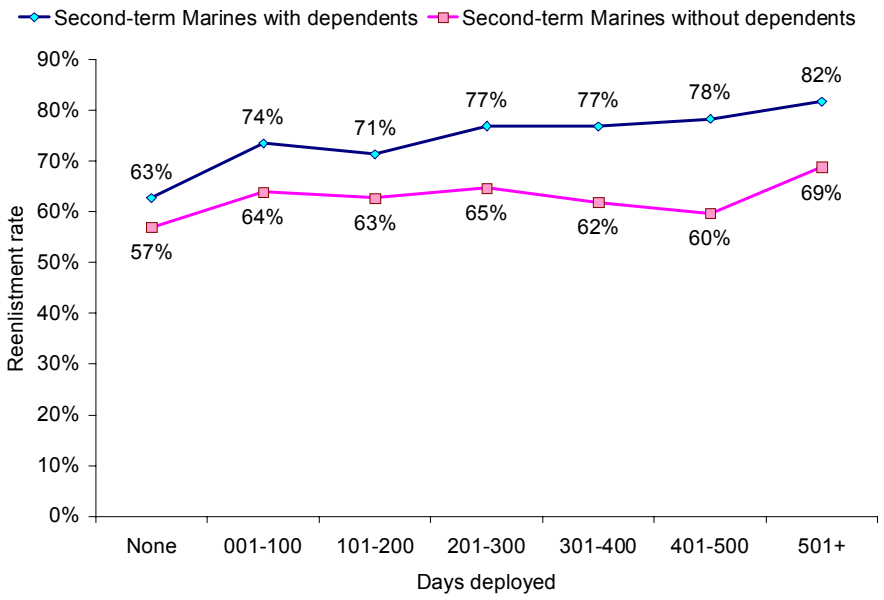


a. Includes crisis and non-crisis deployed days.

When we look at all second-term Marines, we see no clear relationship between days deployed during the second term and reenlistment, but we do by the presence of dependents. The vast majority of second-term Marines coming up for reenlistment have at least one dependent—almost 80 percent in FY07. As was the case with first-term Marines, the reenlistment rate for second-term Marines with dependents is higher than for their counterparts without dependents. For example, in FY07, 75 percent of second-term Marines with dependents reenlisted compared with 64 percent of second-term Marines without dependents.

Figure 12 shows the reenlistment rate of second-term Marines in FY07 by the presence of dependents and number of days deployed. For second-term Marines with and without dependents, Marines with no deployments during the last term have lower reenlistment rates than Marines who have deployed. There is also a difference between these two groups in the correlation between days deployed and reenlistment. The increase in reenlistment rates as deployments increase is larger among second-term Marines with dependents than for those without.

Figure 12. Reenlistment rate of FY07 second-term Marines by presence of dependents and total days deployed[a]

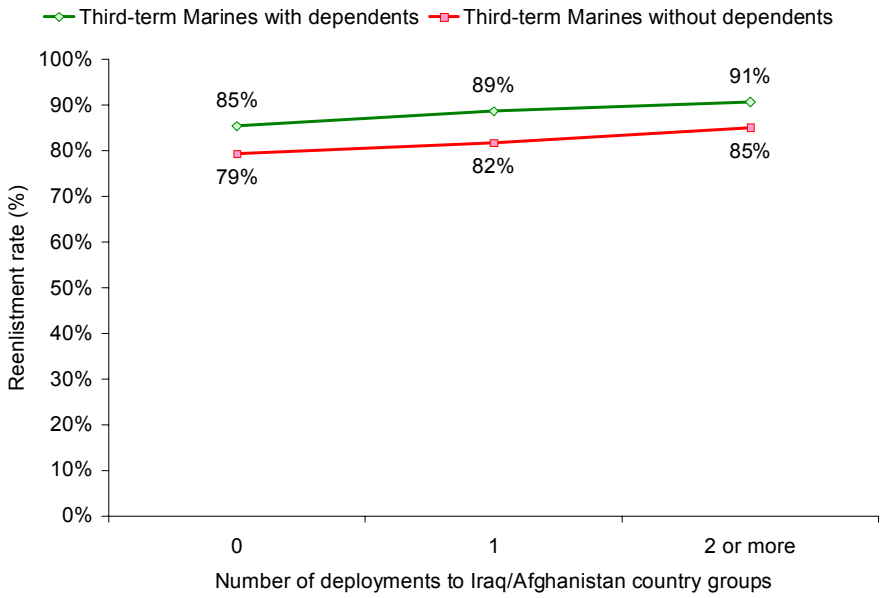


a. Includes crisis and non-crisis days deployed.

Among third-term Marines, 87 percent have dependents and reenlist at a rate that is almost 6 percentage points higher than their counterparts without dependents. Figure 13 shows the reenlistment rate of third-term Marines in FY07 by the presence of dependents and the number of deployments to the Iraq/Afghanistan country groups.

The positive relationship between the reenlistment rate of third-term Marines—with and without dependents—and deployments to the Iraq/Afghanistan country groups illustrated in figure 13 is consistent with our multivariate findings presented in the next subsection.

Figure 13. Reenlistment rate of FY07 third-term Marines by presence of dependents and number of deployments to Iraq/Afghanistan country groups



Multivariate analysis for FY04–FY07 reenlistment decisions of careerists

In our multivariate analyses, we can see the effect of a particular characteristic on reenlistment, holding constant all other characteristics. For second-termers, black and Hispanic Marines are more likely to reenlist (by 8.4 and 2.4 percentage points, respectively) than other Marines. Second-term male Marines are more likely to reenlist than their female counterparts (7.6 percentage points). And, second-term

Marines with one dependent are almost 6 percentage points more likely to reenlist than Marines without dependents.

For third-term decisions, Hispanic ethnicity is not a differentiating characteristic in reenlistment decisions. Black Marines making their third reenlistment decisions are 1.5 percentage points more likely to reenlist than their non-black, non-Hispanic counterparts. Third-term male Marines are 4 percentage points more likely to reenlist than their female Marine counterparts. Those with two or more dependents are more likely to reenlist than those with one or no dependents.

For both second- and third-term Marines, the reenlistment rate was highest in FY07; however, when we account for changes in other factors, including SRB levels and deployment levels, we find that the reenlistment rate in FY07 was the lowest of the 4 fiscal years. Of our 4 fiscal years of data, we predict that second- and third-term Marines were most likely to reenlist in FY04. Predicted reenlistment probabilities began to decrease in FY06 among third-term Marines, with the lowest rates in FY07. This finding suggests that the unadjusted high reenlistment rates of FY07 may have been due to responses to the high SRB levels and that, without high SRB levels, the reenlistment rate of careerists could decrease.[14]

We measured deployment tempo by non-crisis deployed days and deployments to the Iraq/Afghanistan country groups. Using multivariate logistic regression, we were able to predict how changes in deployment would influence reenlistment. Holding the number of non-crisis days deployed constant, we find a positive effect from an additional deployment to the Iraq/Afghanistan country groups among second- and third-term Marines. Among second-termers, each additional deployment to Iraq/Afghanistan country groups is associated with a 2.2 percentage point increase in predicted reenlistment.

14. FY07 SRB levels were higher than in previous years. For example, for the 0311 Rifleman, the zone A and zone B FY06 SRB levels were 4 and 1, respectively. In FY07 the 0311s SRB levels were 5 and 1.5 for zones A and B, respectively. For zone C, the 0369s Infantry Unit leaders had SRB levels of 1 in FY06 and 1.5 in FY07.

Among those in their third term, each additional deployment to the Iraq/Afghanistan country groups is associated with a 2.1 percentage point increase in predicted reenlistment.

Further, days deployed to non-crisis areas are also positively associated with the predicted reenlistment rate of second- and third-term Marines. Each additional 100 non-crisis days deployed is predicted to increase reenlistment rates by 1.1 percentage points for second-term Marines and 1.3 percentage points for third-term Marines.

Deployment tempo and FY07 officer retention

We analyzed retention from December 2006 to December 2007 for commissioned Marine officers, doing separate analyses for those who were and those who were not eligible for retirement. We restrict the analysis to officers with 3 or more years of service and the rank of O2 or higher. If the officer separated, we tabulated the number of days deployed in the 48 months before separation. For officers who did not separate, we tabulated the number of days deployed in the 48 months preceding December 2007.

Non-retirement-eligible officers analysis

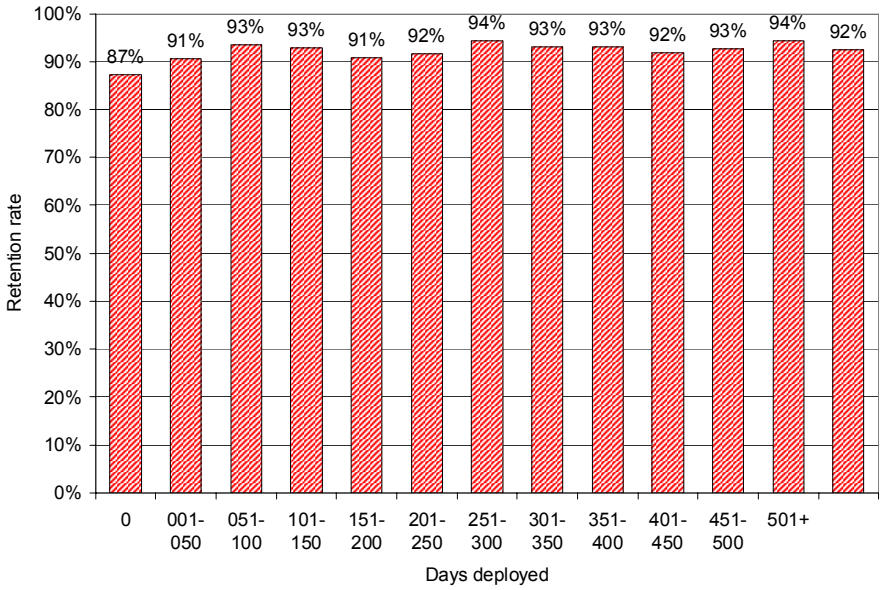
Descriptive statistics

In [4] the authors, looking at March 2004 to March 2005 officer retention, found a positive relationship between days deployed and retention for all year-of-service categories. Looking at December 2006 to December 2007, we do not find as clear a relationship, although we do find in regressions that include total days deployed an overall positive relationship (see figure 14).

Among officers who are not yet retirement-eligible, there is not much difference in retention by the number of deployments to the Iraq/Afghanistan country groups. While the retention rate among those who have not deployed to the Iraq/Afghanistan country groups is 92 percent, it is 93 percent among those who have deployed once or two or more times to these areas.

Next, we present our multivariate logistic results that control for other factors in estimating how non-crisis days deployed and Iraq/Afghanistan deployments influenced non-retirement-eligible officers' decisions to stay. These estimates are more reliable than those obtained from simple tabulations.

Figure 14.Retention by total days deployed for non-retirement-eligible officers[a]



a. Retention rates are calculated from December 2006 to December 2007 for Marine officers with 18 or fewer years of service as of December 2006. Figure includes crisis and non-crisis days deployed.

Summary of logistic regression: Non-retirement-eligible officers

In our logistic retention models of non-retirement-eligible officers, we found that:[15]

- Officers who graduated in the top third of their class at The Basic School (TBS) are 2.4 percentage points more likely to be retained.
- Officers in the 3rd to 6th year of service without dependents are less likely to continue in the same years of service as those with dependents.
- Retention rates are positively related to the past 48 months' deployment tempo.

15. See the appendix for all regression results.

— An additional 100 days deployed to a non-crisis area has a positive retention effect.

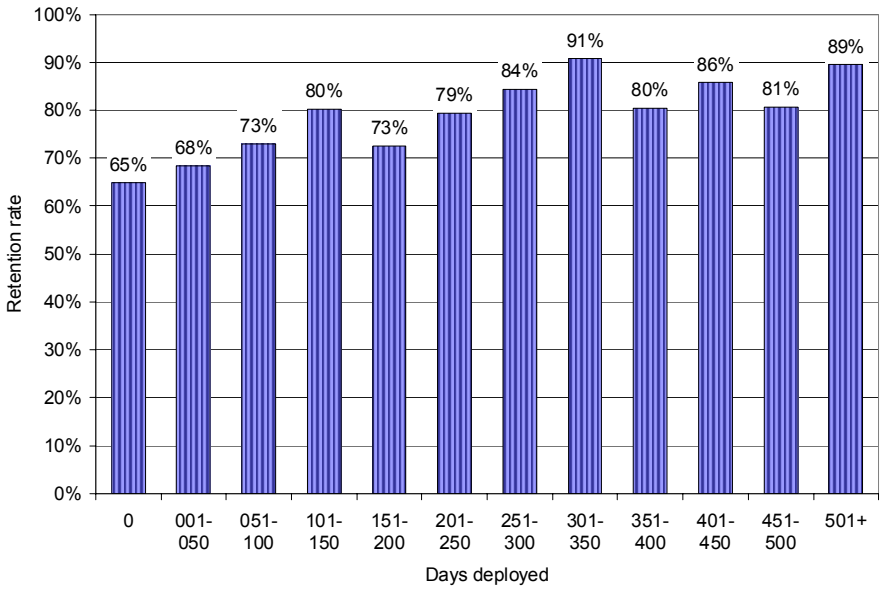
— One additional deployment to the Iraq/Afghanistan country groups has a positive retention effect.

Retirement-eligible officers analysis

Descriptive statistics

Figure 15 shows the retention rate for retirement-eligible officers by days deployed. As expected, the retention rate among retirement-eligible officers, at 76 percent, is lower than among officers who are not yet retirement eligible (i.e. with less than 20 years of service). However, the more days deployed in the past 48 months, the less likely an officer is to leave the Service. The retention rate among retirement-eligible officers with 200 or fewer days deployed is 71 percent, compared with 83 percent among those who deployed for 201 to 400 days and 86 percent among those who deployed over 400 days.

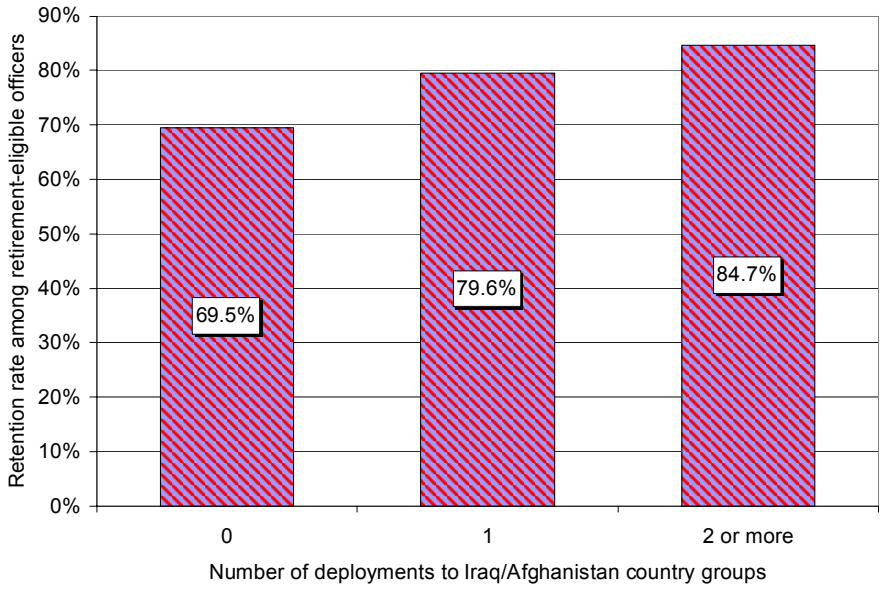
Figure 15.Retention by total days deployed for retirement-eligible officers[a]



a. Retention rates are calculated from December 2006 to December 2007 for Marine officers with 19 or more years of service as of December 2006. Figure includes crisis and non-crisis days deployed.

Retirement-eligible officers who have deployed within the Iraq/Afghanistan country groups within the last 48 months are more likely to stay than those who have not deployed there (see figure 16). In addition, those who have deployed two or more times have a higher retention rate than those who have only deployed once to the Iraq/Afghanistan country groups.

Figure 16. Retention by deployments to Iraq/Afghanistan country groups for retirement-eligible officers[a]



a. Retention rates are calculated from December 2006 to December 2007 for Marine officers with 18 or fewer years of service as of December 2006.

Summary of logistic regressions: Retirement-eligible officers

In our logistic retention models of retirement-eligible officers, we found that:

- Officers who graduated in the top third of their class at TBS are 9.3 percentage points more likely to be retained.
- Gender, race, and ethnicity did not have a statistically significant effect on the likelihood of being retained.

- Retention rates are positively related to the past 48 months' deployment tempo.
  - — An additional 100 days deployed to a non-crisis area is predicted to increase retention.
  - — One additional deployment within the Iraq/Afghanistan country groups is predicted to increase retention.

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Conclusions

Deployment tempo has been increasing throughout the Global War on Terror. A higher share of Marines reenlisting in FY07 had deployed and for longer periods of time than in the previous 3 fiscal years. In addition to higher deployment tempo, FY07 is unique in that the Marine Corps took a number of steps to increase reenlistment: lifting boatspace restrictions, increasing SRB levels, and allowing FY08 first-term Marines to reenlist early. Efforts to increase FY07 reenlistment rates were effective, and the Marine Corps saw a significantly higher share and number of FTAP Marines reenlisting in FY07 than in the recent past. As a result, the Marine Corps exceeded their aggressive FY07 endstrength goals.

Using FY04–FY07 data, we find that, at least for career Marines and officers, high deployment tempo has had little negative effect on reenlistment/continuation decisions so far. Yet, we find that increases in non-crisis deployed days and deployments to the Iraq/Afghanistan groups lowers reenlistment rates for first-term Marines—particularly those without dependents. These results are consistent with previous research that analyzed just FY04 and FY05 data [4,5]. Looking solely at FY07, we find that increases in deployment tempo lower reenlistment rates for first-term Marines *without* dependents. For first-term Marines *with* dependents we find little negative effect of increases in deployment tempo on FY07 reenlistment rates.

Thus far, career Marines and Marine officer retention has been positively related to operational tempo, but there is still the potential that continued operational demands will begin to affect retention. This is a particular concern for young officers coming off their initial service obligations.

In addition, factors other than deployment tempo may negatively affect reenlistment and should be monitored as well. For example, our finding that the adjusted reenlistment rate among career Marines

in FY07 was lower than any of the preceding 3 fiscal years raises concerns that reenlistment may suffer when other factors, such as high SRB levels, change.

Appendix: Logistic regressions

Notes on data and variables

We used crisis and deployment data from the Defense Manpower Data Center (DMDC) to construct our deployment variables. DMDC's Contingency Tracking System (CTS) is built from pay records and provides information on deployments to the Iraq/Afghanistan country groups. DMDC's Personnel Tempo (PERSTEMPO) files are built from data provided by the Services, and include information on all deployed days. Although DMDC has cleaned the CTS and PERSTEMPO data, we found it necessary to do some additional cleaning in order to calculate the number of deployments. For example,

- We dropped deployments if the begin date was after the end date.
- We closed all 1-day gaps between deployments.
- We closed all gaps for deployments to crisis areas that were less than 30 days if the result was a deployment that was not more than a year in length. Apparently, as units changed from one command to another, sometimes one crisis deployment record was ended and another crisis deployment record was begun.

We matched enlisted reenlistment data (from CNA's retention database) with the deployment and crisis data, building datasets for FY04, FY05, FY06, and FY07. We also matched the PERSTEMPO and CTS data to officer personnel files to track officer retention between December 2006 and December 2007.

Table 5 describes the variables used in the regressions. A more complete description of the data is available in [4]. However, unlike in [4], we limited deployed days to days deployed to countries that are not part of the Iraq/Afghanistan country groups.

Table 5. Variables used and their definitions

Variable	Definition
Dependent	
Reenlistment	1 if the Marine reenlists; else 0. The population is all recommended and eligible Marines.
Retention	1 if the officer in the Marine Corps in December 2006 is still in the Corps in December 2007; else 0.
Independent	
Male	1 if male; else 0.
Race/ethnic identifiers	A set of 0/1 variables that describe the Marine's race/ethnic background (black or Hispanic); else 0.
Married or dependent	1 if the Marine is married or has dependents; else 0.
Number of dependents	A set of 0/1 variables that specify the number of dependents a Marine has up to four dependents
SRB level identifiers	A set of 0/1 variables that specify the SRB level a Marine received in increments of 0.5
Paygrade identifiers	1 if the Marine is in the specified grade; else 0
Years of service (YOS) and pilot/non-pilot identifiers	For the officer models, we use several years of service and pilot/non-pilot identifiers: pilot, 3-6 years; pilot, 7-8 years, pilot, 9-11 years; non-pilot, 3-6 years; non-pilot, 7-11 years; 12-18 years. These variables are 1 if the Marine belongs to the category, else 0.
Top third The Basic School (TBS)	1 if the officer graduated in the top third of his or her class at The Basic School; else 0
04, retirement-eligible	1 if the officer is an O4 who is retirement-eligible, else 0. Because there are some mistakes in the Marine Corps data used to compute years of service, this variable has some errors. If the variable was computed correctly, the model would not estimate an effect since all retirement-eligible officers would leave.
Number of deployments to Afghanistan/Iraq country groups	Number of times the Marine deployed to the Iraq/Afghanistan country groups[a]
Non-crisis days deployed	Days deployed in past 4 years to non-crisis areas.[b] Measured in hundreds of days.

a. This group includes Iraq, Algeria, Bahrain, Dijbouti, Egypt, Iran, Israel, Jordan, Kuwait, Oman, Pakistan, Qatar, Saudi Arabia, Spratly Islands, Turkey, United Arab Emirates, and Uzbekistan (Iraq group) and Afghanistan, Armenia, Georgia, Kyrgyzstan, and Tajikistan (Afghanistan group). We use the term Iraq/Afghanistan country groups because the majority of Marines who deploy to any country in this group typically also serve in Iraq or Afghanistan during that deployment spell.

b. Non-crisis deployed time includes: (1) operational days not spent in Iraq/Afghanistan country groups, (2) exercise days, (3) unit training days, (4) home station training days, and (5) mission support temporary duty (TDY) days. Any day that a Marine is engaged in one of these five activities and is not at home in his or her bed at night is counted as a non-crisis deployed day.

Enlisted regression results

Table 6 presents the first-term (zone A) FY04–FY07 reenlistment logit results, and table 7 shows FY07 FTAP reenlistment logit results. Tables 8 and 9 give second-term (zone B) and third-term (zone C) reenlistment logit results, respectively.

Table 6. FY04–FY07 first-term (zone A) reenlistment logit

Variable[a]	Mean	Coefficient[b]	Derivative
Male	0.939	-0.062*	-0.012*
		(0.031)	
Black	0.105	0.745**	0.159**
		(0.024)	
Hispanic	0.169	0.178**	0.035**
		(0.020)	
One dependent	0.282	0.187**	0.037**
		(0.026)	
Two dependents	0.114	0.401**	0.082**
		(0.030)	
Three dependents	0.038	0.586**	0.123**
		(0.042)	
Four or more dependents	0.010	0.733**	0.157**
		(0.073)	
E3	0.105	-0.753**	-0.132**
		(0.029)	
E5 and up	0.287	0.092**	0.019**
		(0.017)	
FY05	0.229	0.044	not sig.
		(0.024)	
FY06	0.238	0.008	not sig.
		(0.025)	
FY07	0.295	0.692**	0.144**
		(0.027)	
Non-crisis days deployed (in 100s)			
Marine with dependents	0.488	-0.016	not sig.
		(0.008)	
Marine with no dependents	0.653	-0.101**	-0.021**
		(0.009)	

Table 6. FY04–FY07 first-term (zone A) reenlistment logit (continued)

Variable[a]	Mean	Coefficient[b]	Derivative
Number deployments to Iraq/ Afghanistan country groups			
Marine with dependents	0.497	-0.051**	-0.010**
		(0.012)	
Marine with no dependents	0.592	-0.313**	-0.059
		(0.012)	
Constant		-0.981**	
		(0.037)	
Average reenlistment rate	0.313		
Chi-Square	6902.82		
Observations	86,932		

a. The omitted variables are female, white, no dependents, E4, FY04, and 0 SRB level.
b. z statistic in parentheses beneath coefficients. * indicates significance at the 5-percent level. ** indicates significance at the 1-percent level. The regression also included variables that represent the SRB levels 0.5 to 7 in increments of 0.5.

Table 7. FY07 first-term (zone A) reenlistment logit

Variable[a]	Mean	Coefficient[b]	Derivative
Male	0.938	-0.092	not sig.
		(0.055)	
Black	0.088	0.743**	0.171**
		(0.047)	
Hispanic	0.166	0.018	not sig.
		(0.036)	
One dependent	0.302	0.230**	0.052**
		(0.047)	
Two dependents	0.116	0.469**	0.108**
		(0.055)	
Three dependents	0.037	0.652**	0.151**
		(0.078)	
Four or more dependents	0.010	0.869**	0.201**
		(0.141)	
E3	0.085	-0.598**	-0.128**
		(0.052)	
E5 and up	0.322	-0.044	not sig.
		(0.030)	

Table 7. FY07 first-term (zone A) reenlistment logit (continued)

Variable[a]	Mean	Coefficient[b]	Derivative
Non-crisis days deployed (in 100s)			
Marine with dependents	0.406	0.028	not sig.
		(0.018)	
Marine with no dependents	0.482	-0.103**	-0.023**
		(0.018)	
Number deployments to Iraq/ Afghanistan country groups			
Marine with dependents	0.639	0.066**	0.015**
		(0.020)	
Marine with no dependents	0.681	-0.147**	-0.032**
		(0.020)	
Constant		0.229**	
		(0.069)	
Average reenlistment rate	0.419		
Chi-Square	2139.29		
Observations	25,613		

a. The omitted variables are female, white, no dependents, E4, and 0 SRB level.
b. z statistic in parentheses beneath coefficients. * indicates significance at the 5-percent level. ** indicates significance at the 1-percent level.The regression also included variables that represent the SRB levels 0.5 to 7 in increments of 0.5.

Table 8. FY04–FY07 second-term (zone B) reenlistment logit

Variable[a]	Mean	Coefficient[b]	Marginal effect
Male	0.931	0.375**	0.076**
		(0.061)	
Black	0.178	0.456**	0.084**
		(0.046)	
Hispanic	0.184	0.121**	0.024**
		(0.042)	
One dependent	0.253	0.281**	0.059**
		(0.043)	
Two dependents	0.226	0.579**	0.115**
		(0.045)	
Three dependents	0.186	0.605**	0.120**
		(0.049)	

Table 8. FY04–FY07 second-term (zone B) reenlistment logit (continued)

Variable[a]	Mean	Coefficient[b]	Marginal effect
Four or more dependents	0.092	0.644**	0.127**
		(0.062)	
E3 or E4	0.019	-3.26**	-0.580**
		(0.193)	
E6 and up	0.348	0.592**	0.112**
		(0.036)	
FY05	0.234	-0.300**	-0.054**
		(0.047)	
FY06	0.243	-0.447**	-0.082**
		(0.050)	
FY07	0.293	-0.544**	-0.101**
		(0.061)	
Non-crisis days deployed (in 100s)	0.854	0.081**	0.011**
		(0.015)	
Number deployments to Iraq/ Afghanistan country groups	0.782	0.119**	0.022**
		(0.020)	
Constant		-0.673**	
		(0.085)	
Average reenlistment rate	0.689		
Chi-Square	2234.76		
Observations	21,653		

a. The omitted variables are female, white, no dependents, E5, FY04, 0 SRB level, and operational communications.

b. z statistic in parentheses beneath coefficients. * indicates significance at the 5-percent level. ** indicates significance at the 1-percent level. The regression also included variables that represent the SRB levels 0.5 to 7 in increments of 0.5, as well as dummy variables representing occupational field.

Table 9. FY04–FY07 third-term (zone C) reenlistment logit

Variable[a]	Mean	Coefficient[b]	Derivative
Male	0.948	0.422**	0.038**
		(0.141)	
Black	0.207	0.187*	0.015*
		(0.091)	
Hispanic	0.163	0.142	not sig.
		(0.098)	
One dependent	0.170	0.131	not sig.
		(0.114)	
Two dependents	0.203	0.278*	0.024*
		(0.112)	
Three dependents	0.284	0.336**	0.029**
		(0.107)	
Four or more dependents	0.203	0.388**	0.033**
		(0.116)	
E3, E4, or E5	0.089	-3.27**	-0.605**
		(0.087)	
E7, E8, or E9	0.212	0.954**	0.053**
		(0.118)	
FY05	0.199	-0.192	not sig.
		(0.103)	
FY06	0.241	-0.274*	-0.021*
		(0.109)	
FY07	0.327	-0.428**	-0.034**
		(0.121)	
Non-crisis days deployed (in 100s)	0.809	0.070*	0.013*
		(0.033)	
Number deployments to Iraq/ Afghanistan country groups	0.759	0.283**	0.021**
		(0.048)	
Constant		1.56**	
		(0.207)	
Average reenlistment rate	0.868		
Chi-Square	2202.99		
Observations	10,880		

a. The omitted variables are female, white, no dependents, E6, FY04, 0 SRB level, and operational communications.

b. z statistic in parentheses beneath coefficients. * indicates significance at the 5-percent level. ** indicates significance at the 1-percent level. The regression also included variables that represent the SRB levels 0.5 to 7 in increments of 0.5, as well as dummy variables representing occupational field.

Officer regression results

Table 10 has the retention logit results for commissioned officers in the period of December 2006 to December 2007. Table 10 has two logistic regressions—one for non-retirement-eligible officers and one for retirement-eligible officers.

Table 10. December 2006 to December 2007 officer retention regressions

	Non-retirement-eligible			Retirement-eligible		
Variable[a]	Mean	Coefficient[b]	Derivative	Mean	Coefficient	Derivative
Female	0.056	-0.241	not sig.	0.021	0.544	not sig.
		(0.129)			(0.497)	
Black	0.065	0.212	not sig.	0.039	0.258	not sig.
		(0.148)			(0.323)	
Hispanic	0.028	0.545*	0.031*	0.008	1.61	not sig.
		(0.251)			(1.09)	
Other race/ethnicity	0.051	0.576**	0.032**	0.026	-0.008	not sig.
		(0.18)			0.402	
Top third TBS	0.361	0.385**	0.024**	0.408	0.576**	0.093**
		(0.083)			(0.135)	
Pilot, 3-6 YOS	0.123	2.54**	0.037**			
		(0.397)				
Pilot, 7-8 YOS	0.050	-0.796**	-0.044**			
		(0.198)				
Pilot, 9-11 YOS	0.062	-1.060**	-0.066**			
		(0.156)				
Non-pilot, 3-6 YOS	0.249	-0.996**	-0.060**			
		(0.123)				
Non-pilot, 7-8 YOS	0.105	-0.712**	-0.038**			
		(0.140)				
Non-pilot, 9-11 YOS	0.124	-0.759**	-0.041**			
		(0.135)				
No dependents, 3-6 YOS	0.163	-0.806**	-0.045**			
		(0.115)				
O4, retirement-eligible				0.071	-1.63**	-0.348**
					(0.212)	

Table 10. December 2006 to December 2007 officer retention regressions (continued)

	Non-retirement-eligible			Retirement-eligible		
Variable[a]	Mean	Coefficient[b]	Derivative	Mean	Coefficient	Derivative
Non-crisis days deployed (in 100s)	0.909	0.187**	0.012**	0.566	0.286**	0.042**
		(0.040)			(0.096)	
Number deployments to Iraq/ Afghanistan country group	1.250	0.178**	0.011**	0.958	0.277**	0.043**
		(0.039)			(0.064)	
Constant		2.66**			0.692**	
		(0.106)			(0.109)	
Average retention rate	0.924			0.763		
Chi-Square	514.5			126.63		
Observations	11,091			1,546		

a. The omitted variables in the non-retirement-eligible regression are male, white, not in top third of TBS, pilot with over 11 years of service, non-pilot with over 11 years of service, and have dependents and 3-6 years of service. The omitted variables in the retirement-eligible regression are male, white, not in top third of TBS, and O5 or higher.

b. z statistic in parentheses beneath coefficients. * indicates significance at the 5-percent level. ** indicates significance at the 1-percent level.

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