

## Chapter 4

# Analysis of Staffing and Special and Incentive Pays in Selected Communities

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## Overview of Method and Approach

The review of compensation for selected critical career fields includes an analysis of recruiting and retention experience across recent years; analysis of civilian labor market alternatives for the community; documentation of incentives used to attract and retain personnel; and recommendations for changes in pay incentives to improve recruiting and retention.

Our approach to this analysis includes the following steps:

1. collect historical personnel data and historical, current, and future staffing requirements
2. collect current and historical information on recruiting and retention pay incentives
3. review staffing issues with service personnel
4. evaluate civilian market supply and demand, and compensation
5. obtain any empirical evidence demonstrating responsiveness of behavior to pay incentives and economic conditions
6. analyze current staffing and potential for improvements using the Officer and Enlisted Special and Incentive Pays Analysis Model developed for this purpose
7. determine opportunities for improvement and model-projected force effects
8. provide recommendations

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*The views expressed in this paper represent those of the authors and are not necessarily those of the Department of Defense.*

We apply this general analysis plan to each of four career fields we address. The following sections will describe any particular issues relating to each of those fields.

Our approach is guided by the following considerations regarding the use of Special and incentive (S&I) pays. Historically, S&I pays have been about 5 percent of total cash military compensation, yet they provide significant leverage to help the services manage the force. They do this by targeting specific problems and issues without the constraint of paying all members the same amount regardless of staffing conditions, or other factors that are relevant to only a subset of members or occupations. S&I pays tend to be “high powered” or efficient in that most of the compensation dollars go directly toward the identified staffing or related problem.

Criteria for application of S&I pays include the following:

- ❖ **Extraordinary civilian earnings opportunities.** If the particular community faces extraordinary civilian earnings opportunities that would attract military members into the civilian sector, resulting in poor retention, S&I pays offer a way to increase military earnings for that community, making it more competitive. Health professionals, such as physicians, are examples.
- ❖ **High training/replacement costs.** It may be cost effective to improve the retention rates of communities for which training costs are especially high, and therefore replacing losses are particularly costly. Adding S&I pays in such occupations to improve retention may actually reduce the total costs associated with the community. Examples where this may be the case include pilots and nuclear trained officers.
- ❖ **Rapid demand growth.** When demand for an occupation increases, it may be efficient to increase retention, reducing losses, so that, along with increased accessions, staffing and readiness goals can be achieved earlier, and perhaps at lower cost than relying solely on training new entrants. It should be recognized that the additional retention incentives are likely to be temporary, and that once staffing in the community has stabilized they may be reduced.
- ❖ **Onerous or dangerous conditions of service.** Not all members face the same working conditions or the same dangers. Special and incentive pays can be used to compensate members who face harsh or unpleasant working conditions or circumstances, or a greater risk of injury or death. The ability to attract and retain members under these circumstances remains a key criterion for assessing the case for S&I pays on this account. Examples of

such conditions of service may include service in a combat zone, sea duty, or working with hazardous materials.

- ❖ **Special skills and proficiency.** Special and incentive pays can be used to encourage the acquisition of a skill, or to provide an incentive for improved proficiency in the skill. Use of the Foreign Language Proficiency Bonus to encourage proficiency in select foreign languages is one example of the application of S&I pays for this purpose.
- ❖ **Performance or productivity.** S&I pays can be structured to provide incentives for increased performance or productivity. By rewarding performance or productivity, this application of S&I pays could motivate effort, increasing overall performance and productivity, and also provide a retention incentive to those who have high performance. In general, however, examples of this application of S&I pays are rare, perhaps because of the difficulties in measuring productivity in many military areas.

These reasons for using S&I pays are not mutually exclusive. For example, occupations with high training costs may also have extraordinary civilian earnings opportunities. A key point, however, is that the use of S&I pays should, with few exceptions, result in an “allocative” effect or impact: because of the pay, individuals are induced to enter or remain in military service at higher rates, or to acquire skills and achieve proficiency at higher rates, etc. The pays should induce changes in member behavior that result, ultimately, in improved staffing, readiness, or proficiency.

Prudent use of S&I pay resources means that the case for applying a pay should be evaluated carefully, based on its intended effect on retention and staffing, readiness, or proficiency; the evidence that it will achieve the desired outcome; and the cost. Most importantly, existing applications of S&I pays should be periodically and systematically evaluated to insure that they are producing the force staffing benefits intended, that these benefits are still needed, and that the S&I pay remains the cost-effective way to achieve the desired outcome.

In the analysis of four selected communities below, we apply the basic principles and methods discussed in this section, and use the model described in Chapter 3 of this volume to evaluate overall staffing in these communities and the application of S&I pays to these communities. In addition, Appendix 1 at the end of this chapter contains tables that forecast the marginal costs of increased retention through the use of S&I pays for the communities examined below. (The occupational specialty codes for those communities are included in Appendix 2.)

## Special Operations Forces

In the wake of September 11, 2001 and subsequent operations abroad in Afghanistan and Iraq, requirements for Special Operations Force (SOF) personnel have grown significantly. Though much of the requirements growth has already occurred, requirements will continue to grow in the foreseeable future. Operations abroad have led to higher operating tempo, lower dwell time and increased family separation, and more exposure to danger. Furthermore, civilian job opportunities for trained SOFs have expanded. These are all factors that make recruiting and retention more difficult and therefore increase the challenge of meeting the growing demand for SOF personnel.

In light of the growing requirements and increased challenges in meeting them, existing S&I pays for SOF personnel have been increased and new ones have been implemented, including the Critical Skills Accession Bonus (CSAB), the Critical Skills Retention Bonus (CSRB), Assignment Incentive Pay (AIP), and Special Duty Assignment Pay (SDAP). These pays have been important factors in attracting and retaining SOF personnel. Indeed, an analysis in Chapter 5 of this volume suggests that the CSRB has played a key role in retention of highly experienced SOF personnel.

It is useful to comment on a current Special Operations Command (SOC) proposal to overhaul the current S&I pays for SOF personnel. The current pays have been criticized on two grounds. One is a lack of parity among the services. SOF personnel working side by side may be receiving different S&I pays depending upon their parent service. The other is that the pays are not very predictable over the course of a career. SOC has therefore developed a proposal to replace AIP and SDAP with monthly career SOF pay. Monthly amounts would depend on SOF occupational classification (operating forces, combat support, and combat service support) and experience level. Billets designated as “critical” would receive an additional supplement.

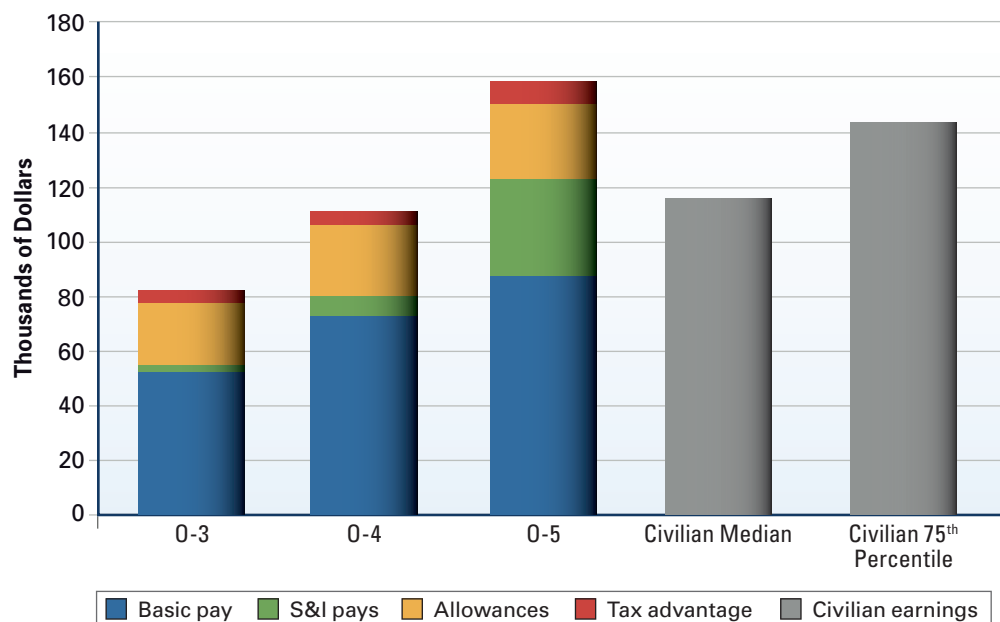
### SOF-Civilian Pay Comparisons

One of the problems in setting compensation for SOF personnel is establishing what their civilian opportunities are and how those opportunities compare with their military compensation. Civilian comparisons are difficult because there is no direct civilian counterpart to most SOF occupations other than a special operations pilot.<sup>1</sup> While there are no direct counterparts to most SOF occupations, the military-civilian occupation cross-walk tool available at [careerinfonet.org](http://www.careerinfonet.org) states that “leadership ability and management skills of this occupation are sought after by many organizations in the public and private sectors.” In the case of officer personnel, various civilian

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1. A cross-walk tool available at <http://www.careerinfonet.org/MOC> shows the direct civilian counterparts to each military occupation.

managerial occupations could be used to obtain civilian earnings alternatives. One plausible managerial occupation is engineering managers. Figure 1 shows the median 2009 earnings of engineering managers as well as their 75<sup>th</sup> percentile of earnings.<sup>2</sup> The military pays shown in the figure are for fiscal year (FY) 2009.



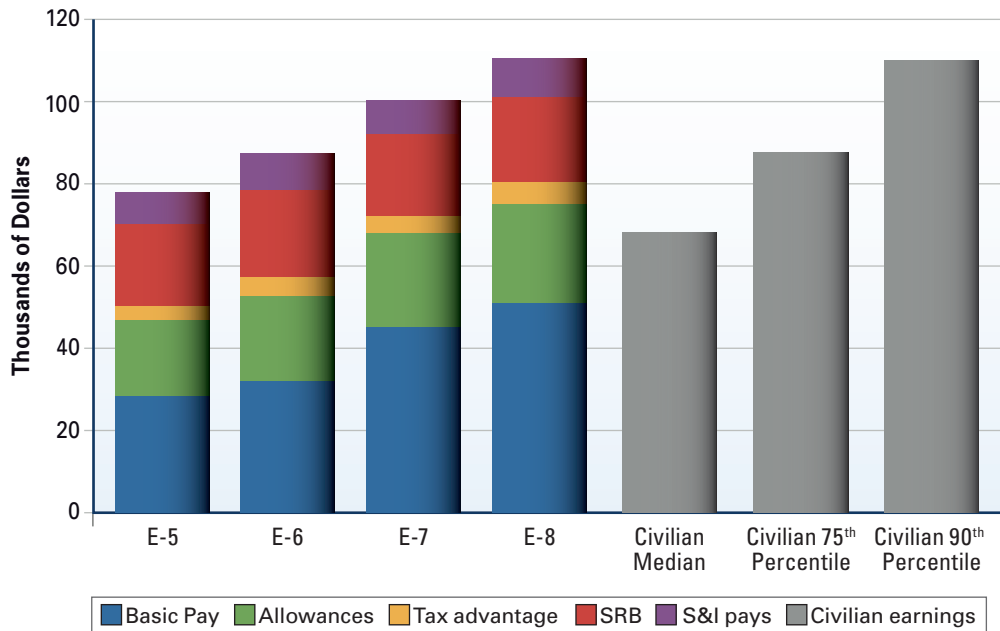
**Figure 1. SOF Personnel: Officer Pay Comparison<sup>3</sup>**

The data in this figure indicate that the current military compensation of midlevel SOF officers—consisting of the sum of basic pay, housing and food allowances, the tax advantage arising from the non-taxability of the allowances, and the average S&I pays they receive—is at or below the median earnings of engineering managers. O-3 officers in fact are paid below the median earnings of engineering managers while O-4 officers are at roughly the median for civilian earnings. For O-5 officers, current pay is above the 75<sup>th</sup> percentile of civilian earnings. Of course, the comparison does not consider the value of in-kind benefits (e.g., health care) or retirement.

As in the case of SOF officers, there are no direct civilian counterparts to any of the SOF enlisted occupations. For every SOF enlisted occupation, Careerinfonet’s cross-walk tool says that “The military occupation you selected has no direct equivalent to a civilian occupation; however the close teamwork, discipline, and leadership

2. The source for these data is the U.S. Bureau of Labor Statistics, Occupational Employment Statistics ([http://www.bls.gov/oes/oes\\_dl.htm](http://www.bls.gov/oes/oes_dl.htm)). Engineering managers have the OES code 11-904.

3. Military pay at the grades shown is computed at the mean year of service for that grade. Civilian earnings are based on the entire occupation. The experience level reflected in the civilian earnings estimate is the average experience of workers at the percentile shown in the comparison.



**Figure 2. SOE Personnel: Enlisted Pay Comparison<sup>4</sup>**

experiences it provides are helpful in many civilian occupations.” A civilian occupation emphasizing teamwork, discipline, and leadership experience is First-Line Supervisors/Managers of Firefighting (OES 33-1021). The median earnings and 75<sup>th</sup> percentile of earnings for civilians in this occupation are displayed in Figure 2 along with the FY 2009 military pay of enlisted SOFs in ranks E-5 to E-8.

The data in this figure indicates that the military earnings of SOFs—including their basic pay, allowances, tax advantage, and bonuses—are generally between the 50<sup>th</sup> and 90<sup>th</sup> percentile of civilian earnings. Again, these comparisons do not consider the value of in-kind benefits (e.g., health care) or retirement.

### Current Staffing and Requirements

The U. S. Special Operations Command (SOCOM) has personnel serving in many Military Occupation Specialties (MOS). This section reviews current (FY 2010) staffing and how staffing compares to the services’ stated requirements for personnel by SOF MOS.

Table 1 displays the FY 2010 and FY 2015 requirements for various Army SOF MOS categories, requirements growth over the period, the Army’s inventory of SOF personnel in the MOS category at the start of FY 2010, and the ratio of 2010 inventory

4. Military pay at the grades shown is computed at the mean year of service for that grade. Civilian earnings are based on the entire occupation. The experience level reflected in the civilian earnings estimate is the average experience of workers at the percentile shown in the comparison.

**Table 1. Army SOF Force Manning and Requirements**

Military Occupation Specialty	FY 2010 Requirement	FY 2015 Requirement	Growth	FY 2010 Inventory	Ratio
Special Forces Officer	1,070	1,123	5%	1,362	1.27
SOF Technical Warrant Officer	566	647	14	458	0.81
Special Forces Sergeant	4,656	5,206	12	4,877	1.05
Special Forces Senior Sergeant	1,199	1,303	9	1,164	0.97

to 2010 requirements. Beginning with inventories, in FY 2010, the Army SOF force consisted of 1,362 commissioned officers, 458 warrant officers, and 6,041 enlisted personnel. The Army's current inventories of Special Forces sergeants and senior sergeants were roughly in balance with its stated requirements (as measured by authorizations) for these personnel. The Army's Special Forces officer inventory exceeded its stated requirements by 27 percent. The overall surplus was due to an imbalance between its senior officer force and its junior (O-3) force, where manning is below requirements. The Army was manned at 81 percent of its requirement for warrant officers.

The Army's demand for SOF personnel is scheduled to grow modestly between FY 2010 and FY 2015. Over this period, SOF commissioned officer demand will grow by 5 percent, warrant officer demand will grow by 14 percent, and enlisted demand will grow by about 10 percent.

Table 2 presents requirements and manning in various Navy SOF specialties. In FY 2010, the Navy SOF force consisted of 723 commissioned and warrant officers and 4,435 enlisted personnel. The Navy SOF is currently staffed at between 87 percent and 98 percent of requirements depending upon MOS. Officer manning ranges between 90 percent for SEAL officers and 94 percent for Explosive Ordnance Disposal (EOD) officers, and enlisted manning ranges between 87 percent for EOD personnel and 98 percent for Special Warfare Combatant-craft Crew (SWCC).

Navy requirements for some SOF categories are scheduled to grow substantially over the next five years. The demand for enlisted EOD personnel is scheduled to increase by 50 percent, from 1,035 to 1,553. Other categories are scheduled to grow by between 7 percent (SWCC) and 39 percent (SEAL).

Table 3 presents requirements and manning in various Marine Corps SOF specialties. In FY 2010, staffing ranged from 65 percent to 100 percent. CI/HUMINT Operations Officer manning is lowest relative to requirements.

Table 4 presents requirements and manning in various Air Force SOF specialties. In FY 2010, Air Force SOF officer specialties were staffed at 85 percent to 88 percent

**Table 2. Navy SOF Force Manning and Requirements**

Military Occupation Specialty	FY 2010 Requirement	FY 2015 Requirement	Growth	FY 2010 Inventory	Ratio
Special Operations Officer (EOD)	543	679	25%	509	0.94
Special Warfare Officer (SEAL)	237	329	39	214	0.90
Special Operations Enlisted (EOD)	1,035	1,553	50	905	0.87
Navy Diver (First Class)	1,231	1,383	12	1,193	0.97
Special Warfare Combatant Craft Crew (SWCC)	770	822	7	757	0.98
Special Operator (SEAL)	1,699	2,173	28	1,580	0.93

**Table 3. Marine Corps SOF Force Manning and Requirements**

Military Occupation Specialty	FY 2010 Requirement	FY 2015 Requirement	Growth	FY 2010 Inventory	Ratio
CI/HUMINT Operations Officer	108	104	-4%	70	0.65
CI/HUMINT Specialist	695	701	1	507	0.73
Intelligence Chief	26	26	0	25	0.96
Reconnaissance Man	1,424	1,602	13	1,420	1.00
EOD Technician	605	773	28	540	0.89

**Table 4. Air Force SOF Force Manning and Requirements**

Military Occupation Specialty	FY 2010 Requirement	FY 2015 Requirement	Growth	FY 2010 Inventory	Ratio
Special Operations Pilot	1,117	1,281	15%	951	0.85
Special Operations Combat System Officer	633	648	2	558	0.88
Control and Recovery Officer	209	221	6	182	0.87
Combat Control	521	553	6	508	0.98
Pararescue	517	532	3	463	0.90
Special Operations Weather	112	124	11	81	0.72

of requirements; enlisted specialties were staffed at 90 percent and 98 percent, respectively, in the two largest enlisted SOF specialties, Pararescue and Combat Patrol. A smaller specialty, Special Operations Weather, was staffed at only 72 percent of requirements. Overall, Air Force SOF manning ratios are similar to manning ratios in the Navy and Marine Corps.

Air Force SOF requirements are scheduled to grow modestly over the FY 2010–2015 period. Four specialties are scheduled to grow by 6 percent or less over the period; Special Ops Pilots exhibit the largest requirements growth (15 percent).



## Staffing Analysis

Our analysis of SOF staffing seeks to answer the following questions. First, how does SOF retention compare with service-wide retention? Second, will the services be able to meet their requirements for SOF personnel by FY 2015 under various scenarios about the path of the economy? Third, if they cannot meet requirements with current compensation, what would be the most cost-effective means of achieving them?

The answer to the first question will help establish whether shortfalls in manning are more attributable to insufficient retention or to insufficient gains into the SOF community (training pipeline through-put). To begin to answer the question of how SOF retention compares to service-wide retention, Table 5 shows the overall annual continuation rate by service for SOF officers and enlisted personnel in FY 2009, along with service-wide overall annual continuation.<sup>5</sup> The table indicates that, despite the extraordinary demands placed on them, most SOF personnel have higher-than-average continuation. For example, in FY 2009, the overall, service-wide Army officer continuation rate was 92.9 percent while the Army SOF officer continuation rate was 94.2 percent. Among Army enlisted personnel, the overall SOF continuation rate of 91.4 percent exceeded the Army-wide average by four percentage points. The Air Force is the exception—both SOF officers and SOF enlisted personnel had lower-than-average continuation in FY 2009 compared to service-wide Air Force continuation.

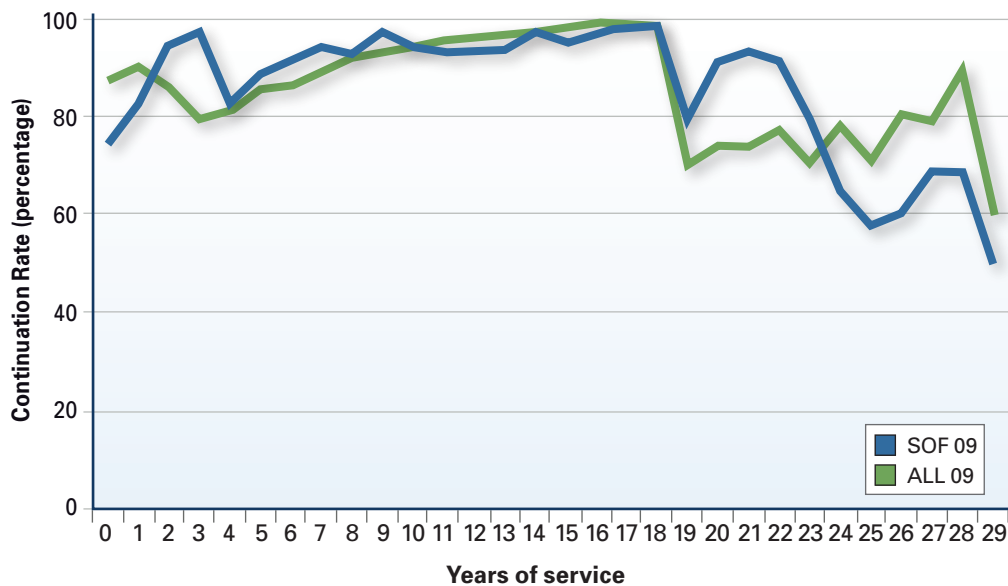
SOF retention rates were compared with respective service-wide retention at comparable experience levels. The data indicate that SOF retention compares favorably with service averages for the same experience level. Figure 3 illustrates this general conclusion by comparing FY 2009 Army SOF continuation by year of service (YOS) with overall Army enlisted continuation. Army SOF retention exceeds overall Army enlisted retention up to the 10-year mark, dips somewhat below overall enlisted retention up to the point where personnel enter the zone of retirement eligibility (YOS 19),

**Table 5. Overall Annual Continuation Rate, FY 2009**

		Army	Navy	Air Force	Marine Corps
Officers	All	92.9%	93.3%	93.8%	93.2%
	SOF	94.2	95.1	91.0	*
Enlisted	All	87.4	83.6	88.5	86.3
	SOF	91.4	93.6	80.2	88.6

\* There were only 70 officers in this category, which is too small to compute reliable rates.

5. The continuation rate is the percentage of personnel who began the fiscal year who were still in service at the end of the fiscal year. The continuation rates in the table were constructed from data supplied by the Defense Manpower Data Center (DMDC).



**Figure 3. Army Enlisted SOF/Overall Continuation Rates, FY 2009**

and then significantly exceeds overall Army enlisted retention in the YOS 19–24 range. This suggests that other, positive factors have more than offset the negative retention factors cited earlier. In addition to the compensation differential enjoyed by SOF personnel, their high esprit de corps and commitment to mission have no doubt played a part in their relatively high retention.

The inventory projection model starts with the FY 2010 actual force at the beginning of the year and forecasts the inventory at the end of each fiscal year from FY 2010 to FY 2015 under alternative assumptions about compensation policy and the path of the civilian economy. The model starts with FY 2009 continuation and retention rates, and adjusts those rates based on changes in unemployment and compensation policy. The total continuation rate at a given YOS is a weighted average of the retention of personnel who are in the final year of an enlistment contract (i.e., at expiration of term of service, or ETS) and the continuation of personnel not at ETS, with the weight being the fraction at ETS. Beyond the first term of enlistment, non-ETS continuation is around 98 percent. Adjustments are made to the ETS retention rate based on changes in unemployment or in compensation. The magnitudes of the adjustments are based on estimates from available econometric studies. The predicted effects of compensation changes are made using the Annualized Cost of Leaving (ACOL) model.<sup>6</sup>

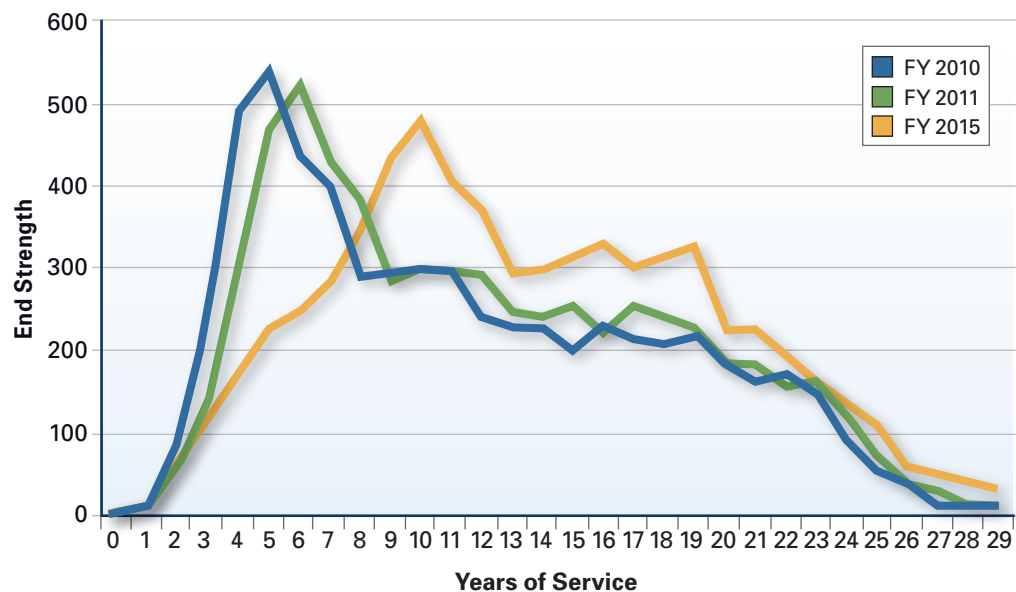
The inventory projection model forecasts the annual continuation rate by YOS, computes the total number of personnel continuing, and then computes the number

6. See Chapter 2 of this volume for a discussion of econometric evidence about the responsiveness of retention to various elements of compensation and for an overview of the ACOL model.

of gains into the force necessary to meet a strength objective. Gains may come from lateral entrants or from new accessions, and they are distributed by YOS based on the YOS distribution of gains observed in the FY 2007–2009 period. Gains can be computed under the assumption that stated requirements are met each and every fiscal year or that they are met at the end of FY 2015, in which case gains are smoothed over the FY 2011–2015 period. Based on continuation behavior, the gains indicate the new personnel that must be brought into the skill to either meet each year's requirements or meet requirements by the end of the projection period.

Figure 4 shows projections for the Army enlisted SOF force under a base case scenario of declining unemployment but unchanged compensation from that in effect in FY 2010.<sup>7</sup> The figure shows the FY 2010 actual force, the force projected for the end of FY 2011 and the force projected for the end of FY 2015. The projections are made assuming that there are sufficient gains into the SOF community for the Army to meet annual requirements throughout the period. The FY 2010 force has 6,041 personnel (the combined number of Special Forces sergeants and Special Forces senior sergeants in Table 1 above); the FY 2015 force has the stated requirement of 6,509.

Under the base case scenario shown in Figure 4, the Army's SOF force not only increases in number between FY 2010 and FY 2015, it increases in experience as well. Experience growth is a result of the higher-than-average continuation of SOF personnel (Figure 3). SOF continuation is so high, in fact, that the experience growth



**Figure 4. Army Enlisted SOF Strength by Years of Service (Base Case Scenario)**

7. The projections in Figure 4 and Figure 5 assume that the civilian unemployment rate declines by 0.8 percent annually, reaching 6 percent in FY 2015.

occurs despite the fact that future continuation has been adjusted downward to reflect improvements in the civilian economy.

A caveat, of course, is that the adjustments for an improving economy are too small. But the adjustments have been made based on available econometric estimates of the effect of unemployment on retention. As discussed in Chapter 2, estimates indicate that the effect of unemployment is modest at best, and there is always the possibility that improvements in the economy will have a larger impact on SOF retention than those assumed for the forecasts. Should retention be more impacted than the forecasts assume, the Army's response would naturally be what it has been in the past when faced with retention shortfalls—increase S&I pays, in particular the Selective Reenlistment Bonus (SRB). Figure 5 illustrates the impact of doubling the amount of SOF SRBs in all three reenlistment zones. If SRBs were doubled beginning in FY 2011, by FY 2015 the SOF first-term force would decline and the number of SOFs in YOS 5–14 would grow.<sup>8</sup>

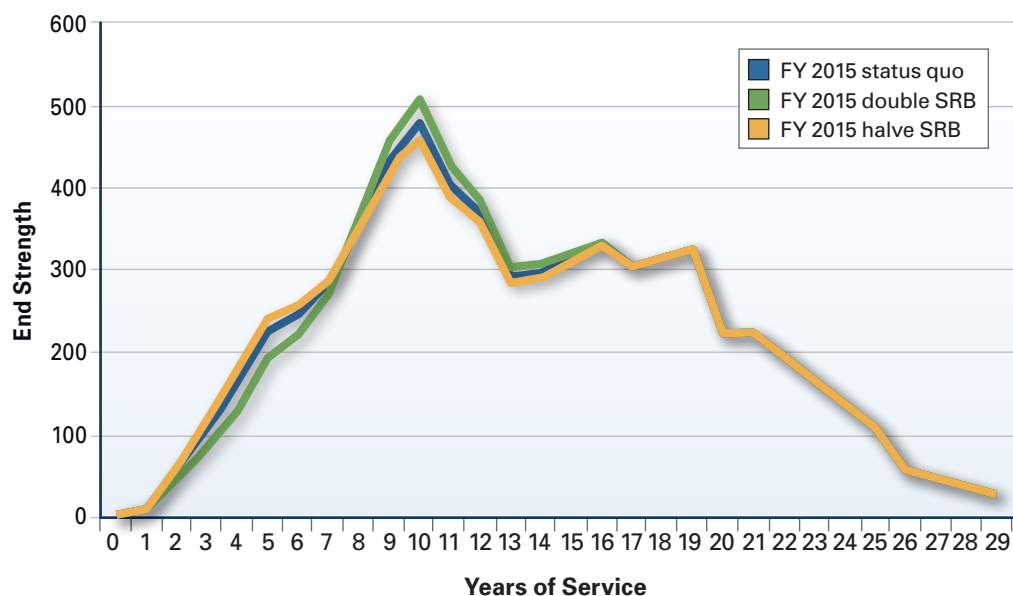
Figure 5 also indicates the effect of halving SOF SRBs throughout the projection period. SOF experience would decline, and gains would have to increase in order to meet requirements. The main point of these scenarios is that SRBs have a clear and significant impact on the force, and can be deployed quickly if needed. In the SRB increase scenario, the cost of each extra reenlistment is calculated to be \$72,000, indicating a marginal cost per person-year of \$18,000, assuming a four-year reenlistment. The SRB reduction scenario implies a marginal saving of \$54,000 per reenlistment avoided when SRBs are reduced (\$13,500 per person-year). These scenarios illustrate the principle of rising marginal cost as bonuses are increased.<sup>9</sup>

The pattern of findings for other parts of the Special Operations Force was qualitatively similar to those shown here for the Army enlisted force and therefore do not need repeating. Retention is sufficiently high in all parts of the Special Operations Force that experience levels are likely to grow absent unforeseen improvements to the economy or retention responses that are larger than seen in the past. If shortfalls occur in meeting future requirements, they will be due to lack of sufficient gains into the SOF community through either direct accessions or lateral entry from other skills.<sup>10</sup>

8. One constraint imposed in the model excursions was that end strength would be fixed across all alternatives, and accessions would be allowed to fluctuate to meet overall end strength targets each year. Therefore, alternatives which increased retention will generally lead to fewer accessions and lower first-term strength numbers.

9. These marginal cost calculations are similar to those estimated by Asch et al. (2010).

10. SOF community managers agreed with this assessment. They noted that their communities had increased gains in recent years and will continue to do so in the future. They also agreed that retention was strong and would be strong in the foreseeable future.



**Figure 5. Army Enlisted SOF Strength by Years of Service: Scenarios Illustrating SRB Effects**

### SOF Career Pay Proposal

In addition to SRB and CSRB, SOF personnel are eligible for two other S&I pays: AIP and SDAP. Each service has established its own eligibility criteria for these pays and the dollar amounts also vary by service.<sup>11</sup> Eligibility criteria vary by rank, years of service, and skill. Personnel assigned to Special Missions Unit (SMU) operator billets receive AIP equal to \$750 per month at any rank.<sup>12</sup> SOF personnel in non-SMU billets are typically eligible for AIP only if they have 25 or more years of service. SDAP is paid for assignments considered extremely difficult or involving an unusual degree of responsibility. Billets eligible for SDAP are paid on a scale ranging from SD-1 (\$75 per month) to SD-5 (\$375 per month).

The U.S. Special Operations Command has developed a proposal to combine AIP and SDAP into a single SOF Career Pay (SCP) that would be common to all SOF personnel in similar circumstances.<sup>13</sup> SOF billets would be categorized into five functional groups (OF-A, OF-B, OF-C, OF-D, and OF-E) and four skill levels based on rank/time in unit. The OF-A group consists of SMU operators, the OF-B group

11. These pays are described in Volume 7A of DOD Financial Management Regulation (Chapter 15), November 2010. ([http://comptroller.defense.gov/fmr/07a/07a\\_15.pdf](http://comptroller.defense.gov/fmr/07a/07a_15.pdf)). There are many categories of AIP applying to non-SOF personnel as well as SOFs.

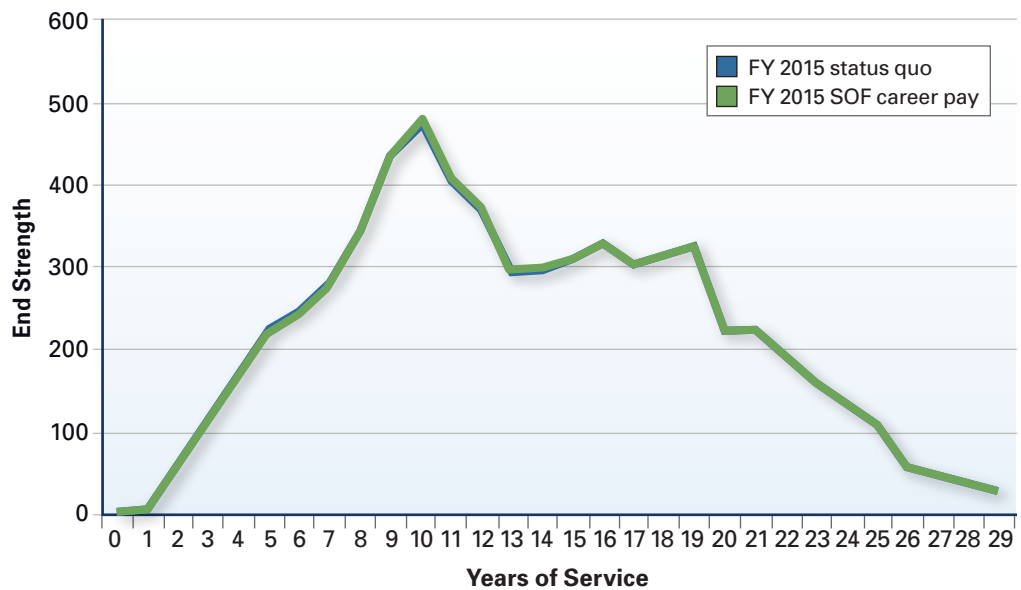
12. The \$750 monthly amount applies if the individual has less than 36 months in the billet; after 36 months the amount increases to \$1,000 per month.

13. SOF Career Pay Proposal Update, USSOCOM J1, January 5, 2011.

consists of other SOFs in non-operator billets, the OF-C group consists of Army Rangers in V-coded billets, OF-D consists of certain Army and Air Force air crews, and the OF-E group consists of psychological operations personnel.<sup>14</sup> The plan also calls for a Critical Billet Supplement, paid at three rates, to E-9s who are in Senior Enlisted Advisor (SEA) billets.

The SCP amounts available to OF-A personnel would range from \$750 per month at skill level 1 to \$1,300 per month for skill level 4. For OF-B personnel, the amounts would range from \$375 per month to \$600 per month.

We were asked to evaluate the retention effects of this proposal. Evaluation is somewhat difficult due to the fact that we do not know the mix of SMU and non-SMU billets in the critical SOF MOSs. We therefore evaluated retention effects for Army personnel assuming that all SOF personnel are in the OF-B category. The results of our analysis are shown in Figure 6. Projections indicate that the proposal would have a modest impact on Army SOF retention and career force. The modest estimated changes result from the fact that the monthly SCP amounts for OF-B personnel are very similar to the combined AIP and SDAP amounts received today. The same holds true for OF-A personnel, indicating that if the analysis had been



**Figure 6. Estimated Effect of SOF Career Pay Proposal Compared with Current Combination of AIP and SDAP**

14. Other personnel assigned to SOCOM would be placed into Combat Support (CS) or Combat Service Support (CSS) categories and may be eligible for SCP depending upon their category. The plan calls for CS-A (SMU Direct Support) and CSS-A (SMU Support) to be eligible for SCP but not personnel in other CS or CSS categories.

conducted assuming that everyone fell into the OF-A category rather than the OF-B category, the simulated effects would not have been much different.

### **Legislative Authority for Consolidation in Career Pay**

Implementation of the SOF Career Pay proposal under the new consolidated authority for S&I pays would require some revisions to the existing statutes. The existing authority, under 37 USC Sec. 353, provides for a skill incentive pay or proficiency bonus. This statute allows the services to pay a monthly skill incentive pay to members who serve in “a career field or skill designated as critical” by the service secretary.

However, there are some limitations on skill incentive pay that would have to be relaxed to accommodate the SOF proposed pay. First, members may not receive both skill incentive pay and a proficiency bonus in the same month; some SOF members are currently receiving the Foreign Language Proficiency Bonus (FLPB), which also, presumably, falls under Sec. 353. Second, members may not receive the skill incentive pay in the same month that they receive Hazardous Duty Pay under Sec. 351. Finally, the skill incentive pay is limited to \$1,000 per month, while the SOF proposal has a maximum monthly rate of \$1,300.

The solution would require either modification of Sec. 353 to eliminate the three limitations or the establishment of a separate pay authority for career pay. Either alternative would accomplish the immediate objective of accommodating this pay proposal. Modifying the existing statute has the advantage of maintaining a fairly small number of broad authorities, although Sec. 353 is not expressly intended as a career pay. If a new authority is established, it should be a broad authority for career pay, not an authority specific to the SOF Career Pay.

### **Conclusions and Recommendations**

The Army has the best staffed SOF force, with all critical skills other than SOF warrant officers in excess of 90 percent of requirements. With the exception of one Marine Corps critical skill group and one Air Force group, other SOF categories are staffed at 80 percent or more of requirements.

Most of the future SOF requirements growth is in the Navy, where the requirement for EOD technicians is projected to grow by 50 percent and the requirement for SEAL officers is scheduled to grow by 39 percent. EOD technician requirement growth is also high in the Marine Corps (28 percent). Requirements growth for other groups is modest. But even with requirements growth, retention is sufficiently high in all parts of the Special Operations Force such that experience levels are likely to grow absent unforeseen improvements to the economy or in retention responses to the

economy that are larger than seen in the past. Furthermore, high retention means that retention-induced improvements in manning via higher careerist compensation would be expensive. Indeed, without end strength growth, the SOF average experience level is likely to grow. Maintaining a force that is balanced in its experience mix, while at the same time growing, will necessitate more gains through new accessions and lateral transfers of junior personnel. That is, meeting future requirements for SOF personnel will be more about increased training pipeline capacity and trainee throughput than about retention improvements effected via compensation or other incentives. SOF community managers agreed with this assessment, and they indicated that training throughput had already increased markedly in recent years. They also were confident that, absent negative retention shocks arising from a suddenly improved economy, they would be able to meet future requirements with the compensation in place.

We evaluated a SOCOM proposal to replace two current S&I pays—AIP and SDAP—with a SOF career pay. The proposal was estimated to have a modest effect on retention, but may well have other positive effects, such as on skill development. The proposal is consistent with recent DOD efforts to consolidate and simplify S&I pays. If there is a drawback to this proposal, it is that a SOCOM-wide SCP restricts service-level management flexibility.<sup>15</sup>

Based on this analysis, we offer the following recommendations:

1. The services should consider greater use of retention bonuses for late-career (retirement-eligible) personnel when needed, based on the effectiveness of the CSRB in SOF communities. (See Chapter 5 for an analysis of the CSRB.)
2. The services should adopt the SOF Career Pay proposal, but allow for service-specific flexibility in setting pay rates.
3. The Department should pursue legislative changes to modify Sec. 353 of 37 USC to (a) raise the monthly ceiling, (b) eliminate the prohibition against receiving both skill incentive pay and proficiency bonuses simultaneously, and (c) eliminate the prohibition against receiving skill incentive pay and Hazardous Duty Pay simultaneously.

15. Desire for some service-specific flexibility in the implementation of S&I pays is evident in the CSRB program. The Army offers CSRB to retirement-eligible personnel for commitments of up to six years (maximum bonus amount of \$150,000). Though it could also adopt this structure, the Marine Corps wants to avoid the potential for excess seniority growth in its SOF force and, therefore, does not allow CSRB contracts of more than four years (maximum bonus amount of \$50,000). The Navy's current CSRB for SOF personnel is the same as the Army's. But the Navy wants to restructure its SOF CSRB, breaking it into three phases (YOS 19-24, YOS 25-26, and YOS 26-30). Its purpose in doing so is to better match CSRB contract lengths with its up-or-out points. Up-or-out rules are relaxed for personnel who receive CSRB, and the Navy feels that too many personnel are remaining beyond its desired mandatory separation points, particularly E-7 personnel. (See Navy CSRB Info Brief rev 4, Bupers 3, undated.)



## Remotely Piloted Vehicle Operators

The use of Remotely Piloted Vehicles (RPVs) by the military services has grown dramatically in the last 10 years; moreover, the services are likely to expand the scope of RPV operations in the future. As a relatively new career field, its manpower requirements are still developing. Likewise, there is little evidence regarding the impact of civilian sector demand for RPV operators.

RPV operators cover a wide range of vehicles operating in a variety of environments. The smallest may be launched from the bed of a truck and provide over-the-horizon surveillance, while the largest have the wingspan of a 737, operate in commercial air space, deliver ordnance on targets, and are operated remotely via satellite. Early applications of RPVs have focused primarily on surveillance and reconnaissance, although some RPVs are weaponized. According to some sources, future generations of these aircraft could expand the mission area to include airlift, aerial refueling, resupply of deployed units, and other functions.<sup>16</sup>

### Overview of the Career Field

RPV manning varies by service. The Navy and Air Force rely on commissioned officers, mostly pilots and navigators. However, the Air Force has also instituted a separate career field for officers who only pilot RPVs (18X). The new career field was added because of a lack of training capacity in the normal pilot/navigator pipeline. Instead of the training that pilots and navigators receive, those officers who enter the 18X pipeline receive about six months of training, including becoming qualified to fly a Cessna propeller driven aircraft. Navy officers are pilots and naval flight officers (NFOs) who rotate into the RPV jobs then back to cockpit assignments. Air Force officers may be pilots, navigators or non-rated officers, but they have remained in the RPV career field.<sup>17</sup>

In contrast, the Army and Marine Corps use enlisted operators. The Air Force also has enlisted sensor operators, but these personnel do not operate the aircraft. These differences may reflect differences in the types of vehicles employed, navigation method (line of sight vs. satellite), and operational mode (rudder & stick vs. computer) as well.

Compensation schemes also vary across services. Army and Marine Corps operators are eligible for Selective Reenlistment Bonuses, but not flight pay. Navy

16. See, for example, Magnuson (2010).

17. Air Force officers voluntarily or involuntarily reassigned from manned cockpit communities will have an opportunity this year (RPA Crossflow Board) to decide whether to permanently categorize in community or return to manned cockpits.

officers, because they are pilots and NFOs, are eligible for the same S&I pays (Aviation Career Continuation Pay, ACP, and Aviation Career Incentive Pay, ACIP) that they receive when in cockpit or other assignments. The Air Force pays rated officers Aviation Career Pay and ACIP, and the officers receive gate credit for ACIP for RPV assignments. Non-rated Air Force officers and enlisted sensor operators do not receive a bonus equivalent to ACP, but they do receive remotely piloted aircraft (RPA) Incentive Pay (RPAIP). This pay is authorized under the Assignment Incentive Pay authority, and is structured to look just like ACIP for officers and Career Enlisted Flyer Incentive Pay (CEFIP) for enlisted sensor operators.

### Current and Future Manning Requirements

A common theme across all four services is a significant growth in requirements, as measured by authorized positions. It may be too early to tell whether retention will be a long-term problem in these communities. For example, because the program is at a nascent stage, none of the non-rated officers in the Air Force has completed their initial service obligations. However, the Army cites first-term reenlistment problems, and first-term retention in the Marine Corps also appears low.

Table 6 summarizes RPV operator requirements for each of the services. Navy requirements are not included because Navy officers are managed as part of larger pilot/NFO communities without separate requirements for RPV. The Navy believes that the current supply of officers on shore duty is sufficient to meet all funded requirements, but not all authorizations are funded. If Navy requirements grow in the future, sources for staffing have not yet been identified to meet that demand.

**Table 6. RPV Operator Manning and Requirements**

Requirements	FY 2010	FY 2015	Change	FY 2010 Inventory	Inv/Req Ratio
<b>Air Force Officers</b>					
Pilots	861	987	14.6%	475	0.56
Navigators	24	31	29.2	23	0.96
RPA Pilot	14	14	0.0	20	1.43
Total Air Force Officer	899	1,032	14.8	518	0.58
<b>Army Enlisted</b>					
UAV Operator	1,059	1,485	40.2	1,158	1.09
<b>Air Force Enlisted</b>					
UAS Sensor Operator	579	582	0.5	304 <sup>18</sup>	0.52
<b>Marine Corps Enlisted</b>					
UAV Operator	135	226	48.9	107	0.79

Source: DMDC, Services

18. Inventory as of September 30, 2010; inventory as of September 30, 2009 was 1.

Air Force inventory levels overall only meet half of current requirements. The Air Force addresses these manning shortfalls by reducing the crew ratio on Combat Air Patrols (CAPs). The desired ratio is 10 per CAP; the Air Force is currently operating at 6 per CAP, which it considers to be an unsustainable tempo. Also the Air Force intends to increase the size of the new community for non-rated officers (18X) to replace some of the pilot requirements, though these plans are not yet reflected in requirements for the 18X community.

The inventory of Army enlisted operators is sufficient to meet current demand, but requirements are projected to grow by 40 percent in the next five years. Marine Corps demand is growing as well, and is expected to level out at 226 in FY 2012. Zone A retention is about 25 percent, which is where the Marine Corps has targeted to allow selection, but this relatively low retention rate may make it difficult to meet future requirements.

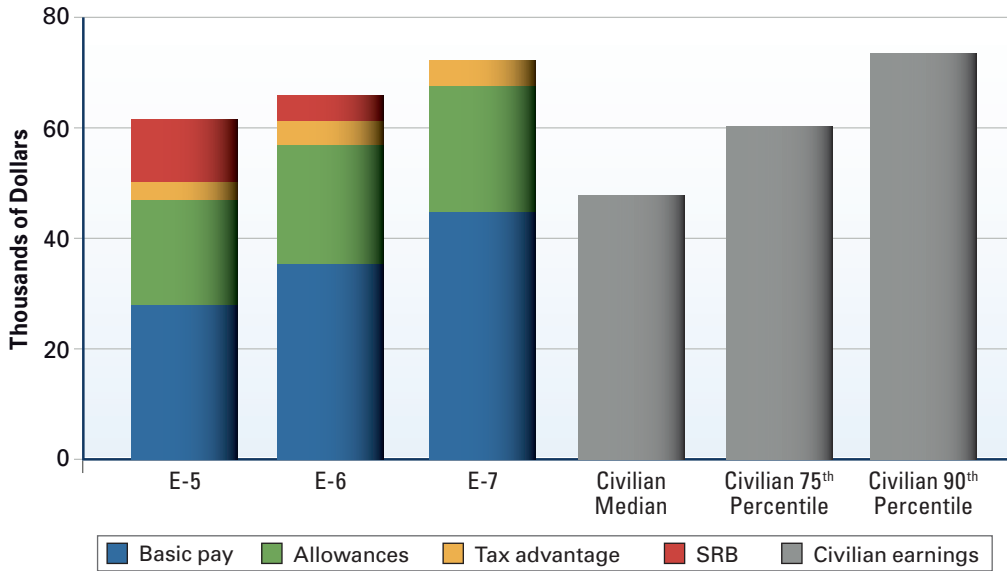
### Comparisons to Civilian Market

Currently, civilian sector demand for RPV operators is largely derived from military requirements. That is, civilian employers seeking trained RPV operators are typically engaged in training of military personnel or are designing and building equipment for the services. However, many service representatives believe that there is a potential for substantial growth in civilian demand, including such agencies as the U.S. Border Patrol, U.S. Forest Service, and the Drug Enforcement Agency.<sup>19</sup>

Earnings comparisons are somewhat problematic because of a lack of direct civilian counterparts. Even for commercially rated aviators, commercial pilot jobs may not be a good comparison; potentially, service in RPV operations might reduce cockpit time, making officers less attractive to civilian carriers.

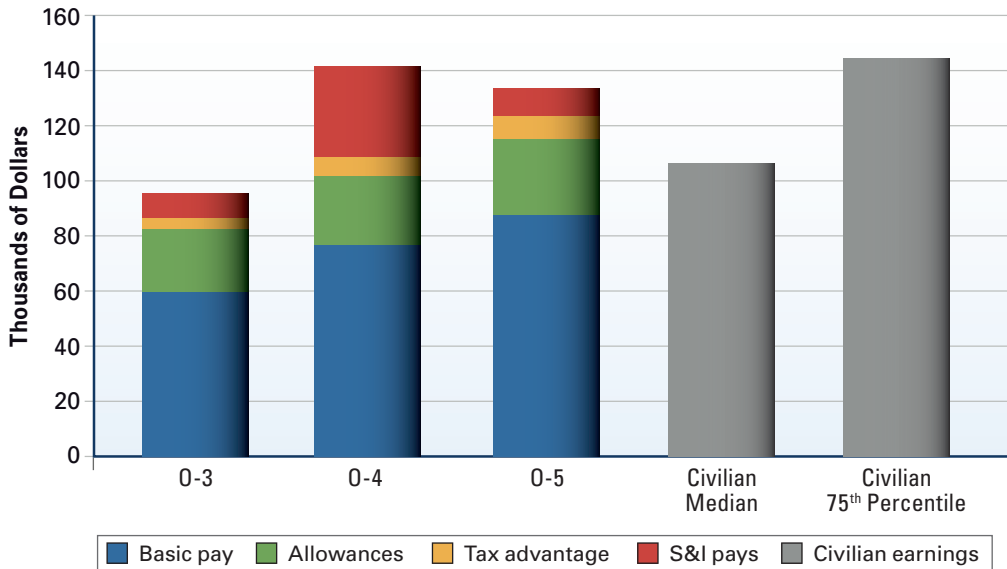
A closely related civilian occupation to the enlisted RPV operator is electro-mechanical technician. Figure 7 compares typical FY 2009 earnings profiles for military personnel with civilian data from Occupational Employment Statistics for May 2009. Military pay, allowances, and bonuses are generally between the 75<sup>th</sup> and 90<sup>th</sup> percentile of civilian earnings, although the comparison does not consider the value of benefits (e.g., health care) or retirement. Marine Corps RPV operators are receiving a large SRB now (\$43,500 in Zone A; \$18,250 in Zone B; and \$14,750 in Zone C). Army operators currently receive bonuses ranging from about \$8,000 to \$14,000.

19. Current usage of unmanned aerial vehicles by other agencies is either in its nascent stages or non-existent, so there is little information on pay and competition from these sources. According to Haddal and Gertler (2010), for example, U.S. Customs and Border Protection had six vehicles in use and, as of June 2010, had received limited authorization from the Federal Aviation Administration to use RPVs along the Texas border and the Gulf of Mexico only.



Source: Occupational Employment Statistics for May 2009 ([http://www.bls.gov/oes/oes\\_dl.htm](http://www.bls.gov/oes/oes_dl.htm)) and *Selected Military Compensation Tables* ([http://prhome.defense.gov/MPP/docs/GreenBook\\_2009.pdf](http://prhome.defense.gov/MPP/docs/GreenBook_2009.pdf))

**Figure 7. Pay Comparisons for Enlisted RPV Operators<sup>20</sup>**



Source: Occupational Employment Statistics for May 2009 ([http://www.bls.gov/oes/oes\\_dl.htm](http://www.bls.gov/oes/oes_dl.htm)) and *Selected Military Compensation Tables* ([http://prhome.defense.gov/MPP/docs/GreenBook\\_2009.pdf](http://prhome.defense.gov/MPP/docs/GreenBook_2009.pdf))

**Figure 8. Pay Comparisons for Officer RPV Operators<sup>21</sup>**

20. Military pay at the grades shown is computed at the mean year of service for that grade. Civilian earnings are based on the entire occupation. The experience level reflected in the civilian earnings estimate is the average experience of workers at the percentile shown in the comparison.

21. Military pay at the grades shown is computed at the mean year of service for that grade. Civilian earnings are based on the entire occupation. The experience level reflected in the civilian earnings estimate is the average experience of workers at the percentile shown in the comparison.

A similar comparison for RPV officer operators is based on airline pilots, copilots, and flight engineers from the Occupational Employment Statistics maintained by the Bureau of Labor Statistics. Many of the officers who perform this job in the military are commercially rated pilots (Figure 8). Earnings for O-4 and O-5 officers compare favorably with civilian earnings at the 75<sup>th</sup> percentile (without considering the value of benefits and retirement). Civilian earnings at the 90<sup>th</sup> percentile earnings are top-coded in the data and are not reported.

### **Analysis of Enlisted Retention**

The staffing analysis revealed that improved retention could potentially benefit the enlisted communities in the Army and Marine Corps. While current Army retention appears adequate, requirements for operators are growing rapidly. Likewise, the Marine Corps is currently undermanned, even before substantial increases in requirements are considered.

The same issues may face the Air Force for the enlisted and officer (18X) communities. However, each of these occupations is new enough that we were not able to obtain any historical data on continuation behavior. Instead, we focused on evaluating alternative pay schemes for the Army and Marine Corps operators.

Shortages of operators may be viewed primarily as a problem of initial supply or training capacity, but incentives to boost retention of trained personnel might reduce accession requirements somewhat. We explored two options to improve retention:

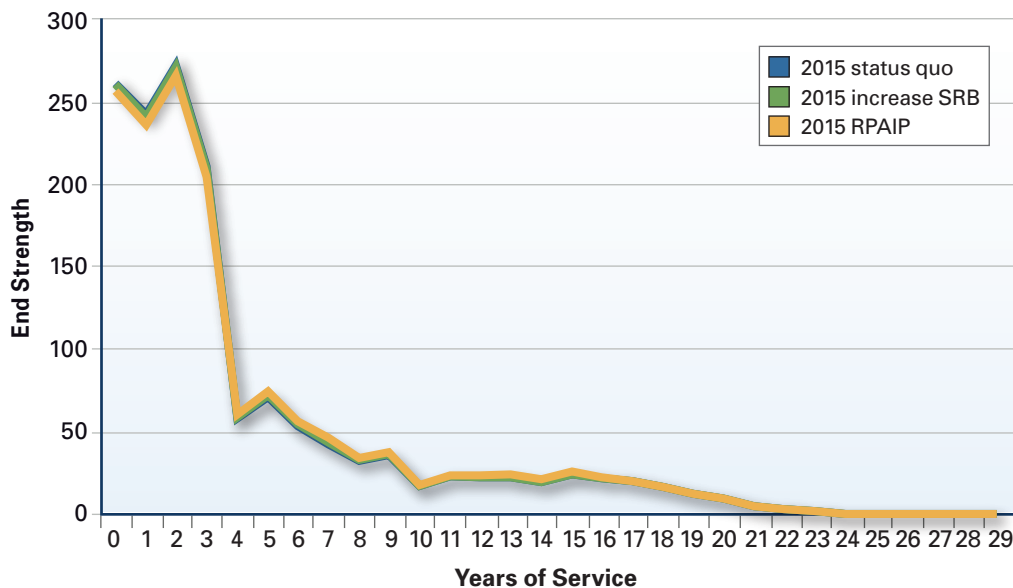
- ❖ increase SRB levels by 25 percent
- ❖ pay enlisted operators CEFIP or equivalent pay<sup>22</sup>

The Army was paying bonuses ranging from about \$8,000 to \$14,000 (depending on pay grade, term of service, and zone) at the time we conducted this analysis; a 25 percent increase would be worth a total of about \$2,000 to \$3,500 per soldier. Figure 9 shows that this alternative yields relatively modest increases in retention. The Army would be able to reduce accession (and training) requirements by about 0.5 percent to meet manning objectives. The marginal cost per additional soldier retained would be about \$19,100.

A CEFIP-like pay—RPAIP—would have a larger effect, reducing accession requirements by 1.8 percent; however, this pay would be more expensive, increasing annual compensation by over \$4,000 for most of the career. The marginal cost per additional soldier retained is correspondingly larger (\$21,650).

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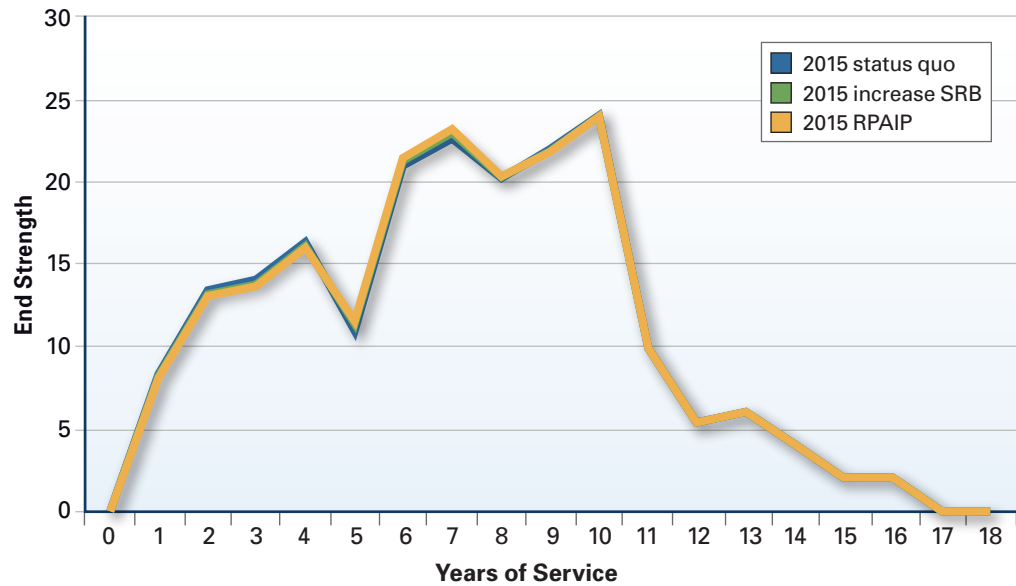
22. Air Force enlisted sensor operators are already eligible for a CEFIP equivalent pay.



**Figure 9. Army Enlisted RPV Operators Incentive Options**

The results of a similar excursion for Marine Corps UAV (unmanned aerial vehicle) operators were comparable, although the effects of both of the alternatives were larger than they were for the Army analysis. Marine Corps staffing is currently about 50 percent of requirements. A 25 percent increase in SRB reduces accession requirements by about 1.8 percent, while the RPAIP option has a larger effect on retention, reducing accession requirements to meet overall staffing goals by 2.8 percent. The predicted retention effects of these alternatives are larger than they were for the Army, but the marginal costs per Marine are larger as well. The marginal cost of the SRB increase is \$22,100 per additional Marine retained; the comparable cost for the RPAIP increase is \$22,800. The forecasted impact of each alternative on FY 2015 inventory compared to the baseline is shown in Figure 10.

The larger effects for the Marine Corps (relative to the Army) are because (a) Marine Corps SRBs are larger, meaning that a 25 percent increase is more valuable, and (b) baseline retention rates for the Marine Corps are lower, which can increase predicted responsiveness. It is interesting to note the substantial impact of the RPAIP option, since the Air Force has decided to implement this pay for its new enlisted and officer communities, although it has not yet determined whether retention might be an issue.



**Figure 10. Marine Corps Enlisted RPV Operators Incentive Options**

### Designing Compensation for New Occupations

With the establishment of two new communities in the Air Force, the question arises regarding the best way to design a set of pays for a new occupation in the absence of any evidence on retention patterns.

Ideally, the first step in designing a compensation plan for such a new community is to conduct a market survey to get a sense of civilian sector opportunities and earnings. If there is evidence of earnings in the civilian sector that are substantially higher than base military compensation, an initial set of special and incentive pays may be warranted.

In some cases, including RPV operators, there is no clear civilian market for the new occupation and an initial survey is not possible. Other *a priori* conditions that might justify initial establishment of pays include high training costs or rapid requirements growth. However, when the compensation is based on this sort of evidence, a flexible, adjustable bonus is preferred over a career pay that is more difficult to adjust once evidence regarding retention and recruiting behavior is available. In this situation, the service is forced to accept some risk regardless of its pay strategy. If the service establishes a pay, it faces the risk of having “overpaid” for personnel. The alternative strategy is to not establish any special and incentive pays, thereby assuming the risk of insufficient retention.

The Air Force chose to establish RPA Incentive Pay for both officers and enlisted personnel despite a lack of evidence that the pay is necessary to retain sufficient numbers of trained personnel. Recalling the basic framework and criteria for applying special and incentive pays presented earlier, the Air Force RPV career field appears to satisfy the criteria of “rapid demand growth” and perhaps “high training costs.”<sup>23</sup> Given current staffing ratios and increasing future requirements, the option of not establishing any special and incentive pay appears to be riskier.

However, the choice of a career pay rather than a more flexible set of bonuses may increase the long-run cost and reduce the likelihood that pays will be adjusted downward if recruiting and retention do not become a problem. While the application of special and incentive pays in the absence of solid evidence regarding recruiting and retention issues is understandable, the application of the pay should be evaluated as soon as the data can support an empirical assessment of the case for the special pay.

### Conclusions and Recommendations

Service demand for trained RPV operators is growing rapidly and, in most cases, appears to be outstripping the capacity of the training pipeline. Currently, there is no evidence of significant competing demand for these individuals from the civilian sector. If non-military applications grow, the military is probably the only short-term source of trained operators.

The Navy is unique among the services, in that it has not created a separate officer (or enlisted) community exclusively for RPV operators, so it was impossible to track either requirements or personnel supply. The Air Force pays its pilots and navigators in the RPA community the same set of pays available to those working in manned cockpits—ACIP and ACP. Air Force operators specifically trained for RPA operations only (the 18X community) receive a pay equivalent to ACIP, but not ACP. Enlisted sensor operators receive a CEFIP equivalent. Neither the Army nor the Marine Corps provide an equivalent for enlisted operators, but both offer SRB.

Based on the preceding analysis, we offer the following recommendations:

1. Expand the use of RPA pilots (18X) to meet Air Force demand.

These officers, though they have significant training costs, are a less

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23. The Air Force was not able to provide precise estimates of the training costs for either pilots or 18X officers. Certainly, the training pipeline is shorter for 18X officers than it is for manned cockpit rated officers. However, the level of training is certainly greater than it is for other non-rated officers, like infantry and surface warfare officers. The case for high training costs would have to be established with a more careful analysis of training costs (including the salary of the trainee) relative to other sources of gains to the community (e.g., conversion of officers from specialties that are reducing in size) and relative to the costs of retention incentives.



expensive option than converting trained pilots and navigators, although conversions may continue to make sense if other Air Force requirements for rated officers were to decline and result in surpluses of rated officers.

2. Consider an ACP-like bonus for RPA pilots, targeted to critical career points, if retention becomes a problem, or the higher retention can further reduce the need to use rated officers for these jobs.
3. Assess the effectiveness of RPA Incentive Pay once current cohorts complete their initial obligations. The rationale for a pay structured like ACIP is unclear; ACIP, or flight pay, was established to compensate for a career that is more hazardous than others and involves a considerable amount of training. Certainly, the hazardous nature does not exist and the level of training, while significant, may not approach levels necessary for other flight crew. Even if such a pay differential proves necessary, it is not clear that structuring the pay to be like ACIP would make sense.
4. Increases in SRB for Army and Marine Corps UAV operators would ameliorate growing accession and training requirements. SRB is a slightly more efficient option than ACIP, which cannot be targeted. While the projected effects of large increases in SRB are modest, the marginal cost of retaining personnel using bonuses are lower than the costs of using a career pay for the same purpose.
5. Closely monitor the civilian market for signs of increased demand.
6. When establishing a new occupation, the services should take a systematic approach to determining whether or not to design additional pays for the community:
  - a. When possible, the services should conduct a market survey of comparable civilian employment and earnings. If civilian earnings appear to be substantially higher than base military pay, the services may consider immediate establishment of S&I pays. Otherwise, they should establish no additional pays unless and until there is evidence of retention or recruiting problems.
  - b. The service should also consider whether there is a preliminary, *a priori*, case that can be made for the additional pay based on the criteria discussed earlier, such as a significant growth in demand, high training costs, onerous working conditions, or skill acquisition. This preliminary case, however, does not substitute for a more detailed analysis based on the evidence, once data on recruiting, retention, and other key outcomes become available.

- c. The services may consider an initial “conversion” bonus if appropriate, but this should be preceded by a well-constructed survey to determine whether sufficient personnel will voluntarily convert without an incentive.
- d. In the case of an occupation without a close civilian alternative and no reliable evidence on recruiting and retention, the services should avoid establishment of inflexible pays until there is evidence of a problem. A schedule of bonuses could potentially be announced, but subject to adjustment based on market conditions.
- e. The service should undertake a more detailed evaluation and analysis as soon as sufficient data becomes available.

### Linguists/Translators

The services employ language professionals to provide linguistic and translation capabilities for critical foreign languages. In addition, other personnel (e.g., Special Operations) may need basic foreign language skills (situational proficiency) in order to perform missions effectively. Demand for particular language skills depends to a large extent on current and (anticipated) future mission requirements. Currently, the most critical languages are Arabic, Persian, and Chinese. Language criticality may depend as well on supply considerations. These three languages are also among the most difficult for non-native speakers to acquire.

Competing demand in the civilian sector can be intense and may also fluctuate with the business cycle. This competing demand may also be, at least partly, derived from service requirements as well, as the services contract with private companies for some translation tasks. Both private employers and other federal agencies (including the Department of State, National Security Agency, Defense Intelligence Agency, and Central Intelligence Agency) employ language professionals and may compete for trained military personnel.

#### Overview of the Career Field

Language professionals may receive both Selective Reenlistment Bonuses and a proficiency bonus. The Foreign Language Proficiency Bonus (FLPB) is based on degree of proficiency, and criticality of the language requirement. FLPB rates do not vary across services, but services can set their own Strategic Language Lists (SLL).

Members are eligible to receive FLPB if they:<sup>24</sup>

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24. DOD Instruction 7280.03, August 2007.

1. are proficient in at least two of three modalities (reading, listening, and speaking) of any foreign language on a DOD approved list
2. meet at least one of the following conditions
  - a. are qualified in a military specialty requiring language proficiency
  - b. have received training designed to achieve foreign language proficiency
  - c. are assigned to duties requiring foreign language proficiency
  - d. are proficient in a foreign language identified as a critical need

Certification of proficiency is typically through the Defense Language Proficiency Test (DLPT), although alternative certification is used if no test exists for a particular language. Monthly payments range from \$25 to \$500 depending on proficiency and degree of criticality, as shown in Table 7.

There are two relatively new programs that were designed, in part, to help meet demand for foreign language speakers in the uniformed services: the Military Accessions Vital to the National Interest (MAVNI) program and the 09L program.

The MAVNI program has been used to recruit legal aliens for both health care professionals and individuals with foreign language skills. For enlisted individuals with special language and culture backgrounds, the applicants must have language skills and cultural expertise in a critical language area. They must also demonstrate language proficiency, meet all other criteria for enlistment eligibility, and must enlist for at least four years of active duty.<sup>25</sup> The Army, which has been

**Table 7. DOD Bonus Rates for Foreign Language Proficiency**

Proficiency in any combination of the reading, listening, and speaking modality	Payment A For foreign languages on the SLL (Immediate Investment)	Payment B For foreign languages on the SLL (Strategic Stronghold)	Payment C For other DOD-approved foreign languages not on the SLL
Skill Levels	Monthly Pay	Monthly Pay	Monthly Pay
1/1	\$100	\$ 50	\$ 25
2/2	200	150	125
2/2+	250	175	150
2+/2+ or 2/3	300	200	175
2+/3	350	250	200
3/3	400	300	275
3/3/3 or 4/4	500	400	300

Source: DOD Instruction 7280.03, August 2007

25. MAVNI Fact Sheet, <http://www.defense.gov/news/mavni-fact-sheet.pdf>.

the primary user of the MAVNI program, has accessed about 900 individuals for language skills. However, MAVNI recruits' alien status means that they are only eligible for a small number of military occupations that do not require security clearances. These recruits have been sought to provide "bench strength" in some languages (i.e., personnel who could be called upon in the future to provide interpreter services). The program is currently on hold because of concerns with security screening issues.

The 09L program is also managed by the Army; it focuses on recruiting native speakers of critical languages. Thus far, the focus has been on Arabic, Dari, Pashtu, Kurdish, and Farsi speakers. The program, established in 2003, was initially focused on recruiting individuals into the Individual Ready Reserve for service on active duty, but has since expanded to include recruiting individuals to serve in the active component. The native speakers in this community are used as interpreters, but not as translators; they are used most intensively by Special Forces units. These linguists are eligible for both FLPB and enlistment bonuses, although they qualify for FLPB based on an oral proficiency exam, rather than the DLPT.<sup>26</sup>

### **Current and Future Manning and Requirements**

Foreign language requirements are expected to remain fairly stable in the near future, at least at the aggregate level. As mission requirements change, the specific languages required may change as well.

Table 8 summarizes current and future requirements for the four services compared to FY 2010 inventory. Both the Army and the Air Force appear to be fully manned; in neither case, however, do the data provide visibility into the inventory of individual language skills. In contrast, both the Navy and Marine Corps face manning shortages. The Navy is undermanned in Arabic, Chinese, Korean, and Spanish; Navy managers are further concerned that a shortage of Persian specialists is imminent. Recent changes in the DLPT for Persian have increased the non-graduation rate to almost 50 percent. Marine Corps requirements, overall, will remain flat in the near future, although there may be some shift among Primary Military Occupation Specialties (PMOSs). The Marine Corps is using SRBs to attempt to close current manning gaps.

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26. *Overview of Army's 09L Interpreter/Translator Program* ([https://secureweb2.hqda.pentagon.mil/vdas\\_army-posturestatement/2010/information\\_papers/Interpreter\\_or\\_Translator\\_Program.asp](https://secureweb2.hqda.pentagon.mil/vdas_army-posturestatement/2010/information_papers/Interpreter_or_Translator_Program.asp)).

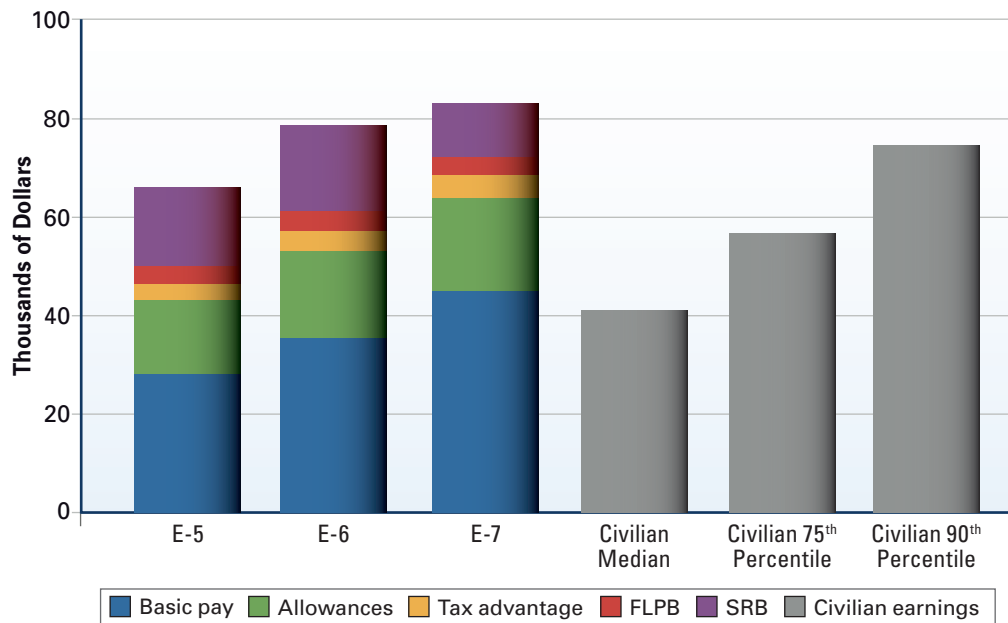
**Table 8. Linguist/Translator Manning and Requirements**

	Requirements			Inventory	Ratio
	FY 2010	FY 2015	Change	FY 2010	FY 2010
<i>Army Enlisted</i>					
09L Interpreter/Translator	298	309	3.69%	264	88.59
35P Cryptologic Linguist	2,274	2,271	-0.13	2,243	98.64
Total Army Enlisted	2,572	2,580	0.31	2,507	97.47
<i>Navy Enlisted</i>					
CTI Non Lang Spec	306	459	50.00	14	4.58
CTI Arabic	556	598	7.55	290	52.16
CTI Persian	118	122	3.39	143	121.19
CTI Chinese	339	359	5.90	243	71.68
CTI Korean	368	386	4.89	116	31.52
CTI Spanish	286	293	2.45	129	45.10
CTI Russian	188	200	6.38	151	80.32
Total Navy CTI Enlisted	2,161	2,417	11.85	1,086	50.25
<i>Air Force Enlisted</i>					
1A8X1 Airborne Cryptologic Analyst	1,089	1,088	-1	1,527	140.22
1N3X1 Cryptologic Language Analyst	2,388	2,397	9	2,952	123.62
9L000 Interpreter/Translator	73	73	0	37	50.68
Total Air Force Enlisted	3,550	3,558	8	4,516	127.21
<i>Marine Corps Enlisted</i>					
2671 Cryptologic Linguist, Middle East	282	286	1.42	219	77.66
2673 Cryptologic Linguist, Asia-Pacific	170	170	0.00	128	75.29
2674 Cryptologic Linguist, Western Europe	133	131	-1.50	112	84.21
2676 Cryptologic Linguist, Eastern Europe	129	122	-5.43	86	66.67
2691 Sig Intel/Electronic Warfare Chief	61	65	6.56	69	113.11
Total Marine Corps Enlisted	775	774	-0.13	614	79.23

Source: DMDC, Services

## Comparisons to Civilian Market

Unlike many military occupations, military language professionals have a nearly direct counterpart in the civilian sector. Other agencies and private employers hire linguists and translators to perform the same sorts of duties required of them in the military. The ongoing recession in the civilian economy appears to have improved retention of language professionals, but first-term retention rates average around 50 percent across the services. This suggests that there is room to improve retention, particularly given the high training costs for these positions.



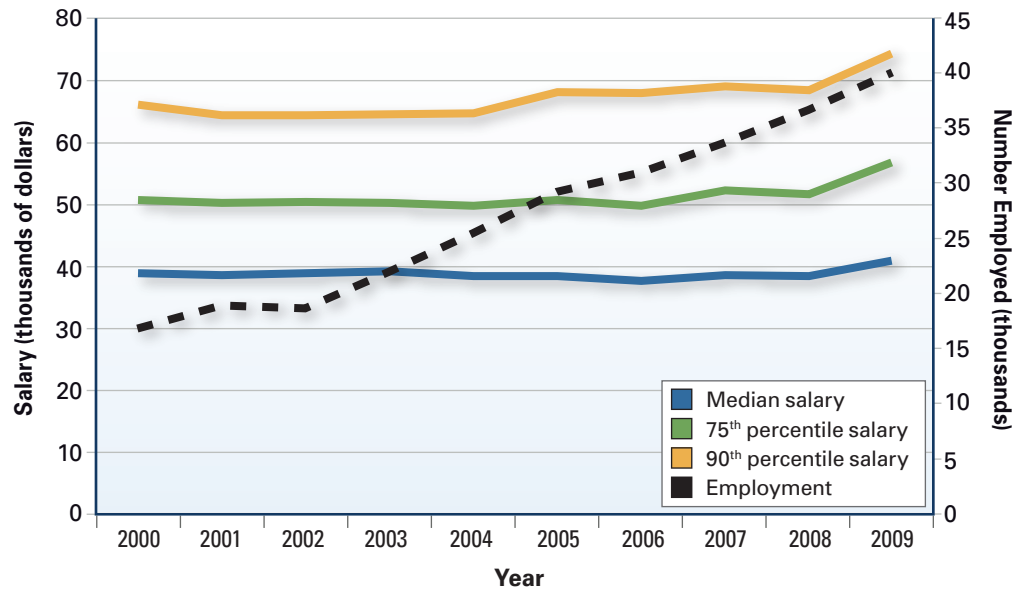
Source: Occupational Employment Statistics for May 2009 ([http://www.bls.gov/oes/oes\\_dl.htm](http://www.bls.gov/oes/oes_dl.htm)) and *Selected Military Compensation Tables* ([http://prhome.defense.gov/MPP/docs/GreenBook\\_2009.pdf](http://prhome.defense.gov/MPP/docs/GreenBook_2009.pdf))

**Figure 11. Pay Comparisons for Language Professionals<sup>27</sup>**

Figure 11 compares military pay to civilian salaries for linguists and translators. Pay for midcareer linguists and translators compares favorably with civilian compensation, although civilian numbers do not reflect, potentially, the same mix of critical language skills. For example, the SRB amounts shown here are for the most critical languages (Arabic, Persian, and Chinese). Also, a fairly high proportion (about 26 percent) of civilian workers is self-employed, which may make comparisons difficult. Many civilians may work less than full time as well. Military pay, allowances, and bonuses are generally between the 75<sup>th</sup> and 90<sup>th</sup> percentile of civilian earnings, although the comparison does not consider the value of benefits (e.g., health care) or retirement.

It is interesting to note that employment levels in the civilian sector have risen dramatically in the last decade, but there has not been a corresponding increase in real wages. Figure 12 shows employment levels from 2000 through 2009 along with real salaries at the 50<sup>th</sup>, 75<sup>th</sup>, and 90<sup>th</sup> percentiles. With the exception of a slight increase in 2008 and 2009, salaries have remained nearly flat. Again, the employment numbers may mask a higher proportion of workers who work less

27. Military pay at the grades shown is computed at the mean year of service for that grade. Civilian earnings are based on the entire occupation. The experience level reflected in the civilian earnings estimate is the average experience of workers at the percentile shown in the comparison.



Source: Occupational Employment Statistics (various years) ([http://www.bls.gov/oes/oes\\_dl.htm](http://www.bls.gov/oes/oes_dl.htm))

**Figure 12. Civilian Salary and Employment for Linguists and Translators**

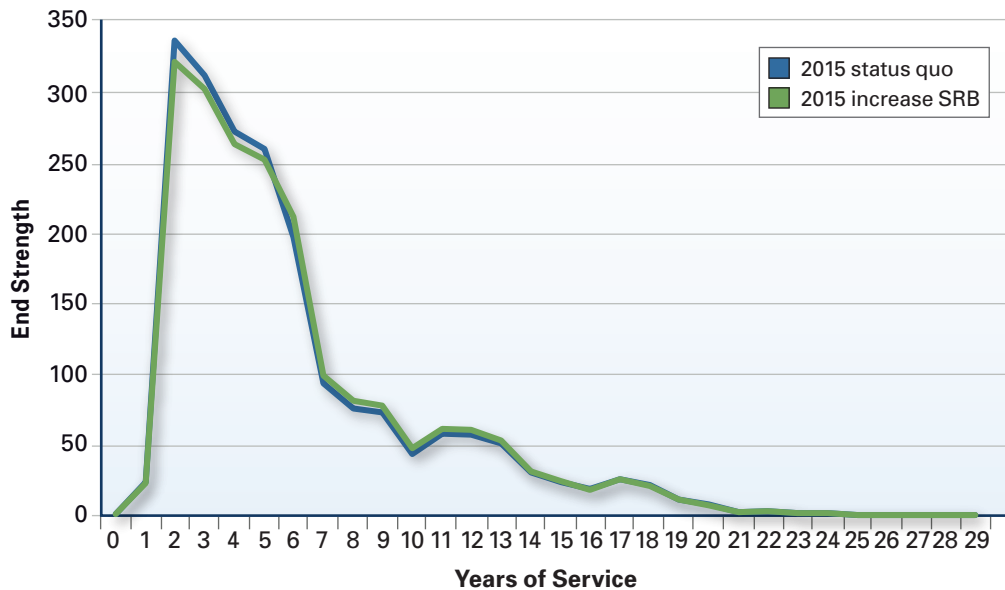
than full time, and the increase may be largely in languages with large numbers of native speakers (e.g., Spanish).

There are at least three ways in which the civilian market could dramatically increase demand for military language professionals. First, competing demand from government contractors and other federal agencies will probably remain strong in the near future. Military personnel have the training and security clearances required for many of these jobs. Second, a rebounding civilian economy may increase private sector demand. For example, firms involved in manufacturing may step up operations in China, creating a larger demand for Chinese translators.

The third area of concern is the value of the new G.I. Bill benefit. Personnel recruited into language fields have high aptitude scores and may be predisposed to pursue a college education. Because the new benefit is more lucrative than its predecessor, linguists/translators may increasingly choose to leave the military after an initial enlistment. Pairing an undergraduate college degree with language skills will make them even more attractive to civilian employers.

### Analysis of Alternatives

Both the Navy and the Marine Corps face current shortages of language professionals. We examined the effectiveness of increasing SRB levels to help address the shortages. Because the services cannot individually target the FLPB payment amount, the SRB seemed to be a more appropriate tool.



**Figure 13. Inventory of Navy Language Professionals, FY 2015**

The Navy's primary shortages are in Arabic, Chinese, Korean, and Spanish. We simulated the effect of increasing the SRB multiplier by 2.0 for each group. The effects on FY 2015 inventory are shown in Figure 13.<sup>28</sup>

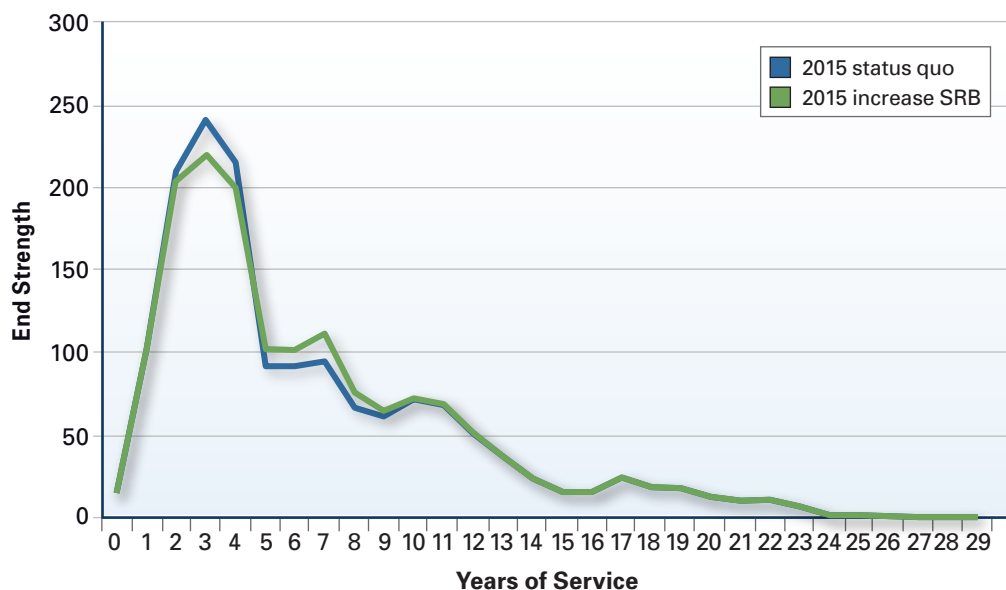
The larger bonuses are predicted to increase retention, but the impact is fairly modest. By 2015, this higher bonus would reduce accession demand (to meet the same manning level) by about 16 sailors, compared to the status quo alternative. The marginal cost of the increased bonus for each additional sailor retained would be about \$20,600.

We performed a similar excursion for the Marine Corps. The Marine Corps faces shortages in Middle East and Asia-Pacific languages. For these two PMOS, we simulated the effects of a 25 percent increase in SRB.<sup>29</sup> Marine Corps SRBs for these two communities are already substantial. For PMOS 2671 (Middle East) and PMOS 2673 (Asia-Pacific), the bonuses range from about \$59,000 to \$83,000. Bonuses under the CSR authority are also available for Marines in Zone D (YOS 15–19). A 25 percent increase is worth about \$15,000 to \$20,000. The effect on FY 2015 inventory is shown in Figure 14. In relative terms, the effect is larger than the effect predicted for the Navy alternative. Total accessions to meet the same

28. The value of the SRB is equal to the multiplier \* monthly basic pay \* length of reenlistment (in years). For an E-5 earning about \$2,300 per month, a level-2 increase in the multiplier for a four-year reenlistment will be worth about \$18,000. The Navy pays the bonus in a lump sum worth 50 percent of the total bonus and the remainder in equal annual installments across the life of the enlistment contract.

29. Unlike the Navy, the Marine Corps does not use a multiplier system to calculate bonuses. Also, Marine Corps SRBs are paid in a single lump sum.





**Figure 14. Inventory of Marine Corps Language Professionals, FY 2015**

end strength are about 18 lower in 2015 than they would be under the status quo. In absolute terms, this is about the same reduction as predicted for the Navy, but Marine Corps inventory is about one third that of the Navy. The marginal cost per additional Marine retained is also much higher than was the case for the Navy example (\$58,300 compared to \$20,600).

### **Compensation Implications of DOD Initiatives to Promote Regional Expertise and Cultural Awareness**

The Department of Defense (DOD) has placed increased emphasis on the need to develop and maintain regional expertise and cultural awareness. The *Strategic Plan for Language Skills, Regional Expertise, and Cultural Capabilities: 2011–2016* states:

While much has been done to establish foundational language skills, regional expertise, and cultural capabilities, further growth and advancement are needed to support our national security efforts. The Department of Defense efforts must also complement and provide a model for national efforts to build a globally competent workforce by educating a larger pool of language and internationally competent high-school and college graduates from which the Department, other federal agencies and the private sector can recruit.

Incentive pay has focused on language skills and does not vary with any measure of regional expertise or cultural awareness.

There are two issues to consider when thinking about compensation incentives for promoting regional expertise and cultural awareness:

1. What are DOD/service requirements?
2. How will regional expertise and cultural awareness be measured?

The first issue has at least two aspects. The services may need language professionals (linguist/translators and foreign affairs officers) with these capabilities as well as other personnel who remain “in reserve” should requirements arise. Also, there may be a demand for these capabilities separate from language skills. There may be cases in which different levels of proficiency are needed for each aspect (language skill, cultural awareness, regional expertise). One might conceive of a three-part rating system that applies to particular assignments or career fields.

Conversely, it may make sense, based on requirements, to tie these capabilities to language proficiency. As in the case of language skill, it may be true that “more is always better.” That is, the services would always want to encourage higher levels of proficiency, regardless of assignment or career field.

The second issue is critical. Language proficiency is measured using the Defense Language Proficiency Test, which yields both a reading and a listening proficiency score. While there may be some debate about the accuracy of the tests, they are at least at some level an objective measure of proficiency.

Moreover, there is some empirical evidence that FLPB is an effective tool for encouraging members to achieve and maintain proficiency in language skills. Mackin, et al. (2007) estimated an econometric model of language proficiency and demonstrated that proficiency bonuses have a significant, positive effect on proficiency levels as measured by DLPT scores. Another way to state this is that incentives tied to DLPT scores effectively motivated personnel to improve language proficiency.

No such test exists for measuring regional expertise or cultural awareness. DOD Instruction 5160.70 (Management of DOD Language and Regional Proficiency Capabilities) does describe a grading system for regional proficiency skill levels:

- ❖ 0+ – Pre-Novice
- ❖ 1 – Novice
- ❖ 2 – Associate
- ❖ 3 – Professional
- ❖ 4 – Senior Professional
- ❖ 5 – Expert

These levels include descriptions of the level of understanding that individuals have about relevant subject areas, but also include combinations of education, training, and experience as indicators of proficiency. Regional proficiency is also tied to language skill proficiency in these definitions, suggesting that DOD intends to link the two.

### Implications for Compensation Design

Should the Department consider new incentives to encourage the acquisition and retention of regional expertise and cultural awareness? The obvious first step is to determine whether there is a supply problem. If so, is the problem primarily related to acquisition, retention, or maintaining proficiency?

The Foreign Language Proficiency Bonus targets “pure” proficiency and it recognizes that, to maintain proficiency in language skills, individuals must undertake some private effort to maintain their skill levels. Because an objective test for language proficiency is possible, FLPB can be directly tied to performance on the DLPT, rather than to indirect measures such as rank, experience, or education. In the absence of an accurate, objective test for regional expertise and cultural awareness, a bonus-based system similar to FLPB would not appear to be feasible. That is to say, if *measured* proficiency in regional expertise and cultural awareness can only be based on indirect proficiency measures such as rank, experience, and education, a bonus-based system such as FLPB will not be a good model for incentivizing regional expertise and cultural awareness. When direct, objective measures of regional expertise and cultural awareness do not exist, a better model will be a career incentive pay that encourages members to undertake the assignments, training, and education necessary to qualify at higher levels of proficiency.

Receiving the career incentive pay might be based upon a series of “gates” which consist of cumulative months of assignment in the region, completed training or education, and language proficiency. Levels of career pay could be graduated across the career to reflect both increasing proficiency levels and force-shaping goals. Levels could also vary depending on the criticality of region, although it might be difficult in practice to adjust career pay levels as conditions and requirements change.<sup>30</sup>

A career incentive pay presents some disadvantages, however. First it would not be ideal for incentivizing proficiency among non-language professionals. Second, it would incentivize members to achieve a particular level of proficiency but, perhaps,

30. There is nothing in the structure of career pay that would prohibit frequent adjustments, but one of the rationales for this type of pay is to establish a fairly stable level of compensation that encourages members to invest in training and to take assignments. If levels fluctuate frequently, the pay’s effectiveness might diminish.

would not be able to contain graduated amounts for higher levels of proficiency. Finally, gates based on experience and education criteria would make it difficult for members with cultural awareness acquired by other means (e.g., natives of the region) to qualify.

To summarize, a bonus modeled on the FLPB is advisable if an objective test to measure regional expertise and cultural awareness is developed. Pay levels may vary by level of proficiency and criticality of the region/culture. The bonus may be available to both language professionals and to others who remain in reserve for surge capability. Conversely, a career incentive pay may be more appropriate if proficiency is measured primarily by experience and education, and distinctions in performance within groups defined by experience and education are difficult or costly to measure.

### **Conclusions and Recommendations**

Compensation for foreign language professionals in the military services compares favorably with civilian alternatives, although the Navy and the Marine Corps are experiencing shortages in critical languages. While pay may appear to be adequate, there may be substantial unmeasured differences in working conditions and the mix of language skills required between civilian and military jobs.

Competing demand for language professionals in the private sector is likely to increase with economic recovery. Moreover, language professionals are expensive to train. Both of these facts argue strongly for a program of incentives that is substantial and can be adjusted quickly to react to changes in requirements and market conditions.

FLPB is an effective tool for maintaining proficiency levels, but is not well suited to targeting of specific manning requirements. SRB and, for later career points, CSRB are preferred tools for managing changing supply and demand conditions.

The services and DOD have identified a requirement to promote and sustain cultural awareness and regional expertise, in addition to foreign language proficiency. Structuring compensation incentives to foster this objective will be difficult, and will depend in large part on the method used to certify proficiency levels.

Based on our analysis, we offer the following recommendations for compensation of foreign language professionals:

1. Consider more aggressive use of SRB/CSRB to retain a higher proportion of trained professionals. The replacement cost for these individuals is high and, in many cases, the most serious constraint is training capacity. Higher bonuses will at least partially reduce accession requirements.

2. Continue to employ FLPB to encourage proficiency and maintain some comparability with civilian employers competing for talent. The Department should also consider allowing the services to vary the bonus levels based on their specific requirements and conditions.
3. Explore compensation alternatives for encouraging cultural awareness and regional expertise only after further study to determine whether the services are having difficulty encouraging a sufficient level of proficiency without additional incentives. Also, any compensation system designed must await the formulation of reliable procedures for certifying proficiency.
4. Increased use of alternative accession sources, including the MAVNI and 09L programs, may further reduce manning costs, but further study of the effectiveness and retention behavior of these recruits is warranted.

## Mental Health Professionals

### Overview of the Career Field

The Army, Air Force, and Navy employ clinical mental health professionals to meet the mental health needs of active duty members and their families from all the services.<sup>31</sup> These professionals include officers who are psychiatrists, clinical psychologists, clinical social workers, and mental health nurse practitioners, as well as enlisted personnel who are mental health specialists.

The demand for mental health professionals has increased significantly. Almost a decade of war, and its concomitant deployments and family separation, has taken its toll on military members, families, and veterans. Frequent deployment of military members, often to combat zones, has put stress on the member directly and on the member and family through increased family separation. The increase in post-traumatic stress disorder and traumatic brain injury and, most vividly and tragically, the increase in the rate at which military members take their own lives, are illustrative of the need for increased mental health services in the military.

Congress has expressed its concern. In the FY 2006 National Defense Authorization Act (NDAA), Congress required the establishment of a Department of Defense Task Force on Mental Health.<sup>32</sup> This task force made specific recommendations to “Ensure an adequate supply of uniformed providers [of mental health services].”<sup>33</sup> Most recently,

31. The Navy's mental health specialists also care for the Marine Corps.

32. National Defense Authorization Act for FY 2006, PL 109-163 January 6, 2006, Section 723.

33. See Department of Defense Task Force on Mental Health (2007), recommendation 5.3.3, p. 45.

in the FY 2010 National Defense Authorization Act, Section 714, mental health staffing is addressed. It states that, within 180 days of enactment, the secretary of each military department will increase the number of active duty mental health personnel authorized by the greater of the amount required but not authorized to fill or 25 percent of the number authorized. It included a provision to require a report, within a year, on the number of mental health personnel required to meet mental health needs of members, retirees, and dependents. Finally, it requires the secretary to develop and implement a plan to increase, significantly, the number of health care professionals in the Department of Defense by September 30, 2013. The plan will include both accession and retention incentives, and new ways to train mental health professionals for the military.<sup>34</sup>

In February, 2011, the Assistant Secretary for Health Affairs, in response to the requirements of Section 714 of the National Defense Authorization Act for FY 2010, released the report to Congress entitled *Mental Health Personnel Required to Meet the Needs of Service Members, Retired Members, and Dependents*.<sup>35</sup> The following table, showing the status of staffing across the services at the end of FY 2009, is reproduced from this report.<sup>36</sup>

Table 9 indicates that, in FY 2009, the services were able to recruit and retain sufficient mental health professionals to staff the positions they had funded.<sup>37</sup> However, all of the services report significant growth initiatives to meet the mental health needs of service members and dependents and to comply with the Congressional requirement for increasing staffing in the mental health professions. Table 10 though Table 12, from the report, show the growth in military mental health positions planned by each of the services.

**Table 9. Numbers of Mental Health Personnel Reported at End of FY 2009**

	#Personnel	#Billets	Percentile Filled
Psychiatry	322	326	99%
Mental Health Nurse Practitioner	65	52	125%
Psychology	528	537	98%
Social Worker	401	384	102%
Mental Health Nurse	165	131	126%

Source: Health Manpower Personnel System

34. National Defense Authorization Act for FY 2010, PL 111-84 October 28, 2009, Section 714.

35. Assistant Secretary of Defense for Health Affairs (2011).

36. Assistant Secretary of Defense for Health Affairs (2011), p. 7.

37. The billets in this table are, presumably, funded authorizations. For some of the mental health specialty areas, including psychiatry and clinical psychology, the inventory data may include staff in training positions (residents and interns).

**Table 10. Army MEDCOM Increases (Effective FY 2011)**

Occupation	Growth
Psychiatrists	+12
Psychiatric/Behavioral Health Nurses	+5
Psychiatric/Behavioral Health Nurse Practitioners	+10
Social Workers	+8
Clinical Psychologists	+10
Enlisted Behavioral Health Specialist	+34

**Table 11. Navy Specialties Net Growth from FY 2009–FY 2012**

Occupation	Growth
Psychiatrists	+ 28
Clinical Psychologists	+ 28
Social Workers	+ 62
Psychiatric Nurse Practitioners	+ 14
Mental Health Nurses	+ 10
Psychiatric Technicians	+ 57

**Table 12. Air Force Specialties Net Growth from FY 2009–FY 2012**

Occupation	Growth
Psychiatrists	+18
Psychologists	+31
Social Workers	+79
Psychiatric Nurse Practitioners	+27
Psychiatric Nurses	+15
Enlisted Mental Health Technicians	+169

All of the services are increasing the number of authorized positions for mental health. It is interesting to note that both the Navy and the Air Force are planning a substantial increase in social worker positions. Social workers are somewhat easier to attract and retain than some other mental health professionals, such as clinical psychologists and, in many areas, are good substitutes for these other mental health professionals. Indeed, the services are catching up to what has already occurred in the civilian market.<sup>38</sup>

38. See, for example, McFall (2006), p. 26:

Today, this picture is changing once again: Social workers and mental health workers from other disciplines now are displacing psychologists as the primary providers of mental health services doing to psychologists what psychologists did to psychiatrists earlier. The pace of this shift has been dramatic. In 1991, for example, social workers were providing only about 5 percent of all mental health services in the United States; by 1997 they were providing 56 percent of these services..."

## Supply of Mental Health Professionals in the Civilian Sector

In general, there is an excess demand for mental health professionals in the civilian sector based on the mental health needs or epidemiology of the population. This demand increased during the recession. However, the effective demand—the demand based on ability and willingness to pay for services—has not been as great. This is the case for two reasons. First, mental health services are often not covered, or are subject to inadequate coverage, by many private sector insurance policies. The Mental Health Parity Act of 1996 and the Mental Health Parity and Addiction Equity Act of 2008 reduced the differences between medical benefit coverage, limits, co-pays, and deductibles and those of mental health benefits, for those plans that offer both types of benefits. However, while it did increase insurance coverage for mental health services, it did not eliminate differences. In the aggregate, coverage for mental health services remains below that for physical health services. This suppresses the “effective” demand for mental health services—the ability to pay for them—compared to medical services.

A second factor affecting the effective demand for mental health services is the effect that the recession has had on state budgets. Mental health services, particularly community mental health centers and services in the areas of alcohol and substance abuse, are subsidized by state programs. These programs have been cut significantly by many states over the course of the recession, reducing services provided and reducing the effective demand for mental health professionals.<sup>39</sup>

This has resulted in the perverse outlook where, though the underlying epidemiology of the population would imply that more mental health professionals are needed, the ability to finance services and the willingness to pay for services has resulted in an effective decrease in demand. The implication for the Department of Defense is that, in the case of mental health professionals, it should be able to compete effectively with the civilian sector for additional mental health professionals.

### Psychiatrists

The investment necessary to produce a fully trained psychiatrist is substantial. Psychiatrists must be medical school graduates and complete a four-year residency, often followed by a one-year postdoctoral fellowship. One implication of this is that, to recruit a psychiatrist by financing their education, as would be the case with the Health Professions Scholarship Program (HPSP), may require a lead time of up to eight years.

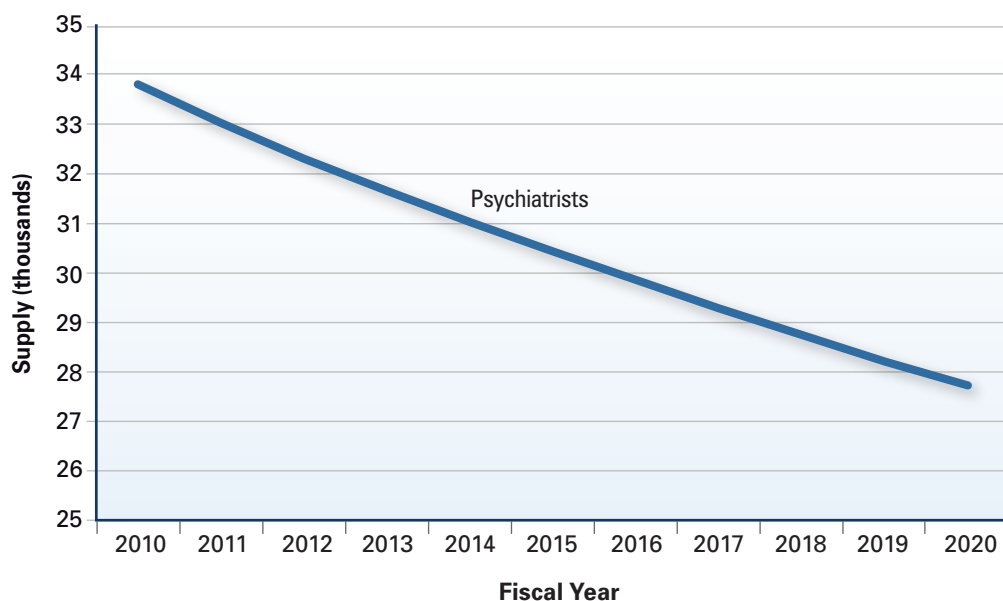
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39. See, for example, State Budgets Decimate Mental Health Services, *Washington Times*. March 9, 2011.



Because, in part, of the factors mentioned in the previous section, the earnings of psychiatrists are generally at the lower end of physician specialties.<sup>40</sup> They are similar to those of primary care physicians, rather than the specialist, though their training investment is more similar to the latter. Partly because of this, the numbers of psychiatrists are projected to decline over the next 10 years.

Figure 15 presents our projection of the number of adult psychiatrists, over the period 2010 through 2020.<sup>41</sup> The total numbers are projected to decline from about 34,000 in 2010, to fewer than 28,000 by 2020. This decline is due to an aging psychiatrist workforce entering retirement age and, concomitantly, fewer medical school graduates choosing to pursue graduate medical education in psychiatry. If the trend in the latter were to change, the decline would be somewhat smaller, or even reversed.



**Figure 15. Adult Psychiatrists: Supply Projection**

### Clinical Psychologists and Social Workers

Prior to World War II, clinical psychologists were focused on testing. During the war, the military began using them to meet its needs for mental health professionals. After the war, despite the efforts by competing mental health providers to restrict

40. We discuss the earnings of civilian mental health professions, compared to those mental health professionals serving on active duty, below.

41. These projections are based on The Lewin Group's Physician Supply model.

their mental health practice, clinical psychologists became increasingly prominent substitutes for psychiatrists in many areas of mental health.<sup>42</sup>

The training necessary to become a doctoral level clinical psychologist today is almost as intensive as that for a psychiatrist. After completion of an undergraduate degree, the candidate must complete a doctoral program, including a practicum component that generally requires about five to seven years. This is followed by a one-year internship, and by a one-year postdoctoral fellowship. Despite this investment in training, the earnings of clinical psychologists in the civilian sector are relatively modest. Again, this is in part due to the factors affecting the effective demand for mental health professionals discussed above.

### **Social Workers**

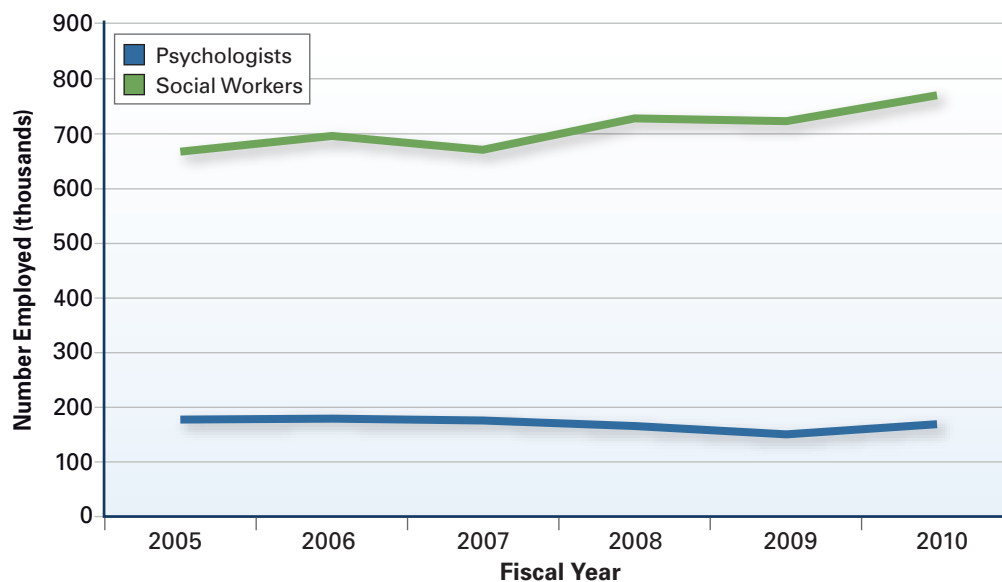
Social workers are one of the four recognized mental health professions that also include psychiatrists, psychologists, and psychiatric nurses. Generally, there are two types of degrees for social workers. A bachelor of science in social work (BSW) is an undergraduate degree typically requiring four years to complete. It may include a practicum component. A master of science in social work (MSW) is a more advanced degree, typically requiring two years to complete, and typically including an internship. It does not require an undergraduate degree in social work as a prerequisite. Clinical social workers are, typically, those who are likely to be substitutes for clinical psychologists and psychiatrists for some tasks. They generally hold an MSW and specialize in counseling.

The demand for social workers has been increasing over time, and they have been increasingly viewed as substitutes for clinical psychologists and psychiatrists in certain functions. McFall argues that social workers are seen increasingly as a lower cost substitute for clinical psychologists, in much the same way that clinical psychologists began to substitute for psychiatrists after World War II.<sup>43</sup> For those tasks for which clinical social workers are substitutable for clinical psychologists or psychiatrists, social workers are quite cost effective.

Figure 16 shows the number of psychologists and the number of social workers that were employed, by year, over the period 2005 to 2010. The Current Population Survey numbers represent self-reported psychologists and social workers. These represented sampled respondents who (a) indicated that their occupation was social worker or psychologist; and (b) indicated that they were employed in that occupation. Employment includes “self-employed.” The numbers include all who report being employed as psychologists or social workers, not only those who are clinical

42. McFall (2006).

43. McFall (2006).



Source: Current Population Survey (CPS)

**Figure 16. Economy's Employment of Social Workers and Psychologists**

psychologists or social workers. Nevertheless, they are suggestive of a general trend that social workers are increasing over the period, while psychologists may be declining slightly.

### Military Mental Health Professionals: Current Staffing and Demand Growth

Overall, there were about 3,100 mental health professionals on active duty in FY 2010, across the three services. Officers constituted slightly less than half of the total strength. Table 13 shows the distribution across the services.

**Table 13. Mental Health Military Professionals, FY 2010**

	Army	Navy	Air Force	Total
Psychiatrist	155	92	145	392
Non-Physician Mental Health Specialist <sup>44</sup>	356	152	471	979
Total Officers	511	244	616	1,371
Enlisted Mental Health	695	300	715	1,710
<b>Total</b>	<b>1,206</b>	<b>644</b>	<b>1,331</b>	<b>3,081</b>

44. Non-physician specialists consist of officers who are clinical psychologists, social workers, psychiatric/mental health nurses or other behavioral specialists.

In Table 14 we present current (FY 2010) staffing rates for mental health professionals and the expected growth in demand, as measured by authorized positions, between FY 2010 and FY 2015.<sup>45</sup> In FY 2010, the Army was staffed at about 97 percent of officer authorizations for mental health professionals and about 94 percent of enlisted mental health authorizations. Between FY 2010 and FY 2015, officer authorizations for mental health professionals are expected to grow by about 32 percent overall, while enlisted authorizations are expected to grow by about 21 percent overall.

**Table 14. Current Staffing and Authorization Growth for Mental Health Professionals**

Service	Authorizations		Percent Change	FY 2010 Inventory	FY 2010: Percent Staffed
	FY 2010	FY 2015			
<i>Army</i>					
Psychiatrists	172	189	10%	155	90%
Non-Physician Specialists	357	510	43	356	100
Total Officer	529	699	32	511	97
Total Enlisted	733	888	21	695	94
Total Army	1,262	1,587	26	1,206	96
<i>Navy</i>					
Psychiatrists	114	125	10	92	81
Non-Physician Specialists	206	274	33	152	74
Total Officer	320	399	25	244	76
Total Enlisted	412	377 <sup>46</sup>	-8	300	70
Total Navy	732	776	5	544	74
<i>Air Force</i>					
Psychiatrists	155	173	12	145	94
Non-Physician Specialists	504	639	27	471	93
Total Officer	659	812	23	616	93
Total Enlisted	715	884	24	715	100
Total Air Force	1,374	1,696	23	1,331	97
<b>All Officer</b>	<b>1,508</b>	<b>1,910</b>	<b>26</b>	<b>1,371</b>	<b>90</b>
<b>All Enlisted</b>	<b>1,860</b>	<b>2,149</b>	<b>16</b>	<b>1,710</b>	<b>92</b>
<b>Total</b>	<b>3,368</b>	<b>4,059</b>	<b>21</b>	<b>3,081</b>	<b>91</b>

45. Note that an earlier table, Table 9, taken from the Assistant Secretary for Health Affairs February, 2011 report to Congress, showed staffing for officer mental health specialties across the services were generally at or above 100 percent in FY 2009. However there was a significant increase in authorizations between FY 2009 and FY 2010, reflecting continued steps to grow by at least 25 percent by September 30, 2013.

46. Navy provided authorization data that did not extend beyond FY 2012.

Naval officer mental health positions were staffed at about 76 percent of authorizations in FY 2010. Navy enlisted staffing was at about 70 percent of authorizations. Officer positions are planned to grow by about 25 percent, while enlisted positions may decline slightly. Current Navy staffing rates present the greatest challenge of the three services. The Navy believes, however, that actions it has taken will significantly improve staffing over the next several years. These include recruiting and improved retention.

Staffing of mental health professionals in the Air Force was 93 percent for officer specialties and 100 percent for enlisted in FY 2010. Officer and enlisted authorizations are expected to increase by 23 percent and 24 percent, respectively, over the period FY 2010 to FY 2015.

Overall, current (FY 2010) staffing for officer and enlisted mental health positions is above 90 percent. Though current staffing is adequate, on average, staffing in the Navy is 76 percent for officer positions and about 70 percent for enlisted. All three services face the challenge of growing over the next several years, with officer positions increasing by 26 percent and enlisted positions growing by 16 percent.

Within officer professions, non-physician mental health specialties are growing more quickly than psychiatrists. Officer non-physician mental health specialists are growing by 43 percent in the Army, 33 percent in the Navy, and 27 percent in the Air Force. Within the non-physician mental health specialties, the Navy and Air Force are planning to increase use of clinical social workers significantly. The Navy is planning to add 51 positions, an increase of 148 percent, while the Air Force is adding 80 positions, an increase of 40 percent. This is consistent with a trend in the civilian sector, where clinical social workers are increasingly substituted for some types of tasks previously undertaken by clinical psychologists and, in some cases, psychiatrists. Moreover, there is evidence, presented in the next section, that the services offer compensation levels that are quite competitive with earnings of social workers in the civilian sector, suggesting that this strategy is likely to be successful.

### **Earnings of Military and Civilian Mental Health Professionals**

In addition to basic pay, allowances, and the tax advantage associated with non-taxable allowances, mental health professionals in the military may receive a variety of special and incentive pays. Table 15 presents the pays offered to selected officer mental health specialties.

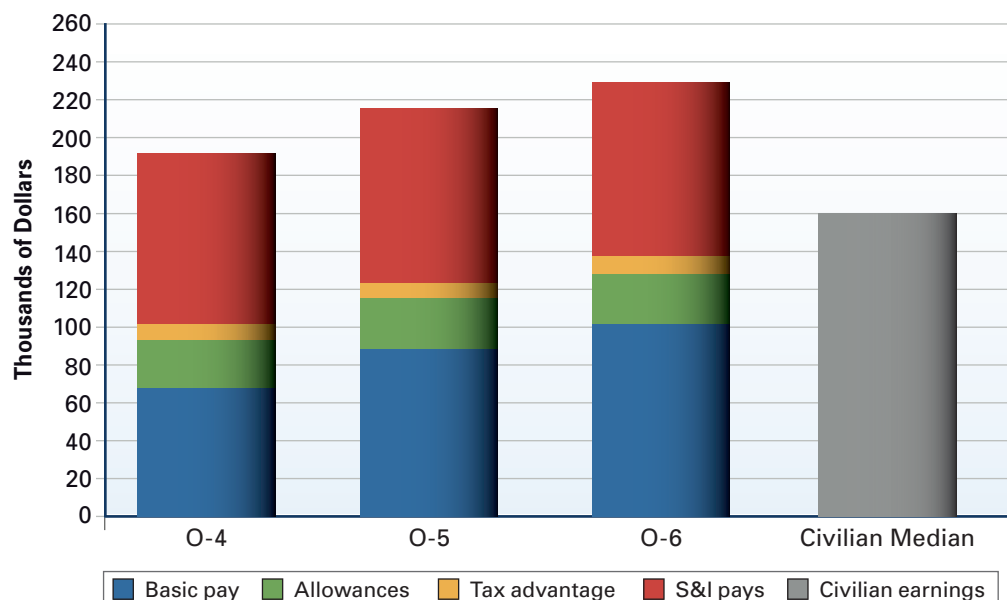
**Table 15. Special and Incentive Pays Offered to Mental Health Specialists**

Mental Health Occupation	Special and Incentive Pay	Approximate Amount
Psychiatrist	Board Certification Pay	\$200–\$500 per month
	Variable Special Pay	\$400–\$1,000 month
	Incentive Special Pay	\$20,000 per year
	Multi-year special pay	\$43,000 per year for a four-year service commitment
	Additional Special Pay	\$15,000 per year
Clinical Psychologist	Board Certification Pay	\$6,000 per year
	Incentive Pay (if the Graduated Retention Bonus not taken)	\$5,000 per year
	Graduated Retention Bonus	\$20,000 per year for those signing a four-year agreement
Clinical Social Worker	Board Certification Pay	\$6,000 per year
	Graduated Retention Bonus (proposed)	Up \$10,000 per year for a four-year commitment
Mental Health Nurse Practitioners	Board Certification Pay	\$6,000 per year
	Special Incentive Pay	Authorized up to \$20,000 per year for four-year commitment
Enlisted Mental Health Specialist	Selective Reenlistment Bonus	Award varies by service

The compensation of military health professionals compares favorably to comparable mental health occupations in the civilian economy. Figure 17 compares compensation of psychiatrists on active duty in the armed forces with the median earnings of psychiatrists in the civilian sector. Unlike some physician specialties, such as cardiologists or orthopedic surgeons, compensation for psychiatrists in the military is competitive with compensation offered in the civilian sector. It is above the median compensation offered in the civilian sector for pay grades O-3, O-4, and O-5. Note that without the special and incentive pay component of military psychiatrists' compensation, this would not be the case.<sup>47</sup>

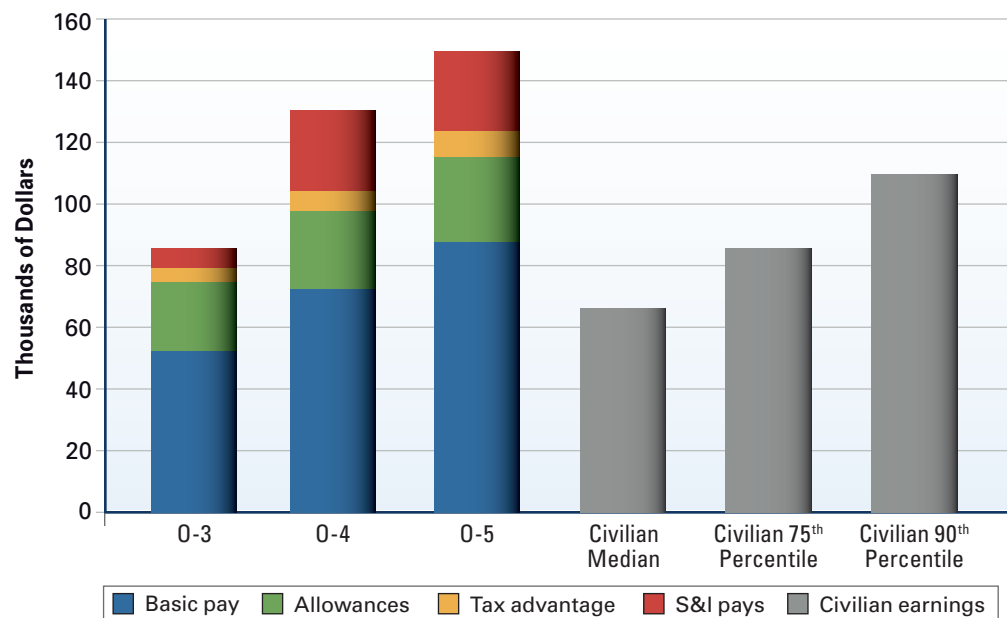
Compensation for clinical psychologists in the military is significantly greater than the median compensation levels of clinical psychologists in the civilian sector, as shown in Figure 18. In fact, military compensation is generally at or above the 75<sup>th</sup> percentile of civilian clinical psychologists for pay grades O-3, O-4, and O-5.

47. The civilian earnings estimates are from the Occupation Employment Statistics, which is a survey of establishments. It does include the self-employed. An estimate of the median earnings of psychiatrists from the American Medical Group Association (AMGA) for 2009 is \$214,740. This latter estimate, however, is based on psychiatrists working in large multi-specialty groups and is, therefore, likely to be above the median earnings for all psychiatrists.



Source: Occupational Employment Statistics for May 2009 ([http://www.bls.gov/oes/oes\\_dl.htm](http://www.bls.gov/oes/oes_dl.htm)) and *Selected Military Compensation Tables* ([http://prhome.defense.gov/MPP/docs/GreenBook\\_2009.pdf](http://prhome.defense.gov/MPP/docs/GreenBook_2009.pdf))

**Figure 17. Pay Comparison for Psychiatrists<sup>48</sup>**

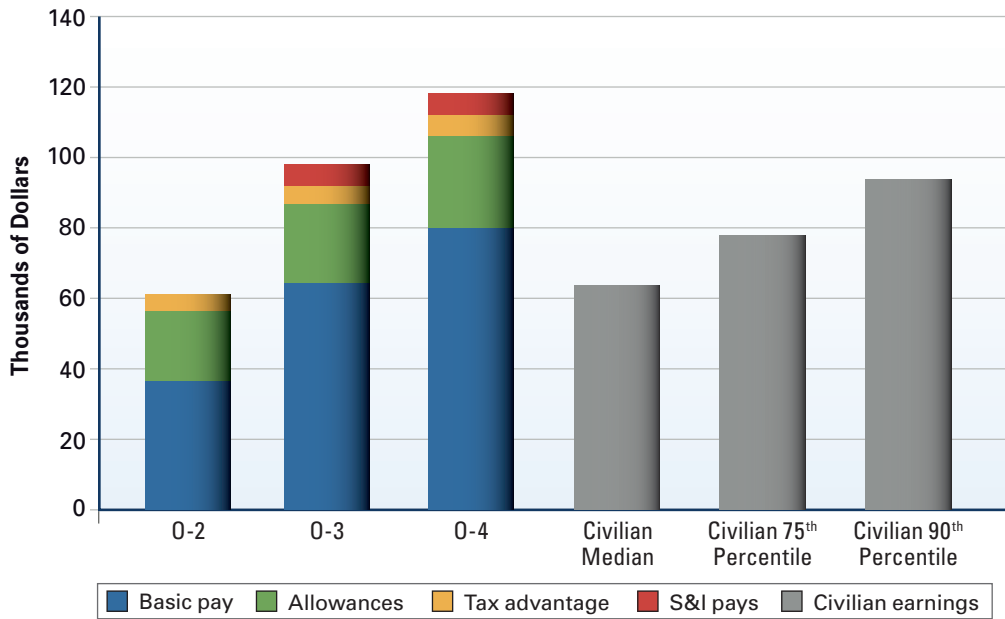


Source: Occupational Employment Statistics for May 2009 ([http://www.bls.gov/oes/oes\\_dl.htm](http://www.bls.gov/oes/oes_dl.htm)) and *Selected Military Compensation Tables* ([http://prhome.defense.gov/MPP/docs/GreenBook\\_2009.pdf](http://prhome.defense.gov/MPP/docs/GreenBook_2009.pdf))

**Figure 18. Pay Comparison for Clinical Psychologists<sup>49</sup>**

48. Military pay at the grades shown is computed at the mean year of service for that grade. Civilian earnings are based on the entire occupation. The experience level reflected in the civilian earnings estimate is the average experience of workers at the percentile shown in the comparison.

49. Military pay at the grades shown is computed at the mean year of service for that grade. Civilian earnings are based on the entire occupation. The experience level reflected in the civilian earnings estimate is the average experience of workers at the percentile shown in the comparison.



Source: Occupational Employment Statistics for May 2009 ([http://www.bls.gov/oes/oes\\_dl.htm](http://www.bls.gov/oes/oes_dl.htm)) and *Selected Military Compensation Tables* ([http://prhome.defense.gov/MPP/docs/GreenBook\\_2009.pdf](http://prhome.defense.gov/MPP/docs/GreenBook_2009.pdf))

**Figure 19. Pay Comparison for Mental Health Nurses<sup>50</sup>**

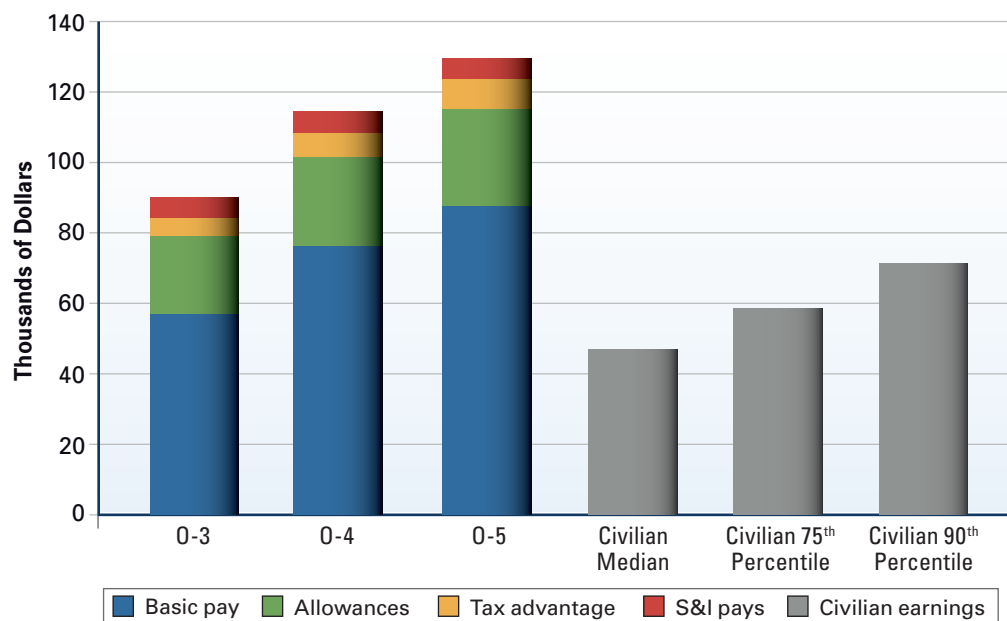
Mental health nurses in the military are also compensated at or above the median levels for their civilian counterparts, as shown in Figure 19. Military mental health nurses are compensated at or above the median earnings of their civilian counterparts, and those in pay grades O-3 and O-4 are above the 75<sup>th</sup> percentile of civilian mental health nurse earnings.<sup>51</sup>

The final comparison of officer mental health professions is that of clinical social workers. Interestingly, the data in Figure 20 indicate that the compensation of military clinical social workers in pay grades O-3, O-4, and O-5 is above the 90<sup>th</sup> percentile of the earnings of civilian social workers.

50. Military pay at the grades shown is computed at the mean year of service for that grade. Civilian earnings are based on the entire occupation. The experience level reflected in the civilian earnings estimate is the average experience of workers at the percentile shown in the comparison.

51. The 2009 American Psychology Association Salary Survey estimates higher median earnings in 2009 for licensed clinical psychologists. Their estimate, based on 1,750 responses, was \$87,000. For those with between six and nine years of experience, earnings were \$75,000. The Occupational Employment Statistics, which indicates lower median earnings, is based on a survey of establishments, rather than individuals in the occupation. It is a broader survey and, arguably, more objective. However, it does exclude self-employed, who may have higher annual earnings than those who are salaried and working in establishments. See Finno, et al. (2010).



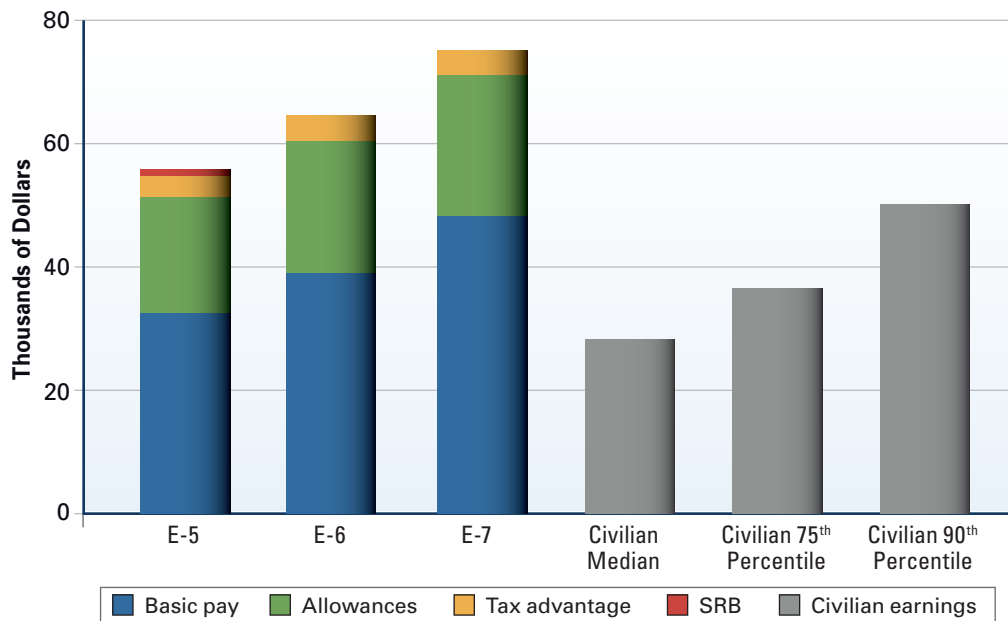


Source: Occupational Employment Statistics for May 2009 ([http://www.bls.gov/oes/oes\\_dl.htm](http://www.bls.gov/oes/oes_dl.htm)) and *Selected Military Compensation Tables* ([http://prhome.defense.gov/MPP/docs/GreenBook\\_2009.pdf](http://prhome.defense.gov/MPP/docs/GreenBook_2009.pdf))

**Figure 20. Pay Comparison for Social Workers (Officers)<sup>52</sup>**

Mental health professionals in the enlisted force have no obvious civilian sector counterpart. We compare them to a “psychiatric technician.” From Figure 21, the earnings of enlisted mental health specialists in the military are significantly above those of psychiatric technicians. Psychiatric technicians may not represent the best comparison for enlisted mental health professionals. However, it is interesting to note that, were we to compare enlisted mental health specialists to civilian social workers, the earnings of enlisted mental health specialists would be above the median earnings of civilian social workers.

52. Military pay at the grades shown is computed at the mean year of service for that grade. Civilian earnings are based on the entire occupation. The experience level reflected in the civilian earnings estimate is the average experience of workers at the percentile shown in the comparison.



Source: Occupational Employment Statistics for May 2009 ([http://www.bls.gov/oes/oes\\_dl.htm](http://www.bls.gov/oes/oes_dl.htm)) and *Selected Military Compensation Tables* ([http://prhome.defense.gov/MPP/docs/GreenBook\\_2009.pdf](http://prhome.defense.gov/MPP/docs/GreenBook_2009.pdf))

**Figure 21. Pay Comparison for Social Workers (Enlisted)<sup>53</sup>**

### Implication of Pay Comparisons

Compensation is only one dimension of an occupation. In addition, the civilian comparison occupations may not precisely capture the best alternative civilian opportunities of military mental health professionals. The pay comparisons do suggest, however, that the military should be able to compete successfully for mental health professionals in the civilian sector. Deployments, family separation, and related hardships make working conditions different in the military, compared to the civilian sector. The differences in compensation, however, are generally substantial, potentially offsetting these hardships.

The compensation differences do vary by type of health professional. The relative differences between military and civilian psychiatrists are not as great, for example, as that between military and civilian social workers. One implication of this is, as the military mental health workforce grows, it is likely to be relatively easier to grow in professions that have a greater relative compensation advantage compared to the civilian sector. In this case, if social workers can provide the mental health services

53. Military pay at the grades shown is computed at the mean year of service for that grade. Civilian earnings are based on the entire occupation. The experience level reflected in the civilian earnings estimate is the average experience of workers at the percentile shown in the comparison.

demanding by the Department of Defense, expansion of mental health services by increasing the number of social workers, relative to the numbers of psychiatrists or clinical psychologists, may provide a viable path.

### Special and Incentives Pays and Retention of Mental Health Professionals

Compensation for both mental health officer and enlisted specialists is at or above comparable occupations in the civilian sector. However, non-pecuniary conditions, such as frequent deployments, complicate simple pay comparisons, and their implications for retention. For officer mental health professionals, current special and incentive pays and bonuses appear to be sufficient to maintain adequate retention. In general, the retention rates of officer mental health professionals are at or above the average retention for all officers in the respective service. Navy mental health specialties, however, experience somewhat lower retention. The recent addition of a graduated retention bonus for clinical psychologists and increases in Multi-year Specialty Pay (MSP) for psychiatrists have improved retention.

Figure 22 shows the retention rates for psychiatrists for each of the three services in FY 2010. Retention rates are generally at or above 80 percent, except for the Navy.

Similarly, retention rates for clinical psychologists in the Navy and Air Force are generally at or above 80 percent, dipping only slightly below 80 percent in years of

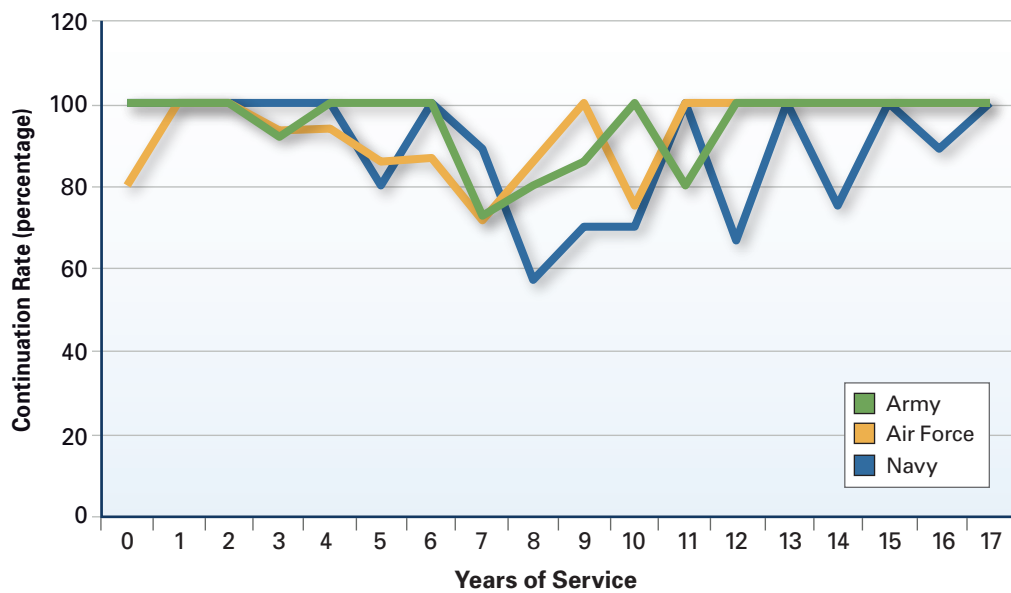
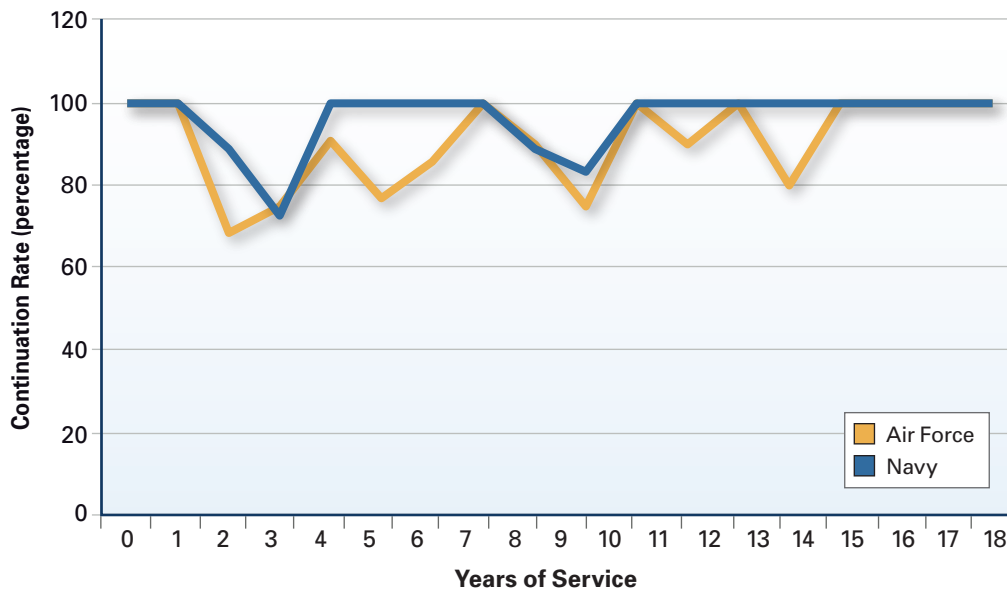


Figure 22. Psychiatrist Continuation Rates for Fiscal Year 2010



**Figure 23. Clinical Psychologist Retention Rates for FY 2010<sup>54</sup>**

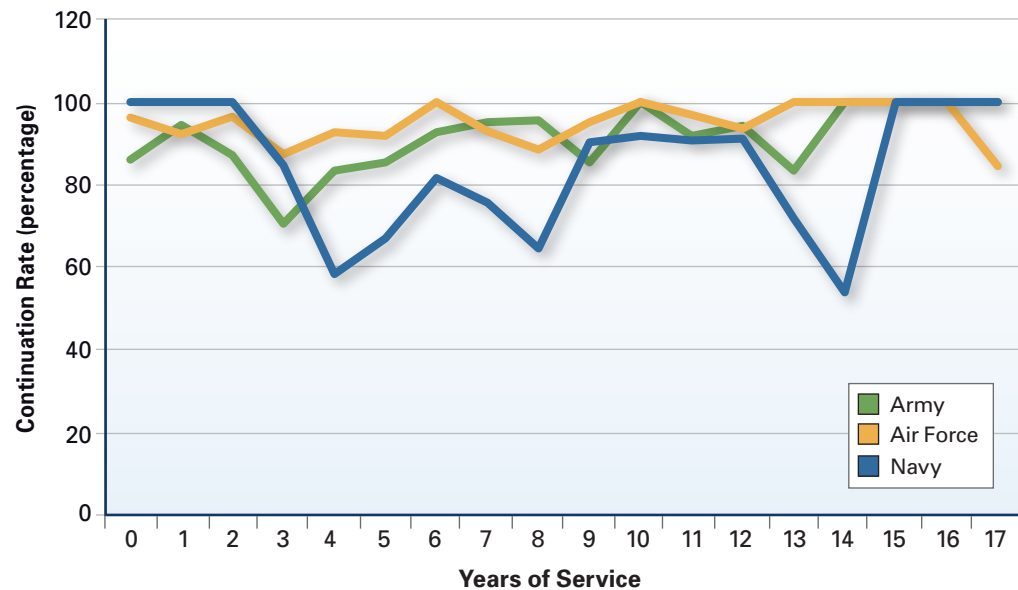
service four and five, when initial obligated service is completed for many clinical psychologists (Figure 23).

Similarly, enlisted mental health specialists' compensation appears to be competitive with the civilian sector, leading to generally adequate retention rates. In Figure 24, retention rates in FY 2010 for the Army and Air Force are generally at or above 80 percent, with rates in the Army dipping to about 70 percent at year of service four—the first-term reenlistment point. Rates for Navy enlisted mental health specialists are generally lower than the other services throughout the range of years of service shown.

The Selective Reenlistment Bonus program provides flexibility to increase enlisted retention rates. In the case of the Navy enlisted mental health specialty, an increase in the Selective Reenlistment Bonus, which was set at an award level of zero in FY 2010, may improve retention in that occupation. Though significant growth is not currently planned for this specialty, its current (FY 2010) staffing relative to authorizations is only about 70 percent.<sup>55</sup>

54. Our data source, the Defense Manpower Data Center, could not break out retention behavior separately for Army clinical psychologists in that they were included with other non-physician mental health professionals.

55. In FY 2010, the Navy was offering an SRB only at Zone B (second-term reenlistment) for enlisted mental health specialists, and the award level was a 0.5 multiple, the lowest possible. Since that time, the SRB has been eliminated.



**Figure 24. Enlisted Mental Health Specialty: Continuation Rates by Year of Service**

### Meeting the Growth Challenge: Can Special and Incentive Pays Be Applied More Aggressively?

For the most part, retention rates in most mental health specialties are adequate. Navy rates, as an exception, are generally lower than the other services'. This suggests that additional retention-related pay will have only a modest effect on retention rates and the ability to staff the increase in authorizations programmed for most specialties through FY 2015. This may change as the economy improves.<sup>56</sup>

Nevertheless, growth targets in many specialties are quite ambitious. Increased retention-related pay could reduce the accession burden necessary to grow for some specialties. Authorizations for psychiatrists are planned to grow by 10 percent in the Army and Navy, and by 12 percent in the Air Force. In the analysis below, we present the results of increasing the Multi-year Specialty Pay for psychiatrists by 25 percent, from \$43,000 to \$53,750 for a four-year commitment, on retention and on the accessions necessary to meet growth goals (Figures 25 through 27).

56. In general, there is likely to be more leverage for staffing growth through increased retention if underlying retention rates are low. Special and incentive pays can be used to improve retention even where retention is high. However, we would expect that the additional cost of improving retention rises at an increasing rate as retention rates rise. It will do so both because the rents to those who would have stayed without the increase in pay will rise, and because the supply curve for retention tends to become inelastic at high rates of retention. Hence, other ways of achieving increases in staff, such as training new entrants, are likely to become relatively more efficient for occupations with high retention rates. However, if additional staff is required urgently in the near term, increasing retention in occupations that enjoy high retention rates may be worth the cost.

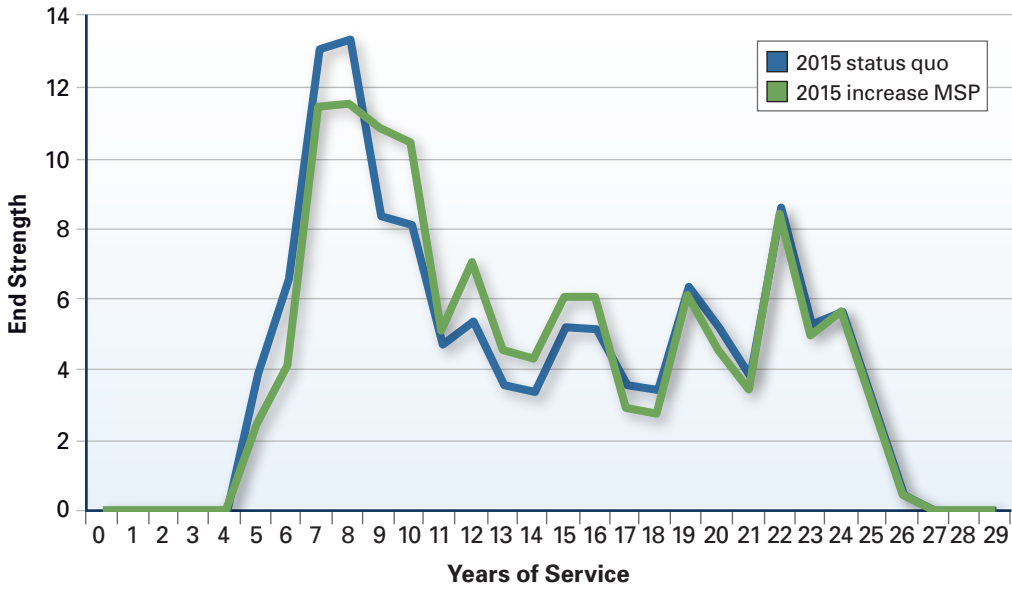


Figure 25. Effect of 25 Percent Increase in MSP on Navy Psychiatrist Retention

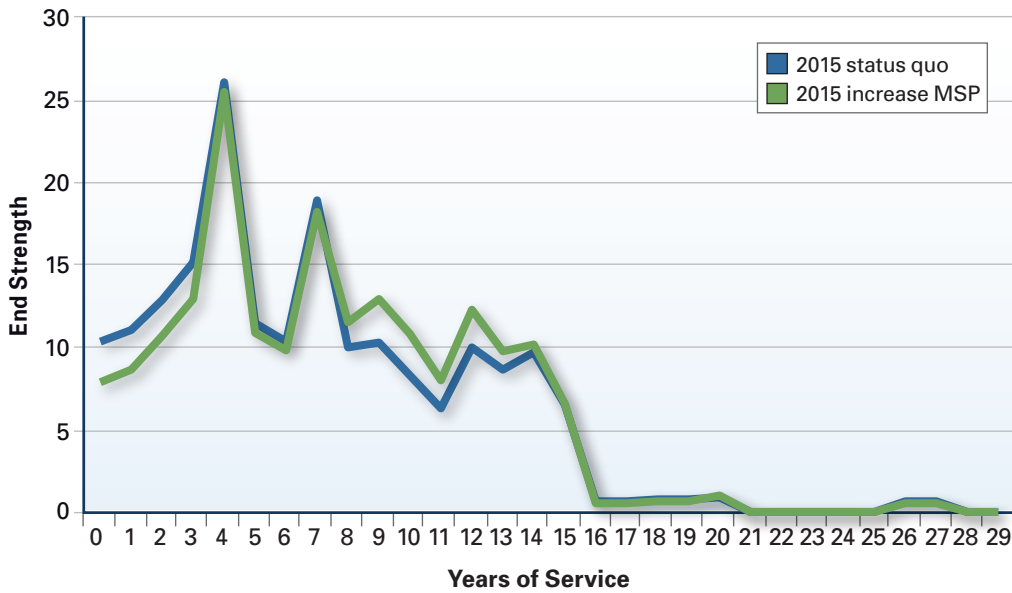
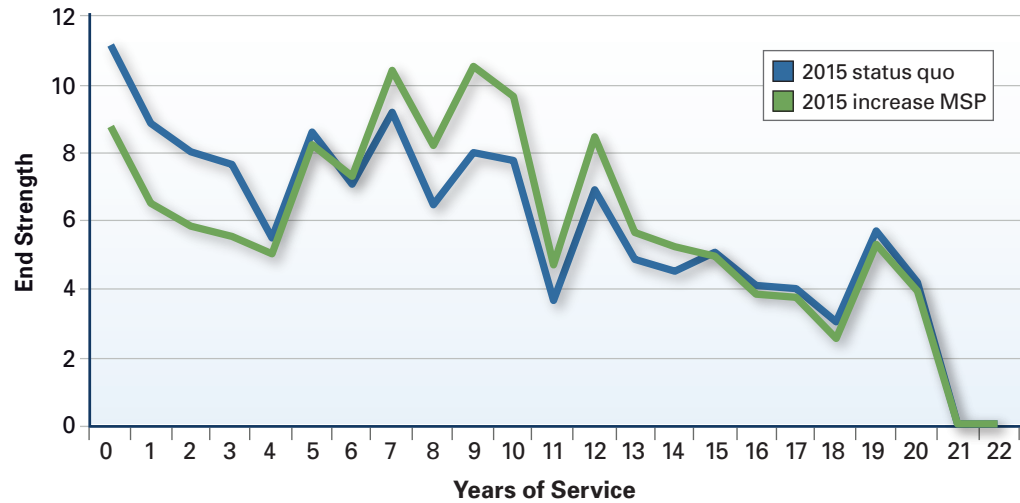


Figure 26. Effect of 25 Percent Increase in MSP on Army Psychiatrist Retention



**Figure 27. Effect of 25 Percent Increase in MSP on Air Force Psychiatrist Retention**

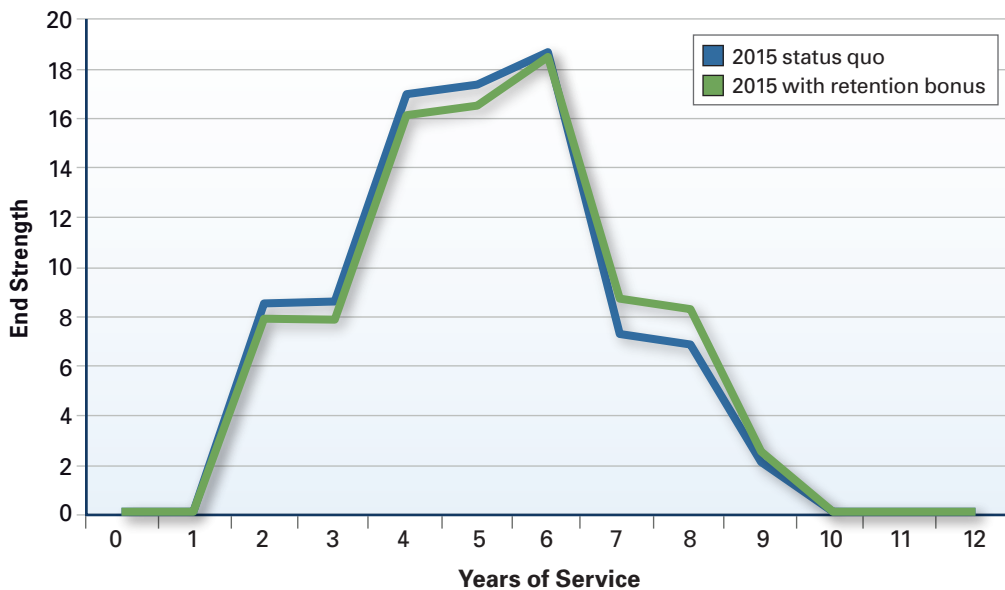
Table 16 shows, under the assumption that accessions are calculated to exactly meet authorizations once retention losses are subtracted, how accession demand changes as the result of the increased retention due to the 25 percent increase in MSP for psychiatrists. Over the period FY 2012–FY 2015, accessions are 16 fewer for the Army, 19 fewer for the Navy, and 16 fewer for the Air Force as the result of the MSP increase.

Though the hypothetical increase in the MSP increases retention of psychiatrists and reduces accessions necessary to meet growth goals in each of the three services, the cost per added psychiatrist retained is substantial. We estimate that the marginal cost of an additional retained psychiatrist, resulting from a 25 percent increase in MSP, is approximately \$309,000 for the Army, \$462,000 for the Air Force, and \$704,000

**Table 16. Effect of a 25 Percent Increase in MSP on Psychiatrist Accessions**

Accession Demand		FY 11	FY 12	FY 13	FY 14	FY 15	Total
Army	Baseline	47	27	23	19	19	135
	MSP Increase	47	23	19	15	15	119
	Change in Accessions	0	-4	-4	-4	-5	-16
Navy	Baseline	20	15	14	15	18	82
	MSP Increase	20	10	10	10	13	63
	Change in Accessions	0	-5	-5	-5	-5	-19
Air Force	Baseline	7	13	15	17	18	70
	MSP Increase	7	9	11	12	14	55
	Change in Accessions	0	-4	-4	-4	-4	-16

Note: Column and row totals may not add due to rounding.



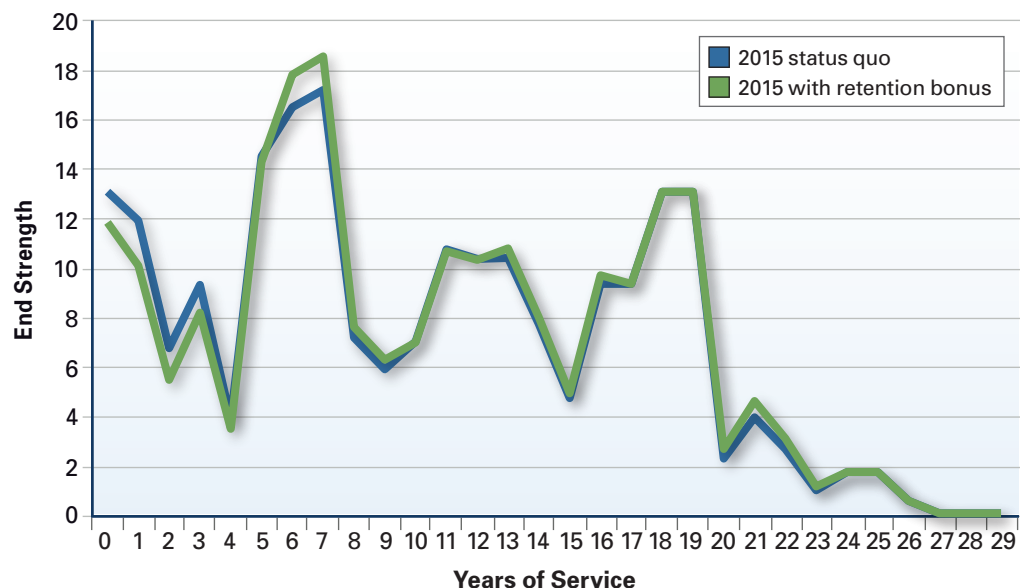
**Figure 28. Effect of \$10,000 per year Graduated Retention Bonus on Navy Social Worker Retention**

for the Navy. These estimates suggest meeting growth goals for psychiatrists by increasing retention is quite costly.

Both the Navy and the Air Force plan a significant expansion in the use of social workers to help meet mental health demands. Recall that the Navy plans an increase of over 100 percent and the Air Force plans an increase of 40 percent in clinical social workers. The Department is considering a proposal to offer social workers a graduated retention bonus of \$10,000 per year for a four-year commitment. The effect of this retention pay on retention of social workers is shown in Figure 28 and Figure 29. The effect, in absolute numbers, is relatively modest, especially for the Navy. The reason is that, though its authorizations are growing significantly, the Navy started with relatively few social workers in FY 2010.

The increase in retention from a graduated retention bonus for social workers will reduce the number of accessions necessary for the Navy and the Air Force to meet their growth requirements. This reduction is illustrated in Table 17. The cumulative reductions over the period are 3 for the Navy and 11 for the Air Force. The marginal cost of retaining an addition social worker over this period, using the proposed graduated retention bonus, is approximately \$126,000 per additional social worker for the Navy and about \$194,000 per additional social worker for the Air Force.





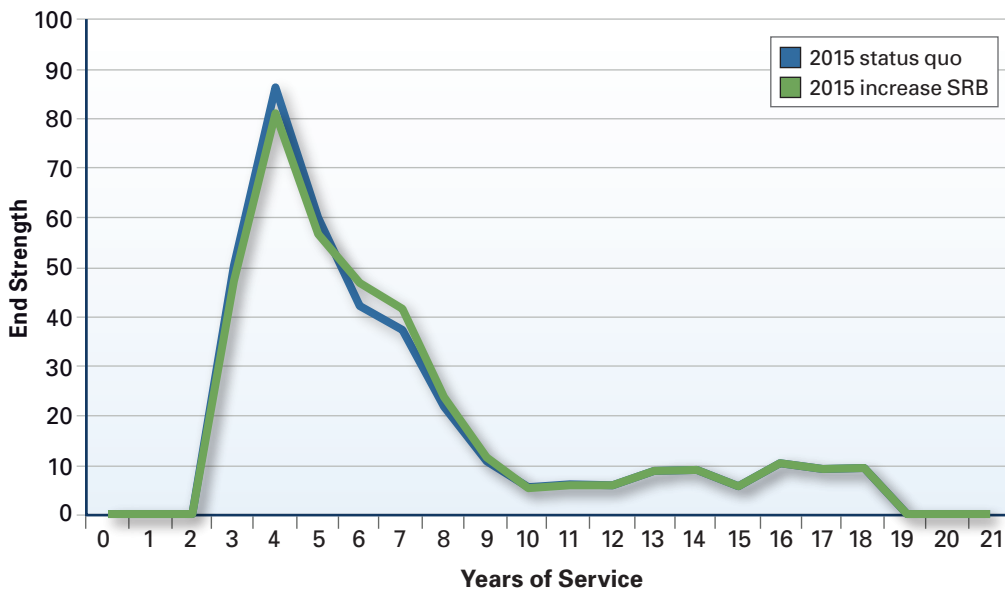
**Figure 29. Effect of \$10,000 per Year Graduated Retention Bonus on Air Force Social Worker Retention**

Finally, recall that Navy enlisted mental health specialists were staffed well below authorized strength. We consider whether a two-level increase in the Selective Reenlistment Bonus for Navy mental health specialists, starting in FY 2012, would have a significant effect on retention and on the number of accessions required to meet authorized strength goals. The effect on retention is shown in Figure 30.

As illustrated in the chart, there is a shift toward greater experience and improved retention as a result of an increase in the SRB of two award levels. We have also estimated the reduction in accessions necessary to meet authorizations. Because of the improved retention resulting from the bonus increase, 102 fewer accessions

**Table 17. Effect of a Graduated Retention Bonus on Social Worker Accession Demand**

Accession Demand		FY 11	FY 12	FY 13	FY 14	FY 15	Total
Navy	Baseline	18	18	17	17	17	87
	MSP Increase	18	17	17	16	16	84
	Change in Accessions	0	0	0	-1	-1	-3
Air Force	Baseline	25	23	24	26	24	122
	MSP Increase	25	22	22	22	20	111
	Change in Accessions	0	-1	-2	-4	-4	-11



**Figure 30. Effect of Two-Level Increase in Zone A SRB for Navy Mental Health Specialists Starting in FY 2012**

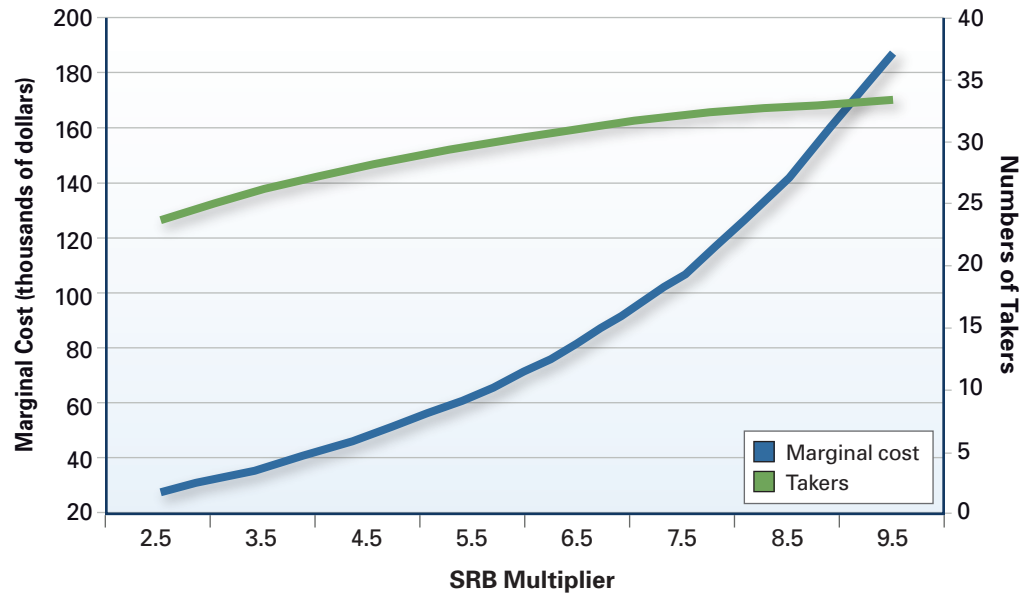
would be necessary between FY 2012 and FY 2015 to meet strength goals. The marginal cost of retaining an additional Navy enlisted mental health specialist from a two-level increase in Zone A SRB is about \$30,000.<sup>57</sup>

### Selective Reenlistment Bonuses and Rising Marginal Costs

Increases in SRB can increase retention and reduce accessions necessary to meet strength goals. This is illustrated in the case of Navy enlisted mental health specialists, in the previous section. What is the “right” amount of SRB? Among the factors that affect efficiency of reenlistment bonuses, one is particularly important and applies to all or almost all occupations. This is the observation that the marginal cost of increasing the reenlistment bonus rises as the bonus itself is increased.

The marginal cost of a reenlistment due to a bonus increase is approximated as the increase in total costs associated with the bonus increase—the *increase* in the amount paid out—divided by the increase in reenlistments that result from the increase. As one increases the amount of the SRB, represented in the case of the Navy by an increase in the award level, higher amounts of the bonus will be paid to those who would have reenlisted in any case. Hence, the cost of obtaining one additional

57. If the marginal recruiting and training costs for Navy enlisted mental health specialists are greater than about \$12,000, then increasing retention in the HM rating through a two-level increase in SRB is likely to reduce total costs in the long run, as well as improve staffing.



**Figure 31. Rising Marginal Cost of Zone A SRB for Navy Mental Health Specialists**

reenlistee by increasing the bonus rises because the added bonus increment is paid to increasing numbers who would have reenlisted anyway. A related reason that the marginal cost rises is that, at some point, the number of new reenlistments obtained for a given increase in the bonus begins to diminish. That is, as one moves up the notional reenlistment supply curve, the amount of additional reenlistments resulting from a given increase in the bonus will begin to decline eventually.

Both of these phenomena are shown in Figure 31 for the case of Navy enlisted mental health. The curve labeled “marginal cost” shows how the approximate marginal cost of an added reenlistment increases as the bonus is increased. Moving from an award level of 2.5 to an award level of 4.5 increases the marginal cost from about \$30,000 per added reenlistment to about \$37,000 per added reenlistment. The curve labeled “takers” shows the total number of Zone A reenlistments at each award level. Note that the slope of the curve diminishes as the bonus increases—fewer additional reenlistments are purchased as the bonus continues to increase.

What does this mean for the “optimal” reenlistment bonus? Additional (new) reenlistments become more costly to obtain as the bonus itself increases. The optimal amount of the bonus should be set at the point where the value of an additional reenlistment is just equal to the marginal cost. The value of an additional reenlistment will be related to the existing shortage in the skill, the importance of the skill to the mission, and the costs of obtaining additional staff in that skill through other means,

such as recruiting and training. In general, a higher reenlistment bonus, other things being equal, is efficient the greater the current or projected future shortage, the more important the occupation is to the overall mission, and the higher are the replacement costs—the costs of recruiting and training new entrants into the occupation.

Appendix 1 contains tables that illustrate the range of marginal costs for each of the four communities that we analyzed.

### **Role of Accessions in Meeting Demand Growth**

The analysis conducted in this section suggests that a 25 percent increase in MSP for psychiatrists and the institution of a graduated retention bonus for social workers would have a relatively modest effect on retention and result in a modest reduction in accession requirements for psychiatrists and social workers, respectively. An increase in the SRB for Navy enlisted mental health professionals, however, has the potential to improve staffing significantly.

Based on our analysis of the potential for increases in special and incentive pays to increase retention, growth in the officer mental health professional workforce will require increasing the number of new entrants. Policies that increase retention will have only a modest effect over the next four years for the officer specialties.<sup>58</sup>

The services will largely meet their increased authorizations through accessions. Pipeline accessions, who are not fully trained, will be attracted by scholarship programs (HPSP), paid internships, and loan repayment. However, because of the lead times entailed in the scholarship programs, it is difficult to use these programs to meet unanticipated near-term requirements growth.<sup>59</sup> Fully trained direct accessions can be attracted through accession bonuses and loan repayment.<sup>60</sup> Moreover, because military compensation is competitive relative to pay for comparable mental health professions in the civilian sector, direct accession programs for trained mental health professionals are likely to be more successful than direct accession programs for other health professionals.

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58. This is not inconsistent with an earlier study of health professions by the Center for Naval Analyses, regarding the tradeoff between increased retention through higher levels of special and incentive pays, and increased accessions. Brannman, et al. (2003), p. 46, concluded: "So, is it more cost-effective for DoD to add water to the bucket or to plug the holes? The results show that increasing accession subsidization results in small cost savings for all three communities, but reducing attrition through higher special pays is generally not cost-effective."

59. Similarly, medical school and other student appointments to the Uniform Services University of the Health Sciences (USUHS) are made in advance and will not flow back into operational positions for several years. Moreover, capacity at USUHS is largely fixed in the near term.

60. Because there is very little literature on the effects of accession bonuses for officer mental health specialties, and because there are currently no tools for estimating the optimal accession bonus, we are not able to recommend a specific accession bonus.

The services currently offer direct accession bonuses for most physician specialties, and to some non-physician health specialties. Psychiatrists may be offered an accession bonus of \$272,000 for a four-year obligation, and clinical psychologists and social workers may be offered a direct accession bonus for a four-year commitment.<sup>61</sup>

There is very little literature on the effects of accession bonuses for officer health professions in general or mental health specialties in particular.<sup>62</sup> Brannman et al. (2003), in their analysis of accession bonuses for health professions, assumed an elasticity of 1.8, based on an analogy with enlisted recruiting. In the table below, we provide an estimate of the increase in the direct accession bonus that would be necessary to increase direct accessions by 10 percent. Because there is no empirical literature regarding the responsiveness of health profession accessions to an accession bonus, we provide the estimates under three different assumptions regarding the responsiveness to the bonus.

The measure of responsiveness is the pay elasticity. The pay elasticity, in this case, is defined as the ratio of the percentage increase in accessions that result from a one percent increase in military compensation relative to civilian earnings, over a four-year initial period of obligated service. The change in the accession bonus, then, is calculated to generate the necessary increase in military compensation to result in a 10 percent increase in accessions, given the assumed elasticity.

We calculate the accession bonus change at three values for the elasticity (Table 18). The highest, and most optimistic, elasticity is 1.5. This means that a 10 percent increase in military compensation, as defined above, results in a 15 percent increase in direct accessions. Because we are calculating the bonus increase necessary to induce a 10 percent increase in accessions, the bonus increase will be equivalent to only a 6.6 percent increase in compensation. The lowest, and most pessimistic, elasticity is 0.5. The literature on enlisted recruiting is consistent with a pay elasticity in the range of 0.8–1.0.

**Table 18. Approximate Increase in Accession Bonus to Increase Direct Accessions by 10 Percent**

Elasticity	Psychiatrist	Clinical Psychologist	Social Worker
1.5	\$ 45,000	\$20,000	\$17,500
1.0	67,000	30,000	26,000
0.5	134,000	60,000	52,000

61. Assistant Secretary of Defense for Health Affairs (2010).

62. In part, this is because the number of direct accessions into the health professions each year is relatively modest. For example, a service will access fewer than 25 psychiatrists each year, only a portion of whom will be direct accessions. Most will enter under the Health Professionals Scholarship Program. This presents challenges for the usual econometric and statistical methods of estimating effects.

A strategy, in the absence of a research base, is to increase incentives flexibly over time in response to actual accession shortfalls, evaluate the response to the higher levels of incentives, and adjust incentive levels appropriately after evaluation. Our analysis indicates that military compensation for mental health professionals is competitive with the civilian sector. Hence, it is prudent to begin with relatively modest increases in accession incentives, increasing them only as experience suggests that it is necessary.

It is important that the services maintain data on the incentives offered and the results, so that a more systematic empirical analysis of effectiveness and optimal structure can be conducted in the future. Nevertheless, this will be a difficult task because most of the officer health professions are relatively small, with fewer than 30 direct accessions required each year, making traditional econometric or statistical methods of analysis difficult.

### **Special and Incentive Pay Policy: Consolidation for Health Professions**

The number of special and incentive pays offered to health professionals, including mental health professionals, is large. There is a proposal to consolidate all, or most, of S&I pays offered to health professionals into two general types of pay:

- ❖ incentive pay and
- ❖ retention pay

This consolidation is consistent with the National Defense Authorization Act for FY 2008. Moreover, it has the potential to simplify and, perhaps, improve efficiency of S&I pays.

One policy that should be reexamined, however, is the requirement for uniformity across the services in S&I pays for a particular health specialty. Equals should be treated equally, but circumstances may vary across the services for the same profession. These circumstances could include deployment and family separation, as well as the service's plans to increase staffing in a particular specialty. One of the most valuable features of S&I pays is the flexibility to target particular issues or problems. This flexibility would be lessened if the pay were required to be the same across the services. Retention pay, in particular, may be less effective if it cannot adjust, at least temporarily, to service-specific factors, such as growth in demand or frequency of deployment. Consolidation of pays is an important and potentially efficient change to special and incentive pays, but flexibility in the application of the pay should be maintained.

## Conclusions and Recommendations

Demand is growing significantly between FY 2010 and FY 2015 for most mental health specialties. Demand for psychiatrists is growing by 10–12 percent for the three services. Non-physician officer specialties are growing by 25–40 percent across the three services. In general, the services have growth goals for mental health professionals that are consistent with the requirements of the NDAA for FY 2010.

Moreover, staffing compared to authorization in FY 2010 appears to be at or above 90 percent for most mental health professions and for most services. An exception is Navy enlisted mental health, which had a significant shortfall in FY 2010, and Navy officer mental health professions, which were staffed at about 76 percent in that year. The Navy believes it has the policies and resources in place to improve its staffing significantly relative to authorizations over the next two years, despite a significant increase in officer authorizations. These include a recent increase in the Multi-year Special Pay for psychiatrists, the graduated retention bonus for psychologists, and an increased use of social workers. The Navy is also considering a graduated retention bonus for social workers. Because military compensation for these mental health specialties is very competitive with civilian compensation, the Navy's growth plans for officer mental health specialties are likely to be successful.

Social workers have the greatest percentage growth in the Air Force and Navy. Because the compensation offered by the services for social workers is quite competitive with civilian compensation for this mental health specialty, the services are likely to achieve their goals for increased numbers of social workers.

Military pay, to include S&I pays, for mental health professionals is generally at or above median earnings for comparable civilian mental health professions. Simple comparisons, however, do not account for deployment and other conditions of military service. Retention rates for most mental health specialties are adequate, though retention rates for Navy enlisted and some officer specialties are below those of the other services. Current S&I pays appear to provide satisfactory incentives for managing the force. To meet growth goals, however, the services will have to attract significant numbers of new entrants, largely through direct accession programs. Increased retention will have only a modest effect for officer specialties.

We offer the following recommendations regarding compensation of mental health professionals:

1. To meet the growth goals for mental health professionals over the next five years, the services should consider expanding efforts to recruit trained professionals using loan forgiveness and accession bonuses. We provide some rough estimates of the bonus increases necessary to increase direct accessions, but there had been very little research on this issue. We recommend that the services retain data on accession incentive offers and results so that they can be systematically evaluated.
2. Consolidation of health professions pay into incentive pay and retention pay is consistent with overall simplification and greater efficiency the services should move in this direction. However, retention pay should be applied more flexibly to meet service-specific issues, such as deployment frequency and growth demands, and not be constrained necessarily to be the same across the services for the same specialty in all cases.
3. The services should consider greater use of SRB to mitigate shortfalls and to help meet growth goals in the enlisted mental health specialties. The Navy can improve retention and staffing in its enlisted mental health specialty by using the Selective Reenlistment Bonus more aggressively in that rating. Currently, the bonus level is zero in that specialty. A two-level increase in SRB would allow the Navy to meet its staffing goals in that specialty, and reduce accession requirements into that specialty by over 100 between FY 2012 and FY 2015, substantially reducing recruiting and training costs.



## Appendix 1. Marginal Effects of Changes in S&I Pays by Community

Table 19 and Table 20 are provided to demonstrate the range of marginal costs for increases in S&I pays for each of the communities included in the analysis. For enlisted communities, we simulated a 25–100 percent increase in SRB and calculated the average marginal cost. For communities that had no current SRB, we simulated increases from a baseline of either \$5,000 (Army, Marine Corps) or multiplier level 2 (Navy, Air Force). For officer communities, we simulated increases of 10–40 percent in all S&I pays for a range of five years of service starting at completion of the initial service obligation. We noted cases in which we were unable to compute a marginal cost estimate, typically because there were insufficient data (e.g., a new community), or the marginal cost estimate approached infinity (when additional increases in pay produced no gains in retention).

**Table 19. Average Marginal Cost of Additional Stayer Increase in SRB for Enlisted**

Occupation/ Service	MOS	Zone	25% Increase	50% Increase	75% Increase	100% Increase
<b>Special Operations</b>						
Army	18 B-F	Zone A	\$103,988	\$110,825	\$158,155	\$ 166,227
		Zone B	90,140	101,555	115,076	130,231
		Zone C	121,400	142,130	167,246	200,309
	18Z	Zone A	†	†	†	†
		Zone B	†	†	†	†
		Zone C	†	†	†	†
Air Force	1C2X1	Zone A	70,753	84,212	91,915	108,048
		Zone B	29,502	30,822	47,666	48,609
		Zone C	32,207	48,801	48,907	97,492
	1T2X1	Zone A	41,157	45,535	50,264	55,465
		Zone B	64,390	79,473	90,478	111,727
		Zone C	†	†	†	†
Marine Corps	0211	Zone A	†	†	†	†
		Zone B	79,749	118,231	190,773	341,143
		Zone C	50,182	75,766	122,081	218,308
	0291	Zone A	†	†	†	†
		Zone B	†	†	†	†
		Zone C	†	†	†	†
	0321	Zone A	117,009	162,595	253,019	452,475
		Zone B	132,591	209,512	383,377	817,552
		Zone C	135,839	207,627	355,712	755,472
	2336	Zone A	162,100	240,266	411,336	605,811
		Zone B	124,594	217,479	444,207	1,001,222
		Zone C	72,787	126,894	233,534	441,437

**Table 19. Average Marginal Cost of Additional Stayer Increase in SRB for Enlisted** (CONTINUED)

Occupation/ Service	MOS	Zone	25% Increase	50% Increase	75% Increase	100% Increase	
Navy	EOD-All	Zone A	324,003	597,754	1,161,224	2,369,920	
		Zone B	358,269	707,884	1,492,299	3,262,504	
		Zone C	124,021	208,092	390,611	791,453	
	ND-All	Zone A	43,326	52,671	65,721	85,687	
		Zone B	223,481	312,912	447,931	680,654	
		Zone C	89,060	115,367	151,549	199,071	
	SB-5352	Zone A	108,378	141,955	193,159	272,867	
		Zone B	81,249	113,352	164,960	254,205	
		Zone C	77,067	131,807	220,415	378,286	
	SO-5326	Zone A	71,587	117,114	204,090	378,077	
		Zone B	308,933	584,934	1,191,869	2,590,580	
		Zone C	309,629	585,008	1,207,985	2,660,043	
<b>Remotely Piloted Vehicles</b>							
Army	15W	Zone A	\$13,019	\$14,254	\$15,063	\$16,239	
		Zone B	30,348	33,624	37,477	40,684	
		Zone C	43,522	47,215	50,921	53,155	
Marine Corps	7314	Zone A	22,103	25,269	28,451	31,733	
		Zone B	†	†	†	†	
		Zone C	†	†	†	†	
<b>Linguists</b>							
Marine Corps	2671	Zone A	\$ 79,101	\$103,907	\$144,124	\$217,850	
		Zone B	31,800	48,587	82,862	160,186	
		Zone C	†	†	†	†	
	2673	Zone A	125,485	176,267	268,670	458,648	
		Zone B	†	†	†	†	
		Zone C	†	†	†	†	
	2674	Zone A	31,495	37,976	45,548	55,456	
		Zone B	29,196	40,796	59,971	94,722	
		Zone C	†	†	†	†	
	2676	Zone A	81,138	102,106	136,909	185,007	
		Zone B	†	†	†	†	
		Zone C	†	†	†	†	
	Army	09L	Zone A	†	†	†	†
			Zone B	†	†	†	†
			Zone C	†	†	†	†
35P		Zone A	22,090	24,286	26,610	28,844	
		Zone B	48,643	54,468	60,515	67,112	
		Zone C	53,977	63,280	75,535	86,513	

**Table 19. Average Marginal Cost of Additional Stayer Increase in SRB for Enlisted** (CONTINUED)

Occupation/ Service	MOS	Zone	25% Increase	50% Increase	75% Increase	100% Increase
Air Force	1A8X1	Zone A	54,156	60,673	67,428	75,120
		Zone B	111,802	130,943	157,541	187,101
		Zone C	29,878	36,111	41,534	51,322
	1N3X1	Zone A	†	†	†	†
		Zone B	†	†	†	†
		Zone C	†	†	†	†
	9L0000	Zone A	†	†	†	†
		Zone B	†	†	†	†
		Zone C	†	†	†	†
Navy	CTI-9216	Zone A	\$21,768	\$25,565	\$30,129	\$35,913
		Zone B	54,358	66,612	83,199	102,217
		Zone C	†	†	†	†
	CTI-9209	Zone A	21,751	25,655	30,730	37,422
		Zone B	†	†	†	†
		Zone C	†	†	†	†
	CTI-9211	Zone A	9,012	10,009	11,109	12,021
		Zone B	15,276	16,934	18,569	20,095
		Zone C	†	†	†	†
	CTI-9212	Zone A	14,458	15,705	17,709	19,591
		Zone B	54,208	60,474	74,806	82,744
		Zone C	†	†	†	†
	CTI-9203	Zone A	7,431	9,333	11,697	15,206
		Zone B	10,145	13,716	14,904	19,630
		Zone C	25,654	30,133	31,253	36,826
	CTI-9201	Zone A	†	†	†	†
		Zone B	†	†	†	†
		Zone C	30,660	38,389	39,402	49,914
<b>Mental Health</b>						
Army	68X	Zone A	\$ 12,999	\$ 13,171	\$ 14,027	\$ 14,906
		Zone B	24,415	25,716	27,025	28,340
		Zone C	†	†	†	†
Air Force	4C0X1	Zone A	66,512	75,865	87,381	100,289
		Zone B	81,294	99,482	119,417	139,365
		Zone C	67,721	77,389	104,183	125,680
Navy	HM-8485	Zone A	26,120	29,112	32,196	35,366
		Zone B	91,264	101,438	107,682	120,415
		Zone C	147,594	154,422	156,795	160,483

† Unable to calculate marginal cost

**Table 20. Average Marginal Cost of Additional Stayer—Increase in S&I Pays for Officers**

Occupation/Service	MOS	10% Increase	20% Increase	30% Increase	40% Increase
<b>Special Operations</b>					
Army	18A	†	†	†	†
	11S	\$1,768,000	\$1,835,000	\$1,989,000	\$2,069,000
Air Force	12S	2,226,000	2,746,000	3,518,000	4,588,000
	13D	119,000	120,000	146,000	148,000
Marine Corps	0210	†	†	†	†
	114X	558,000	629,000	690,000	761,000
Navy	113X	401,000	421,000	444,000	469,000
<b>Remotely Piloted Vehicles</b>					
	131X	\$1,190,000	\$1,274,000	\$1,362,000	\$1,461,000
Navy	132X	1,579,000	1,699,000	1,834,000	1,958,000
	18X	†	†	†	†
Air Force	11U	535,000	571,000	601,000	632,000
	12U	†	†	†	†
<b>Mental Health</b>					
<i>Psychiatrists</i>					
Army	60W	\$ 642,000	\$2,453,000	\$22,528,000	*
Air Force	44P	1,008,000	4,199,000	32,255,000	*
Navy	210X	1,365,000	2,060,000	3,260,000	*
<i>Psychologists</i>					
Army	67D	912,000	1,111,000	1,349,000	1,635,000
Air Force	42P	545,000	649,000	772,000	909,000
Navy	230X	776,000	925,000	1,106,000	1,318,000
<i>Mental Health Nurse</i>					
Air Force	46P	303,000	324,000	344,000	363,000
Navy	290X	187,000	186,000	194,000	202,000
<i>Social Worker</i>					
Air Force	42S	66,000	67,000	81,000	82,000
Navy	230X	125,000	170,000	175,000	179,000

† Unable to calculate marginal cost

\* Marginal cost calculation approaches infinity

## Appendix 2. Occupational Specialty Codes Included in the Analysis

Enlisted Communities			
Special Operations	Army	Special Forces	18B-18F
		Special Forces Senior Sergeant	18Z
	Navy	EOD	NEC 5333-5337
		Diver	NEC 5341-5342
		SWCC	NEC 5352
		SEAL	NEC 5326
	Air Force	Combat Control	1C2X1
		Pararescue	1T2X1
	Marine Corps	Counterintell/HUMINT	211
		Intell Chief	291
		Reconn Man	321
			EOD Tech
Linguist/Translators	Army	Interpreter/Translator	09L
		Cryptologic Linguist	35P
	Navy	Cryptologic Technician Interpretive – Arabic	NEC 9216
		Cryptologic Technician Interpretive – Persian	NEC 9209
		Cryptologic Technician Interpretive – Chinese	NEC 9211
		Cryptologic Technician Interpretive – Korean	NEC 9212
		Cryptologic Technician Interpretive – Spanish	NEC 9203
		Cryptologic Technician Interpretive – Russian	NEC 9201
	Air Force	Airborne Cryptologic Language Analyst	1A8X1
		Cryptologic Language Analyst	1N3X1
		Interpreter/Translator	9L000
	Marine Corps	Cryptologic Linguist, Middle East	2671
		Cryptologic Linguist, Asia-Pacific	2673
		Cryptologic Linguist, Western Europe	2674
			Cryptologic Linguist, Eastern Europe
Mental Health	Army	Mental Health Specialist	68X
	Navy	Psychiatry Technician	HM 8485
	Air Force	Mental Health Service	4C0X1
RPV Operator	Army	Unmanned Aerial Vehicle Pilot	15W
	Marine Corps	UAV Operator	7314

Officer Communities			
Special Operations	Army	Special Forces Officer	18A
	Navy	Special Operations Officer (Explosive Ordnance Disposal)	114X
		Special Warfare Officer (SEAL)	113X
	Air Force	Special Ops Pilot	11S
		Special Ops Combat Systems Officer	12S
		Control and Recovery	13D
Marine Corps	CI/HUMINT Operations Officer	0210	
Mental Health Professionals	Army	Medical Corps – Psychiatrist	60W
		Medical Services Corps – Behavioral Sciences	67D
		Nurse Corps – Mental Health Nurse	66C
	Navy	Medical Corps – Psychiatrist	210X
		Medical Service Corps – Clinical Psychologists	230X
		Medical Service Corps – Clinical Social Worker	230X
		Nurse Corps – Mental Health/Mental Health NP	290X
	Air Force	Clinical Psychologist	42P
		Clinical Social Worker	42S
		Psychiatrist	44P
		Mental Health Nurse	46P
	RPV Operator	Navy	Pilot
Naval Flight Officer			132X
Air Force		Remotely Piloted Aircraft Pilot	18X
		Remotely Piloted Aircraft Pilot	11U
		Remotely Piloted Aircraft Pilot	12U

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