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An Initial Look at the U.S. Air Force Aviation Professional Pay Proposal

The U.S. Air Force (USAF) is not keeping the number of pilots it needs, which hurts its readiness and operational capability. In 2017, fighter pilot staffing fell 27 percent short of authorizations.¹ The overall *take rate*—the percentage of first eligible pilots taking new multiyear contracts—fell to 44 percent, well short of the 60-percent target.² Both statistics reflect a challenging outside labor market for the USAF. Civilian demand for pilots is high. Since 2014, the compensation of major airline pilots has increased markedly (up 15 percent), as has annual major airline hiring (MAH) (up 250 percent). The maximum amount of the annual Aviation Bonus (AvB) available to selected USAF pilot communities has also increased, from \$25,000 to \$35,000, and the maximum contract length has been extended from five years to nine years and, most recently, to 13 years. Because pilots typically complete their ten-year active-duty service commitments (ADSCs) for undergraduate pilot training in the 11th year of service (YOS), a nine-year contract takes the pilot to vesting in the retirement system's defined benefit at 20 YOSs. Flight pay, or Aviation Incentive Pay (AvIP), was increased as well to improve pilot

The USAF has proposed Aviation Professional Pay as a replacement for the Aviation Bonus and Aviation Incentive Pays.

retention. AvIP is a monthly pay to qualified pilots that increases with years of aviation service (YASs) to \$1,000 per month for pilots with between 13 and 22 YASs, then decreases to \$450 per month for aviators with more than 24 YASs. Together, AvB and AvIP are the primary special pays the USAF offers to retain pilots.

The USAF has proposed Aviation Professional Pay (APP) as a replacement for these two special pays. After the aviator completes the ADSC for undergraduate pilot training, APP would be paid as long as the aviator is committed to a three-year service contract. Pilots would receive a single APP bonus, instead of the monthly AvIP and annual AvB, on top of the monthly regular military compensation (RMC). APP would be tied to YASs, starting in YAS 1 and continuing throughout the end of the career, with the monthly amount increasing with YASs through year 16 and decreasing slightly beginning in year 21. In the course of a normal career leading to vesting in the defined benefit at 20 YOSs, a pilot might choose to take three or more consecutive three-year contracts. The USAF has proposed this alternative in part as a response to recent survey results that indicate that USAF aviators desire compensation without

long-term commitments, and in part to recognize aviation as a profession similar to other professions in the USAF.

Figure 1 shows a comparison of annual amounts of APP and the combination of AvIP and \$35,000-per-year AvB under the current system. The figure shows that APP would provide higher amounts of special pay, especially for those with more than 12 YASs. Consequently, we would expect retention to increase, all else equal.

What Effect Would Aviation Professional Pay Have?

The USAF asked RAND Project AIR FORCE to use the dynamic retention model (DRM) for USAF pilots to compare the simulated active component (AC) force size and shape under APP with that under an AvB of \$35,000 per year, assuming a steady-state MAH level of 5,000 pilots per year. The USAF wanted to know what pilot strength would look like under the two alternatives, how many more pilots would be retained under APP, and how much APP would add to personnel cost.

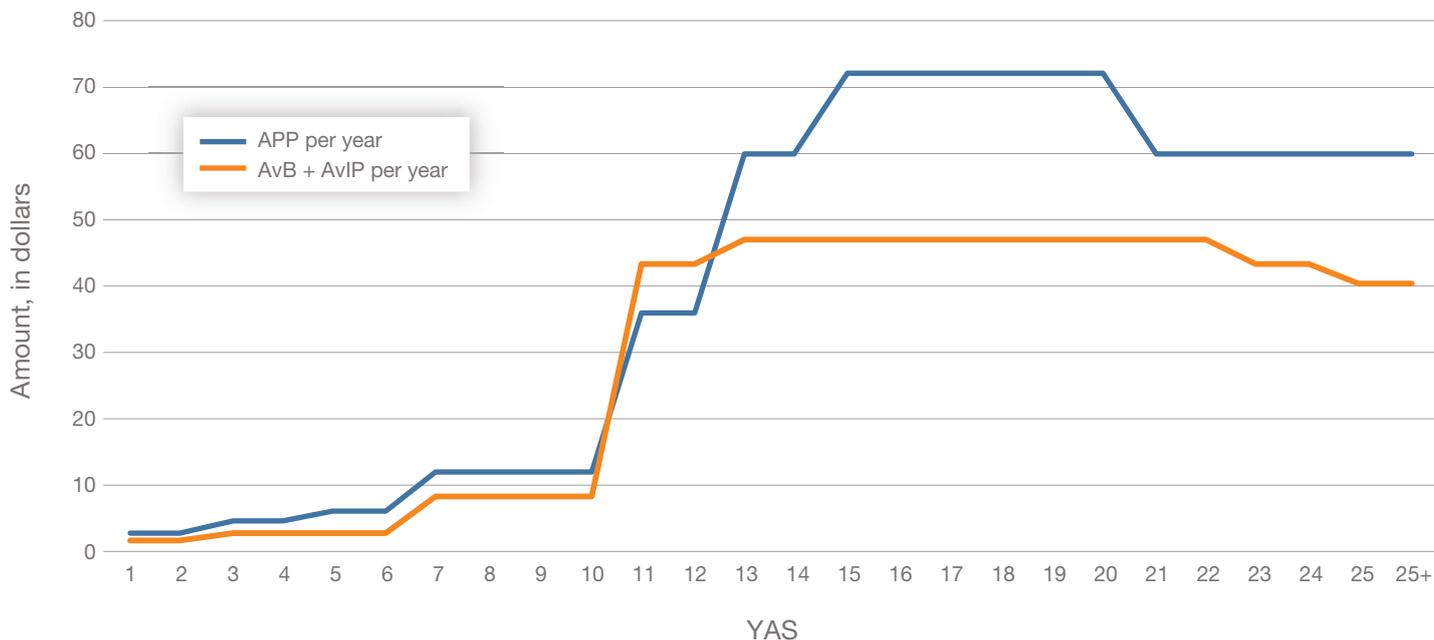
RAND staff expanded the analysis to find the minimum amount the AvB cap would need to be raised to match the simulated increase in retention under APP and to determine the relative cost-effectiveness of using APP versus AvB to reach a target level of retention.

Overview of Our Approach

RAND's DRM is well suited to analyzing a proposed structural change in military compensation, such as the APP system. The DRM was used for the tenth and

FIGURE 1

Annual Aviation Professional Pay Versus Annual Aviation Incentive Pay and Aviation Bonus with a \$35,000 Cap



11th Quadrennial Reviews of Military Compensation, as well as in supporting the deliberations of the Military Compensation and Retirement Modernization Commission. USAF pilot versions of the model have been used to study the effect of raising special and incentive pays when the commercial demand for pilots is increasing and to examine the cost trade-off between increasing pilot accessions (and incurring higher total training costs) and improving pilot retention (and increasing AvB levels, seniority of the force, and total personnel cost).

The model is based on a mathematical model of individual decisionmaking over the life cycle in a world with uncertainty, and we estimated the parameters of the model using data on military careers drawn from administrative data files. For each simulated YOS, we modeled how individuals make forward-looking stay-or-leave decisions, such as whether to take a multiyear contract. For our estimation approach, we chose parameters of that model to minimize the difference in the data between the model's predictions and the observed behavior of aviators. After estimating the

model's parameters, we simulated behavioral responses to different aviation pay policies.

We used data from the Defense Manpower Data Center Work Experience file. This file contains person-specific historical records of active retention and reserve participation behavior. We drew the records of USAF pilots who entered AC service in the 1990–2000 cohorts and observed them through 2012. This gave us between 13 and 23 years of data on each person's decisions. We supplemented these with data on major airline hires per year, civilian wages for major airline pilots, and civilian wages for nonpilots in senior management positions with education and experience comparable to those of USAF pilots. We also collected data for each fiscal year on RMC, as well as on AvIP, the AvB cap, and the menu of AvB contracts made available to pilots who had completed their ADSCs and were not already under contract in that year.

We used the DRM with the estimated parameters to simulate pilot retention behavior under APP and under alternative AvIP and AvB policies. We also calculated the resulting per capita personnel cost, which includes RMC, retirement accrual cost, and special and incentive pays; we did not include training costs.

Steady-State Force Size, Shape, and Personnel Cost Results

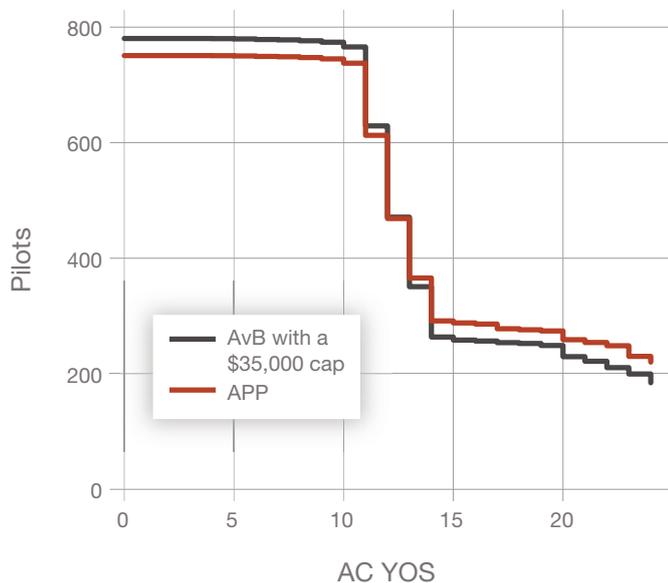
The USAF requested an analysis that would show steady-state results through 25 YOSs for APP versus a baseline assuming an AvB cap of \$35,000, AvIP at 2018 levels, and MAH of 5,000 pilots per year. The results are shown in Figure 2, scaled to 2017 pilot strength.

Accessions would need to fall relative to the baseline to sustain 2017 strength, as shown in the figure. Annual training cost would fall relative to baseline, given that 3.8 percent fewer pilots would need to be trained. How much cost would be avoided would depend on the reduction in the numbers of accessions across platforms. At the same time, personnel costs would increase by about \$160 million per year. APP provides a higher level of special pay than the combination of AvB and AvIP does, resulting in a more experienced force with higher basic pay, retirement accrual, and other compensation costs. A 3.8-percent reduction in accessions translates into about 30 pilots per year, so, to break even, the average training cost avoided for each pilot not accessioned would have to be more than \$5.33 million (\$160 million increase in personnel costs ÷ 30 fewer pilots accessioned per year).

We found that overall force size would increase by 3.9 percent, assuming no change in the number of accessions. This increase in force size comes at some cost: Under APP, personnel costs would be \$123,200 per pilot per year, an increase from \$109,900 under the assumed baseline. That is, the increase in force size of 3.9 percent comes at an additional per capita personnel cost of 12.1 percent, or \$13,300.

The same force size increase could be achieved at less cost by raising the AvB cap to \$43,000 instead, as shown in Figure 3. In this case, personnel costs would be \$112,800 per pilot per year, or 2.6 percent (\$2,900) over baseline. The savings from using APP would be about \$10,000 per pilot per year, or about \$120 million per year. That is, APP would result in an additional \$120 million going from taxpayers to USAF pilots. The same 3.9-percent increase in force size could be realized at less than one-quarter of the

FIGURE 2
Steady-State U.S. Air Force Pilot Strength Under Aviation Bonus with a \$35,000 Cap and Under Aviation Professional Pay

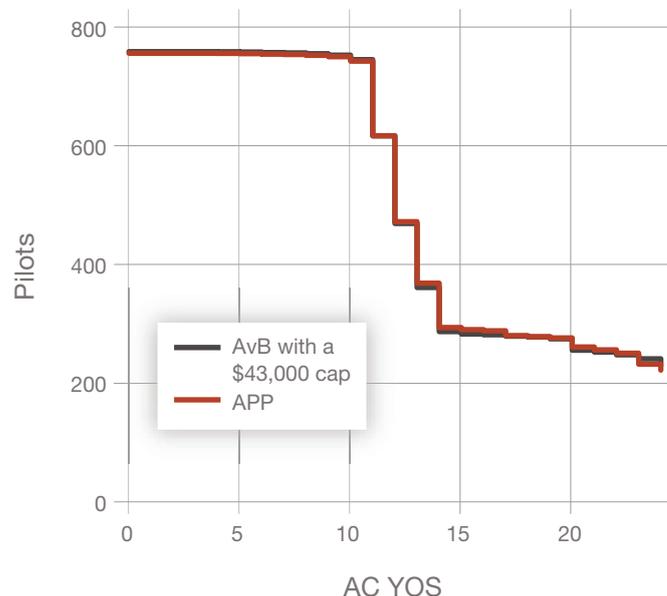


cost by raising the AvB cap to \$43,000 rather than using APP ($\$2,900 \div \$13,000 = 22$ percent).

Discussion

APP is immediately appealing for several reasons: It looks simple; it is easy to explain; it comes with a single, short multiyear contract length that shows that the USAF is responsive to pilot input; and the APP plan rewards seniority through 20 YASs in a way that recognizes the value of aviation experience. Another potential advantage of

FIGURE 3
Steady-State U.S. Air Force Pilot Strength Under Aviation Bonus with an Optimized Cap of \$43,000 and Under Aviation Professional Pay



APP is that Congress might treat APP as entitlement that would be automatically funded each year, similarly to how it treats some of the health-professional pays, and would not require annual justification. However, these features would also result in a compensation system for pilots that is less efficient than the current system with an increased AvB cap. A system in which the highest AvB amounts go to those who elect to take the longest multiyear contracts provides an effective incentive for pilots to choose longer contracts. Longer contracts also give the USAF more predictability over pilot retention; a single, short

contract would make the USAF more vulnerable to outside labor-market volatility. In weighing these alternatives, policymakers will need to carefully balance the appealing

features of APP with the reduced cost-effectiveness and reduced ability to lock pilots into long-term contracts. The game might not be worth the candle.

Notes

¹U.S. Government Accountability Office, *Military Personnel: DoD Needs to Reevaluate Fighter Pilot Workforce Requirements*, Washington, D.C., GAO-18-113, April 11, 2018. As of October 22, 2018:
<https://www.gao.gov/products/GAO-18-113>

²U.S. Government Accountability Office, *Military Personnel: Collecting Additional Data Could Enhance Pilot Retention Efforts*, Washington, D.C., GAO-18-439, June 21, 2018. As of October 22, 2018:
<https://www.gao.gov/products/GAO-18-439>

Related Reading

Michael G. Mattock, James Hosek, Beth J. Asch, and Rita Karam, *Retaining U.S. Air Force Pilots When the Civilian Demand for Pilots Is Growing*, Santa Monica, Calif.: RAND Corporation, RR-1455-AF, 2016. As of July 25, 2018:
https://www.rand.org/pubs/research_reports/RR1455.html

About This Perspective

The research reported here was commissioned by the Directorate of Force Management Policy, Office of the Deputy Chief of Staff for Manpower, Personnel and Services, Headquarters, U.S. Air Force, and conducted within the Manpower, Personnel, and Training Program of RAND Project AIR FORCE as part of a fiscal year 2018 project Cost-Benefit Analysis of Special and Incentive Pays for Aviators. The purpose of the project was to continue RAND Project AIR FORCE's research on aviator retention, bonus cost-benefit, and return-on-investment analysis. The project output will inform officer and enlisted aviator retention bonus decisions, thereby informing the program objective memorandum process for effectively budgeting retention bonus dollars.

RAND Project AIR FORCE

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