The numerical excursions discussed in Chapter Five indicate that the Air Force faces a serious aircrew management challenge. Under some highly optimistic assumptions regarding available force structure and training capacity, only 302 new fighter pilots can be absorbed into the operational units each year. First, if production continues at 330 new pilots per year, the flow of new pilots entering these units will lead to imbalances and could create a training environment similar to that observed at Pope Air Force Base and described in Chapter Two. Second, as described in Chapter Three, recent retention measures indicate that 382 new fighter pilots must be absorbed each year in order to meet the future Air Force requirements for experienced pilots. That is to say, a production rate of 330 fighter pilots is too large for the existing force structure to absorb but is at the same time too small to fill future billet requirements.

This conflict in objectives focuses our discussion on implications and available alternative policy actions. Bringing this imbalance under control will require that the Air Force either reduce the flow of incoming new pilots or increase the capacity for operational units to absorb such pilots. We will examine both options in turn.

**REDUCING THE FLOW OF INCOMING NEW PILOTS**

The most direct means of reducing the absorption burden is, of course, to reduce production rates. Since fighter billets still need to be filled, however, the only way to cut production compatibly is to ensure that such cuts are accompanied by improved retention or requirement reductions (or both). We will examine both alternatives.
Retention

Natural retention rates have been obscured by activities that followed the terrorist attacks on September 11, 2001. A “stop-loss” order was implemented for active pilots, so retention will temporarily remain at 100 percent. These events have also affected airline operations. Hiring freezes and furloughs undoubtedly dampen the external appeal that the major airlines have held for military pilots over the past several years. Over the long term, however, continued airline growth and mandatory age-60 pilot retirements will likely ensure that airline hiring will eventually resume.

Our site visits found that retention problems may also be related to the low proficiency levels many pilots must now accept during an initial operational tour. There is a widespread perception that pilots who are not fortunate enough to receive consecutive operational assignments early in their careers may not gain sufficient knowledge to remain competitive for assignment and promotion opportunities later on. If this perception is valid, absorption problems themselves could eventually cause lower retention rates, further increasing concerns regarding inadequate pilot inventories. Also, as we noted in Chapter Three, retention (as measured by the BTR) must increase from 30 percent to 53 percent in order to make the 330-pilot production rate adequate to eventually meet current requirement levels.

Thus, any reductions in pilot production that are based solely on anticipated improvements in pilot retention would probably prove premature. Even though retention could improve somewhat in the future, we advise waiting to see. This is not meant to imply that the Air Force can end its current pilot retention initiatives and efforts. Although improved retention should certainly remain a critical goal as well as an important component in reducing absorption problems, it is unlikely to become the only pure strategy that is pursued toward that end. Moreover, further declines in retention could prove devastating.

Reducing Pilot Requirements

Cutting pilot requirements could allow a lower production rate to be compatible. Indeed, the Air Force’s pilot prioritization process determines which authorized billets will be filled and recognizes that
some requirements outweigh others. An argument might be made simply to eliminate the requirements that have the lowest priorities. The lowest-priority billets are always among the nonabsorbable billets and are typically in the nonflying staff.

Figure 4.2 shows that such billets have already decreased during the drawdown at greater rates than have total requirements, so the relative absorption capacity has improved. Figure 4.3, however, shows the reverse for fighter pilots, whose shortages are already most critical: “Advanced” billets have increased relative to the total number of fighter billets. The reasons were discussed in Chapter Four. The relative absorption capacity for fighters decreased during the drawdown period.

The number of fighter requirements continues to drop, however, and the outyear requirement of 4381 is almost 10 percent fewer than the 4830 required in FY 1999. Part of this decrease is due to force structure reductions, which tend to exacerbate absorption problems, but a portion is due to Air Force initiatives to use alternative manning sources to cope with the pilot shortfall. We will describe these alternative manning sources and explain why it is unlikely that they will improve the results we obtained in our numerical excursions.1

**Alternative Manning Options**

One alternative manning source incorporates associate programs that replace active-duty pilots with experienced reserve or guard pilots. The new programs began in UFT units, where 225 active billets were converted to reserve billets. Shifts are under way in fighter FTU units as well, where 66 active billets will be converted. An additional 73 depot and test support active billets have also been converted. Moreover, a successful test in one operational F-16 unit has prompted the creation of a program to expand that concept. Our

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1The percentage reduction in total pilot requirements since FY 1990 is about 40 percent, while nonflying staff billets have decreased nearly 60 percent in the same period. (The Air Staff provided all the data quoted in this section.) Many of these billets can be filled by navigators with appropriate operational experience; this has been an effective alternative in recent years because of navigator overages with F-4 and F-111 experience. Unfortunately, this option is temporary because all of the “excess” navigators are quite senior in years of service, and they will soon leave the aircrew management inventory as a result of promotion or retirement.
numerical excursions have incorporated all of the billet reductions currently programmed in outyear requirements. These programs may not be broad enough to generate significant further reductions in required billets, but they will help reduce the overall problems that the Air Force confronts.²

A second alternative manning source uses civilians to fill active billets that require aircrew expertise. Both contractor and government service options are being used to hire Air Force retirees with previous staff experience in the specific areas required. This option applies only to nonflying staff billets while the associate alternatives fill cockpit requirements, so the two programs are complementary. Unfortunately, the use of retirees shares the limitations in scope exhibited by the associate programs, and it is not clear that this procedure is sustainable over time if these individuals displace active-duty officers who would otherwise be gaining the necessary staff experience. Although both programs provide advantages in coping with the pilot shortfall, their primary intent is to deal with shortfalls that already exist. It seems unlikely that they could be expanded to reduce existing requirements to an extent that would resolve the future absorption problems addressed in our numerical excursions.

**Total Force Absorption**

High experience levels in guard and reserve units have led the Air Force to examine total force options to ease absorption constraints. The first option reduces the number of pilots who must be absorbed in active fighter units and does not require the production rates to drop. This controversial policy uses guard and reserve units to provide the initial operational tour for a limited number of FTU B-Course graduates so that not all must be absorbed into active units. Indeed, the 1999 Four-Star Rated Summit recommended that 30 pilots of the 330-pilot production goal be absorbed into guard and reserve units. This approach, called the *total force absorption policy* (TFAP), has the clear advantage of leaving the production rate at 330 pilots while the 300 pilots who enter active units remain within the absorption capacity given by the BCS with the 50 percent experience

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²More information on the associate programs, including discussions of implementation issues, is contained in Taylor et al., 2000, pp. 33–38.
level. This would bring the imbalance under control, at least for the 330-pilot production rate, and experience levels could actually grow slowly if other parameters held to their best-case values. It is worth noting that, in terms of absorption capacity, the original TFAP program is equivalent to increasing the active force structure by roughly 1.5 FWEs.\(^3\) It could also provide some of the flexibility needed to deal with variations in the BCS assumption values.

The TFAP policy also introduces difficulties, however, and agreement has never been reached among the service components on exactly how it could be implemented. Instead, the approach was replaced by a limited-experience (LIMEX) policy that puts active pilots into guard and reserve units (flying similar aircraft) after an initial tour in an operational active unit. This would be either a one-year remote tour or a two-year tour in a CONUS unit. The basic LIMEX policy agreement reduced the number of participating pilots from 30 to 26 per year, but further constraints make it unlikely that this quota can be filled.

It is instructive to calculate bounds for the potential effects of the LIMEX policy even if the 26-pilot quota were achieved. Although the policy requires that the entire active production quota initially go to active units, the reduction in man-years that LIMEX pilots would spend as inexperienced pilots in active units can be calculated. This reduction can be interpreted as an effective increase in the absorption capacity of those units. This enables us to make direct comparisons in the effectiveness of the program.

If 26 participating pilots were assigned to guard or reserve units each year after completing two years in an active unit, the overall absorption capacity for fighter units would increase from 302 to about 307 pilots, depending on the final implementation and distribution decisions. If all of the participating A-10 and F-16 pilots were placed with the guard or reserve following a one-year remote tour, the overall absorption capacity would increase to roughly 315 pilots per year. An equivalent interpretation is that the program has the potential to reduce the effective flow of new pilots into active units by some five to thirteen pilots per year, depending on final implemen-

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\(^3\)This assumes the current training capacity assumptions with experience and manning levels at 50 percent and 100 percent, respectively, in absorbing active units.
tation decisions. Unless current rules are revised, the potential impact of the program could be limited to an effective-flow reduction of only four to six pilots per year. Thus, the LIMEX policy cannot fully resolve the absorption difficulties caused by the 330-pilot production rate, and it has only marginal potential for addressing the problems associated with higher production levels.4

More absorption-efficient total force alternatives are available, but they require the creation of new kinds of units that include pilots from both active and reserve components. The Air Force is examining several Future Total Force (FTF) initiatives that could test the ability of unit constructs to ease absorption constraints. Included in this investigation are active associate programs that incorporate active pilots in reserve component units, as well as blended units that contain active, guard, reserve, or civilian members, depending on specific unit needs. The absorption efficiency of these units can be illustrated with a simple example. A typical active 18-PAA squadron supports nine experienced API-6 pilots and requires at least 12 experienced API-1 pilots to operate effectively at an experience level above 50 percent. This leaves only 11 billets (for MDSs with a 1.25 CR) that can be filled with inexperienced pilots if the unit is to remain at a manning level of 100 percent. If the TTE in this unit averages 2.5 years, we can solve Eq. (4.8) for this squadron and conclude that it could take in only 4.4 (= 11/2.5) newly produced B-Course graduates (on average) per year to maintain experience and manning objectives. This means that this squadron configuration requires more than 4.75 (=9 + 12)/4.4) experienced active pilots to absorb one new inexperienced pilot each year. Twenty-four-PAA squadrons, which have the same number of supported API-6s, are more efficient

__4__TFAP implementation was hampered primarily by cultural issues and funding difficulties. See Taylor et al., 2000, pp. 29–33, for more on the background underlying some of these problems. The Air Force believes that LIMEX should be a voluntary program, and there are no active F-15 remote units or guard or reserve F-15E units. Thus, LIMEX participation will remain constrained. According to information presented at the 2001 Four-Star Rated Summit, the program had placed 16 LIMEX pilots in guard and reserve units in FY 2001, with 22 and 24 planned for FY 2002 and FY 2003, respectively, and an ultimate limit of two active pilots per nonactive squadron. There are few than 35 guard and reserve units with compatible aircraft and mission tasking, so no more than 70 active LIMEX pilots can participate at one time. Because pilots will be assigned to these units for controlled three-year tours, this means the 26-pilot-per-year rate cannot be sustained over time.
by this measure, as are A/OA-10 units that have higher CRs. The Air Force has considered and rejected higher CRs for other fighters because of aircraft UTE constraints, but we know of no historical information that tests fighter aircraft authorizations exceeding 24 PAA per squadron.

Operational guard and reserve units have collective experience levels near 90 percent, while experienced fighter pilots are in very short supply in the active force, so the advantages of shifting some of the experience needs into the reserve components in order to absorb more new active pilots are immediately apparent. These advantages go beyond the simple implications of using more airframes to absorb more pilots. Preliminary investigations indicate that shifting the API-6 needs will yield more absorption efficiency than shifting API-1 needs alone, but additional analysis will be required to determine what kinds of unit combinations can provide the best blends of absorption efficiency and mission effectiveness for the CAF. These unit constructs currently do not exist in the fighter community, and only by incorporating them into a long-term approach could they ease absorption difficulties. Finding a long-term alternative, however, could allow decision-makers to focus on transitional methods that achieve long-term resolution more efficiently and effectively.

INCREASING ABSORPTION CAPACITY

Since absorption capacity is based on training capacity adjusted for the sortie distribution effects that determine aging rates, we will first examine training capacity. Many methods for increasing capacity are already under examination by the Air Force.

5 Twenty-four-PAA squadrons require 4.0 experienced pilots on average for each new inexperienced pilot absorbed. A/OA-10 squadrons, which have higher CRs than the 1.25 used in these calculations, are more absorption efficient than are other fighter MDSs, requiring 4.0 and roughly 3.5 experienced pilots, respectively, for 18- and 24-PAA units per newly produced pilot. It is also worth observing that the A/OA-10 CR increases implemented during the drawdown have reduced the programmed SCM and HCM values for pilots in those units.

6 These FTF initiatives are being examined at the direction of the Office of Reserve Affairs under the Secretary of Defense. The information in this paragraph was provided by HQ USAF/XPX in RAND Reserve Components Comprehensive Review, a presentation made in January 2002. The potential options require extensive additional study.
Increased UTE Rates

The Air Force has several actions under way to increase (or at least maintain) the sortie pool available for aging new pilots. These include commitments to standardize aircraft UTE rates and to fully fund and fly the flying-hour program. Staff agencies are also examining options to increase fighter UTE rates even further to offset the loss of available aircraft that will result from modernization and conversion programs. It is essential that these initiatives succeed, however, if units are to achieve the sortie-pool numbers that we calculated with the best-case-assumption values for our previous numerical excursions. It is unlikely that they can provide much of the additional 8.9 percent UTE rate increase needed to absorb even 330 new pilots per year. In total, this requires almost a 15 percent increase over recent historical UTE rates, so it is clear that UTE rates cannot be pushed high enough to absorb the 382 new pilots required to meet long-term needs. We should also note that aircraft UTE limits provide the primary constraints that prevent CR increases in existing units. In turn, this prevents units from increasing absorbable billets without increasing force structure.

Increased Force Structure

Another means of expanding the available sortie pool would be to increase the active component’s fighter force structure. There are two aspects to this approach. The first is to redress the decline that will accompany scheduled modernization and conversion programs. This could potentially hedge against the decreased training capacity units will face if additional UTE rate increases cannot compensate for the expected inventory reductions below existing PAA levels. The terrorist attacks on September 11, 2001, may generate additional tasking and training needs that will make it more critical for units to stay at authorized levels throughout the modernization and conversion programs. The need is underlined in view of our numerical finding that 11 percent more PAA—or almost 1.5 additional FWEs—are needed just to raise fighter absorption capacity to 330 pilots per year.

A second prospect is to actually add aircraft authorizations. If these authorizations created additional active units, they would improve
overall experience rates without actually increasing aging rates for individual pilots because more pilots would be able to age at the existing rates. But adding authorizations to existing units (by increasing some squadrons from 18 to 24 PAA, for example) would improve aging rates even further by distributing a higher proportion of the parent wings’ available sorties to API-1, rather than API-6, pilots.7

Force structure increases in the active fighter force have been controversial for some time because of the budgetary increases they would require. Since the drawdown in the early 1990s, Air Force programmers have been extremely skeptical about initiatives that require increased expenditures, and absolute PAA increases have been deemed infeasible. Irrespective of the feasibility of future increases in PAA, however, past PAA reductions are a primary cause of the developing absorption problems. Figure 6.1 shows the history of combat-coded (CC-coded) fighter authorizations for operational units.

It is worth noting that the active fighter PAA reduction since FY 1988 exceeds the total authorization for FY 2001. In view of the limited effect of potential UTE increases, it becomes clear that options that do not address this reduction directly or indirectly will be hard-pressed to achieve the absorption capacity increase required to resolve the approaching crisis.

Increased Aging Rates: Sortie Redistribution

An option that could increase aging rates without a corresponding increase in training capacity would be to change the manner in which the available sortie pool is distributed to inexperienced pilots. The two primary factors that govern this distribution are manning levels and experience levels, and we noted in Chapter Five that pilots

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7The Air Force already has a program to “robust” several 18-PAA squadrons to 24 PAA because of the increased scheduling flexibility provided, but modernization and conversion issues jeopardize its ability to sustain this initiative. Wings with 24-PAA squadrons can distribute a higher percentage of the sortie pool to API-1 pilots because the wings require essentially the same number of API-6s regardless of the aircraft authorization levels of its squadrons. Thus, all of the extra sorties attributable to the additional aircraft can be distributed to API-1 pilots. Twenty-four PAA squadrons also benefit because they can build maintenance and flying schedules more efficiently than can 18-PAA squadrons.
NOTE: All aircraft authorizations for operational units are CC-coded. An approximation of the corresponding changes in FWEs is given on the right-hand axis. These numbers are approximate because they include small numbers of aircraft (such as OA-10s or air defense force (ADF)-tasked units) that are not usually included in FWE calculations. Small numbers of nonabsorbable aircraft (such as F-117s) are also included. Data are from the Air Staff (AF/XPPE).

Figure 6.1—Active Fighter PAA Reductions Are Central to Current Absorption Problems

Age faster in low-experience units in which manning levels are constrained rather than allowed to grow naturally. More information is needed, however, to determine how aircrew managers can deal with system instabilities and effectively correct for the large responses that might accompany small changes in input parameters. Experience levels must continue to be monitored as well because they can be a primary indicator of potential problem areas.

The third factor that governs how many of the available sorties can be flown by new pilots is the distribution of sorties between API-1 and API-6 pilots. In the force structure discussion, we considered the Air Force’s ongoing initiative to increase squadron aircraft authorizations from 18 to 24 PAA. This option can improve the proportion...
of sorties available to API-1 pilots even when it is accomplished in some units by closing other units, and it represents no net increase in force structure.

This option can help absorption because a fighter wing requires essentially the same number of API-6 billets to manage three 24-PAA squadrons, for example, as it needs to manage three 18-PAA squadrons. Thus, a wing with 24-PAA squadrons can devote virtually all of the additional airframes’ training capacity to API-1 pilots. From an absorption perspective, this is equivalent to adding another 18-PAA squadron devoted entirely to supporting API-1 flying. (This discussion relates directly to the absorption efficiencies for larger units that we addressed in the total force discussion above.)

It can also help to include more similarly equipped squadrons in the same wing because wings whose squadrons fly distinct aircraft often require relatively more staff billets to manage the operations. Organizations with fewer squadrons, such as the group at Pope Air Force Base, are also less efficient in their ability to distribute sorties to API-1 pilots.

The importance of these factors leads us to consider whether our analysis needs to examine whether other options are available to redistribute sorties from API-6 pilots to API-1 pilots. We are not optimistic in this regard. Indeed, the sortie distribution between API-1 and API-6 pilots used in our numerical exercises may be among the more tenuous of our best-case assumptions. This is because we used the ACC programming method for this distribution, which assumes that API-6 sortie requirements do not vary with changing unit conditions or tasking.

Changing experience and manning levels, however, can definitely influence API-6 sortie needs. As experience levels drop in operational units, for example, squadrons typically require more API-6 support to ensure that adequate numbers of IPs and flight leads are available to provide essential in-flight supervision, since fewer qualified API-1 pilots are available in the squadrons. When units are overmanned, moreover, commanders may well overman the API-6 billets in higher proportions than those of API-1s because BMC API-6 pilots require fewer sorties to remain certified than do CMR API-1 pilots. This would also require that more sorties be flown by API-6
pilots even though the API-1 manning levels might appear less problematic.

API-6 sortie needs can increase if our assumption is incorrect that the home-station training distribution developed at the ACC will always apply. In fact, when units conduct flying operations at more than one location, additional API-6 support is normally required to ensure appropriate supervision. API-6 pilots are often used as well to increase CRs for deployed elements (unit type codes, or UTCs).

**Increased Aging Rates: Longer Sorties**

Aging rates could also be increased without augmenting the available sortie pool if the units flew longer sorties on average, providing more flying hours per sortie. Longer sorties, however, do not necessarily provide additional training or experience. Instead, the dual Air Force objective to increase aircraft UTE rates and to fund and fly the flying-hour program is the appropriate approach. If flying hours are emphasized over sortie counts, increased average sortie lengths will become a focal point. In operational fighter units, however, many of the techniques that serve to increase sortie lengths—such as restraining aircraft performance to improve endurance or carrying additional external fuel tanks—tend to degrade the training each sortie actually provides. Because this is not a desirable outcome, care must be exercised to ensure that it does not become an unintended consequence of policy decisions.

Additional options could increase the number of pilots who become experienced without increasing aging rates at all.

**Increased Experience Rate: Longer Operational Tours**

If pilots could remain in their initial operational assignment cycle for longer periods, more of them would become experienced even if aging rates remained relatively low. The main problem is that if inexperienced pilots remained on station for longer periods, experience levels would decline, decreasing aging rates and increasing TTEs. If, in addition, their presence created overmanning, the deterioration in aging rates would be exacerbated. A steady-state analytic approach can calculate the TOS change needed to match the TTE at the initial
aging rate, but it cannot address the additional increases in TTE caused by these dynamic factors. Although this option will never resolve absorption issues on its own, it could contribute to that goal as part of a comprehensive package.

**Increased Experience Rate: Lower Standards**

The final method of increasing experience rates is simply to adjust the definition of an “experienced” pilot to conform to the existing reality. This may evolve as an eventual default approach in the absence of specific policy decisions to prevent it, and it would not be without precedent. If new fighter pilots can get only 300 to 400 hours on average in their primary mission aircraft during an initial CONUS operational tour, is it unreasonable to agree that they are now experienced? Conditions may well have changed since the original 500-hour requirement was implemented under RDTM, and the actual experience gained during the initial operational tour may be equivalent in the current training environment to the previous 500-hour criterion.

Unless ways can be found to increase the training available per flying hour, however (possibly through greater use of simulators), lower standards will yield less capable pilots. The Air Force can give up capability in two ways. First, pilots can be tasked to perform all of the missions they must currently master, but they will have learned to do them less effectively by the time they are considered experienced. (They will, of course, continue to learn once they have met the new experience criteria.) Second, pilots can be tasked to perform fewer missions but required to master each of them as well as they do currently. Some might argue that the latter approach has been taken in the F-16 Low-Altitude Navigation and Targeting Infrared for Night (LANTIRN) community, where several specialized low-level requirements and the Killer Scout mission have been removed from unit training tasking. Much of the associated savings in training requirements has been offset, however, by additional technical training, such as the use of night vision goggles, and by additional mission tasking, such as combat search and rescue and airborne forward air control. This illustrates the problems associated with such an approach.
Indeed, there is evidence that changes are already evolving in the definition of experience, at least in a de facto manner. A primary application of the original 500-hour-experience criterion under RDTM, for example, was to determine eligibility for a shorter requalification TX-Course for pilots to reestablish mission currency before returning to a fighter cockpit following a nonflying (or non-PMAI) assignment. Three fighter FTU programs have already reduced standards for training syllabus eligibility to as low as 300 hours or one operational tour to accommodate lower flying-hour totals. Further, the eligibility criterion for A-10 pilots to enter formal I-Course training from an operational unit to become an FTU instructor was recently reduced from 500 hours of PMAI to qualification as a four-ship flight lead. Many of the initial candidates to enter under this new criterion, however, were upgraded to four-ship flight-lead status only in the final month of their operational tour. This could be interpreted to mean that commanding officers were willing to upgrade these pilots to ensure that they would be eligible for reassignment but were unable or unwilling to use the pilots as four-ship flight leads in their own units.8

It may become necessary for the Air Force to lower experience standards to ensure that new pilots can meet those standards. This action should be taken only with a full understanding of its ramifications. Experienced pilots must provide appropriate supervision, instruction, and complex staffing functions for the Air Force and joint organizations. Any changes in the current definition of “experienced” must be evaluated within the context of these needs. The decision deserves careful study and should not be allowed to become a default position without a prior assessment of its possible implications, especially potential unintended consequences. Decisionmakers may find ways to improve aging rates by providing missing training through alternative means, such as simulation, or they may simply be forced to accept lower levels of proficiency and knowledge from pilots who meet new “experience” criteria.

8The A-10 eligibility standards were lowered last year following earlier reductions in the F-15 and F-16. Pilots who are not eligible for a TX-Course requalification have historically been extremely unlikely to be allowed to return to operational flying in fighters following a tour of another type. I-Course eligibility information was provided during our visit to Davis-Monthan Air Force Base.
Such possibilities need to be carefully weighed, however, against the reality of placing the operational fighter world in a completely unprecedented regime of experience and manning. Without corrective action, fighter units’ experience will drop to levels previously seen only in combat conditions, and combat conditions traditionally guaranteed flying opportunities that ensured aging rates for surviving pilots far exceeding those projected if manning levels were allowed to continue to increase. This reality has the potential to place the entire fighter fleet in a permanent environment similar to that temporarily observed in the A-10 community during FY 2000, and it must be approached cautiously.

CONCLUSIONS AND RECOMMENDATIONS

Our primary conclusion is that the Air Force must develop a set of policy options that enable it to build an inventory that will eventually meet its requirements for fighter pilots while maintaining acceptable training conditions in its operational units. We do not believe that these units should function for long with conditions that are worse than 100 percent manning and 50 percent experience. Maintaining these levels is essential for an acceptable operational training environment, and we do not believe they can be compromised. Indeed, we regard 50 percent experience as a minimum acceptable level, and we would prefer to see conditions established that permit experience levels to gradually grow toward the 60 percent value that enables inexperienced pilots to fly roughly the same number of sorties on average as experienced ones.

This means that the Air Force must find initiatives whose parameter values grow inventory levels to match requirements and simultaneously maintain the flow of new pilots within the absorption capacity of the operational units. We have seen that this may be extremely difficult in that there are serious constraints on available options.

Although the UTE and flying hour programs must be fully funded and flown, we do not expect that UTE increases alone can resolve the absorption crisis. Indeed, we have seen that it is extremely unlikely that UTE rates will exceed the increased values required for the units to deal with the reduced aircraft inventories resulting from scheduled aircraft modernization and conversion programs. Additionally, although retention initiatives are under way, we believe it would be
imprudent (even in the current airline hiring environment) for decisionmakers to assume that retention alone can resolve the impending crisis. Similarly, although several of the initiatives we addressed may contribute at the margins, they do not represent permanent solutions. These include alternative manning options, improved pipeline efficiencies, and longer tours.

We have also observed that several initiatives require increased analysis and may contribute very little toward resolving the impending crisis. These include redistributing sorties (in the absence of requisite PAA adjustments), lowering standards (with no increases in training efficiency), reducing requirements (with no workload redistribution plan), and lengthening sorties (achieved through degraded training).

This leads us to conclude that the only initiatives that can permanently resolve Air Force fighter pilot absorption issues are those that address the PAA reductions depicted in Figure 6.1. PAA increases can be achieved directly through net force structure increases or indirectly through a restructuring of the available force structure to increase absorption capacity, but the fundamental PAA problem must be an essential component in any policy program that provides permanent resolution. Moreover, the component PAA breakdown shown in Figure 6.1 suggests significant potential for options that provide more creative use of the total force, especially if sizable direct PAA increases are not feasible for active units. Thus, three fundamental options can deal with PAA shortfalls:

1. *Direct* active PAA increases, achieved by adding new units or increasing PAA authorizations in existing units.

2. *Indirect* active PAA increases, achieved by reorganizing active units to improve absorption capacity. For example, the existing active PAA could be redistributed so that more wings contain at least three 24-PAA squadrons. This implies that some units would be closed in order to make others more robust.

3. *Effective* PAA increases, achieved by making more creative use of the force structure available in all three components. Active associate or blended units, for example, could enable the existing PAA to absorb new pilots much more efficiently than the options we evaluated using active assets only.
Major obstacles face each of these initiatives. Their direct costs generate major budgetary implications, but their indirect costs must also be evaluated. Serious political issues, for example, are associated with the second and third options, and the third option also requires organizational innovations that have not yet been tested. It must also overcome cultural differences that have thus far prevented multicomponent cooperation to improve absorption. Such obstacles make it unlikely that any of these options alone can resolve the absorption crisis. The Air Force must examine policies that incorporate portions of all three options in order to find a long-term resolution of the crisis.

We recommend that the advantages and costs of potential long-term policies be examined thoroughly and quickly to assess their potential for resolving the absorption crisis. This process should evaluate options for closing bases and mixing force components to determine their relative advantages and potential effectiveness, and it should also consider possible adjustments in retention or requirements that may be needed.

These results should be compared to the problems that will arise if no action is taken and operational units continue to proceed toward the new equilibrium conditions associated with the excessive inflow of new pilots. We believe that decisionmakers will not want to allow the training environment that existed at Pope Air Force Base to prevail in every operational active fighter unit.

We note emphatically that the current production quota of 330 pilots has not been consistently achieved since goals were initially increased in FY 1996, so current conditions do not reflect the steady state dictated by those policy objectives. Conditions in the operational units have recently shown dramatic improvement as a result of production cuts and pilot redistribution efforts. At the same time, aircrew managers have been able to mitigate current nonflying staff shortfalls by using excess numbers of rated navigators who will soon exit the inventory following promotion or retirement. Temporary civilian fills have also offset some of these shortfalls. Thus, current circumstances are actually much better than those that will eventually result if current policy choices remain unchanged.
Any long-term solution to allow fighter pilots to move to follow-on assignments with significantly less experience and training than has historically been the norm should be made deliberately, not by default, and should be based on a thorough understanding of the implications.

Moreover, starting with the F-22 conversion, important policy decisions that affect future force structure should carefully examine the implications for absorption. Current imbalances have created a fragile system that requires continuous attention.

An acceptable long-term solution should be identified and agreed on and an implementation policy developed to take operational units to acceptable equilibrium conditions in a logical and sensible manner. This will require a better understanding of the dynamic processes involved, especially those associated with ongoing conversion and modernization initiatives. Aircrew managers recognize how absorption crises can corrode readiness, combat capability, and safety. The problem calls for a comprehensive analytic framework that reflects the system's complexity—a complexity that is often difficult to grasp and communicate. A dynamic modeling framework, coupled with a comprehensive longitudinal database, could provide the near-real-time indicators that decisionmakers need. The dynamic effects on the entire system need to be examined in order to avoid unintended consequences and formulate informed decisions. Policies, parameter values, and definitions may need to change over time.

The Air Force is facing the most challenging aircrew management problem in its history. No apparent single alternative can resolve all of the absorption problems in fighters. A combination of options will be required, and many initiatives may be essential simply to ensure that absorption problems become no worse than we estimated in our numerical excursions.

If policy alternatives that enable the system to operate in viable steady-state conditions cannot be implemented, the Air Force will enter uncharted aircrew management territory that will take the entire active fighter community for an extended period into the corrosive conditions documented in Chapter Two. Leaders will have to
considerably revise their expectations regarding the knowledge and capabilities of experienced pilots whether serving in line, staff, or supervisory billets. This should not be allowed to happen by default.