The results of Chapter Four show the predicted effects of MFERS plus a skewed pay raise in the steady state, when all personnel are under the new compensation system. In this chapter, we present results for the transition to the steady state. We consider two cases. In the first case, which we call the grandfathering case, all existing service members are grandfathered under the current system (which we assume, for simplicity, is REDUX) and only new entrants are enrolled into MFERS plus a skewed pay raise. In the second case, which we call the convert case, current members are given the option of converting to MFERS plus a skewed pay raise or remaining in REDUX, while new entrants are automatically enrolled into the new system. Since members who convert would not ordinarily receive credit under MFERS for prior years served, DoD would make double contributions to the thrift savings plan for a time equal to the member’s years of service. We show here the predicted retention and cost effects under the two cases. Before presenting the results, we first discuss what we would predict theoretically to occur in transition to the steady state under each case.

**THEORETICAL EFFECTS**

**Case 1: Grandfathering**

By construction, both REDUX and MFERS with a skewed pay raise give similar retention patterns in the steady state (see Table 9). As new entrants are enrolled under MFERS with a skewed pay raise, we would not predict any change in their retention incentives relative to REDUX. Since existing members would continue to be covered by
REDUX in the grandfathering case, their retention incentives should also remain unchanged. Therefore, we would not expect any change in retention patterns during the transition to the new steady state in the grandfathering case.

We would expect costs to decline in the transition since MFERS with a skewed pay raise is a less costly system than REDUX. Also, we might expect the largest declines to occur initially since those with few years of service make up the bulk of the enlisted force, and these individuals would be the first to be enrolled into the new and less expensive system. Costs may even fall below their steady-state level for some period because of the skewed pay raise associated with MFERS that gives the larger and more expensive pay raises in the higher grades/years of service, and the smaller and less expensive pay raises in the lower grades/years of service. Although retention incentives are maintained among the more junior personnel because of the promise of large pay increases in the upper grades, DoD does not incur any costs associated with these larger raises until the new entrants reach the more senior grades, a time period that can occur many years into the transition. Although costs may fall below their steady-state level for some time, eventually they would have to rise back to the steady state.

**Case 2: Converting Members**

As in the grandfathering case, we would expect new entrants who are automatically enrolled in MFERS plus a skewed pay raise to face the same retention incentives as under REDUX because the two systems are designed to produce the same retention patterns in the steady state. Therefore, we would not expect any change in their behavior in the transition in case 2.

However, we would expect a change in the retention incentives of those who convert to the new system because converting members are given a compensation option that neither those in the steady state nor new entrants are given. They have the option of staying in the military under MFERS with a skewed pay raise, staying under REDUX, or leaving. Furthermore, although MFERS with a skewed pay raise provides incentives to leave the service that REDUX does not provide (since it gives a benefit to those who leave prior to YOS 20 and it is portable to federal civil service), it also provides an in-
centive to stay since it offers a generous pay raise to those in the higher grades, it gives double contributions for a specified time, and individuals must remain in the service for a required period to become vested. Because those who convert do so only because they will be better off, no one is made worse off. Consequently, we would expect retention rates to rise among YOS cohorts whose members are permitted to convert because military service is now more attractive for some personnel.\(^1\)

Given that retention rates under the new and old systems are the same in the steady state, those whose retention rises in transition to the steady state must be individuals with below-average tastes for military service. Thus, at some future date, retention rates among YOS cohorts whose members can convert must drop below the steady-state level because these low-taste individuals will leave the service faster than they would in the steady state. The net result is that among cohorts whose members can convert, retention follows an S-shaped pattern; it initially rises above its steady-state level, drops below the steady-state level, and then returns to the steady-state level.

With voluntary conversion, those who convert would receive double contributions for a time in part to provide credit for past years of service but also to prevent spikes in retention rates. However, even with higher DoD contributions, it would be impossible to prevent the S-shaped retention pattern among converting cohorts in the transition unless DoD could “price discriminate” and offer different contribution rates to different individuals such that all individuals were indifferent between staying and leaving. In other words, for some individuals, it would need to double contributions, while for others it would need to triple contributions. Such a policy of differentiating

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\(^1\)This rise above the steady-state level is entirely consistent with the fact that retention trends in the steady state are the same under the new and old systems. Retention rates in the steady state are the same for individuals with a marginal taste for military service. But retention rates can differ among inframarginal individuals in transition to the steady state. For example, an inframarginal individual with five years of service but with a relatively low taste for military service might leave service after six years of service in the steady state. But, in the transition to the steady state, such an individual may place a particularly high value on portability of benefits to the federal civil service, choose to convert, and stay in service longer than six years of service to gain vesting and double contributions under MFERS with a skewed pay raise.
among individuals would be prohibitively costly to implement. Therefore, it would not be possible to prevent some variation in retention among cohorts, although the amplitude of the S-curve (i.e., the degree of the spike and valley of the S-curve) would be affected by the overall contribution rate DoD offered in the transition.

Although we can predict the retention patterns over time of YOS cohorts whose members are allowed to convert to the new system, it is more difficult to predict the calendar year-to-year variations in retention because these variations represent an aggregation across YOS cohorts. For example, we would predict that in the initial years of the transition, retention rates would rise as retention rises among cohorts whose members can convert, and the rates of new entrants are unchanged. But over time, the rates of some cohorts will begin to fall while others are still rising. Therefore, the aggregate effect cannot be predicted a priori.

Predicting year-to-year variations in costs under case 2 is also problematic. Obviously, costs fall because the new compensation system is less expensive than REDUX. But costs will rise in the transition as retention among some cohorts rises and will fall in the transition as retention among some cohorts falls. The net effect is unclear but costs could actually fall below the steady-state level for some period of time if the net effect is negative.

RESULTS

Our results are for the Army enlisted force. In general, we find that while retention varies in transition to the steady state under both the grandfathering and convert cases, our model does not predict any large spikes in retention rates. In other words, the transition to the new steady state is predicted to be fairly smooth. The model also predicts that for both cases most of the cost savings associated with transitioning to MFERS with a skewed pay raise occurs fairly early. Furthermore, with the exception of the first few years when there is a large drop in costs, there are no spikes in costs in transition to the new steady state.

Before presenting these results, we show the pattern of conversion in the convert case. Table 13 shows the fraction of the force that is predicted to convert to MFERS plus a skewed pay raise. Overall, 80
percent of the force is predicted to convert to the new system, but this fraction is concentrated among those with 1 to 10 years of service and those in pay grades E-1 to E-6. These individuals are further from the 20-year vesting point under REDUX, and thus have a relatively lower expected value of retirement benefits under REDUX.

Now consider the retention effects in transition to the steady state. In the grandfathering case we predict little change in retention behavior. Figure 1 shows man-years per accession (MPA) for the steady state (represented by a solid line), for the grandfathering case (represented by a dashed line), and for the convert case (represented by dots) from year 1 after the transition to year 30 when all members would be covered by the new system. Relative to the steady state, the model predicts some variation around the steady state in retention in the grandfathering case. This variation is predicted by the model because, as shown in Table 9, the retention patterns predicted in the steady state for MFERS plus a skewed pay raise are close but not identical to those predicted in the steady state for REDUX. Thus, some variation would be expected. However, the variation is not large; at most, the difference in MPA between the steady state and the grandfathering case is on the order of 3 percent.

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2 With sufficient manipulation of the skewed pay raise, the retention patterns could be made even closer between REDUX and MFERS with a skewed pay raise.

3 Small differences in MPA can mask large differences in underlying retention patterns; however, a comparison of conditional retention rates between the steady state and the grandfathering case did not reveal large differences in retention between the two cases.
For the convert case, we observe a small initial increase in MPA relative to the steady state, as we would expect theoretically, but this increase is not large, a difference of about 5 percent. While a 5 percent difference in MPA can mask a large difference in retention patterns, we do not find large differences in conditional retention rates—another measure of retention—between the steady state and convert case (not shown). Figure 1 shows that MPA in the convert case shows some variation around the steady state over time, including a dip in year 19, but again these variations are not large.

Also as we would expect theoretically, the model predicts an S-shaped pattern in retention for cohorts whose members are allowed to convert. An example is seen in Figure 2, which shows the conditional retention rates over time for the cohort that is at YOS 8 in the first year of the transition. After four years, this cohort has 12 years of service, after eight years, it has 16 years of service, etc. The solid line shows the conditional retention rates that would be predicted in the steady state for cohorts with 8 YOS, 12 YOS, 16 YOS,
etc. The dotted line shows the conditional retention rates predicted in transition to the steady state. The model predicts that retention rises above the steady state as more individuals in the cohort are induced to stay by the option to convert to MFERS plus a skewed pay raise. However, after year 8, retention falls. At year 10, retention falls below the steady state as low-taste individuals who were induced to stay exit at a rate faster than would be predicted in the steady state. At year 16, the cohort retention patterns in the transition to the steady state match those found in the steady state.

The predicted patterns of total costs over the transition to the steady state are shown in Figure 3 for the REDUX steady state (long and short dashes), the MFERS plus skewed pay raise steady state (solid line), the grandfathering case (dashes), and the convert case (dots). Figure 3 is predicated on the assumption of a 2 percent real government discount rate. The time profiles of cost are similar for higher discount rates, but the absolute differences would change. The figure shows the total of basic pay costs, retirement accrual costs, and DoD contribution costs for the Army enlisted force in billions of dol-
The model predicts that in the grandfathering case, DoD would realize about 35 percent of the total cost savings associated with moving to MFERS with a skewed pay raise within the first year (a drop from $11.29 billion to $11.18 billion). However, within three years, the model predicts that it would realize all of the cost savings, and in fact costs would drop below the steady state for a period of time.

The drop below the steady state results from a combination of two factors. First, the pay raises given to junior personnel are lower under the skewed pay raise scheme. The larger raises given to more senior personnel are costs that DoD will not incur until the later years of the transition. Second, as noted above, the retention patterns between REDUX and MFERS with a skewed pay raise are close but not exact, resulting in some variation in retention and cost.

In contrast to the grandfathering case, the model predicts that in the convert case about 80 percent of the change associated with moving to MFERS plus a skewed pay raise would be realized in the first year.
More of the change is realized in the first year in the convert case because some of the more senior and more costly personnel are converting to a system that is less expensive. Total cost in the convert case also shows some variation around the new steady state. In part this is because retention is rising among some cohorts while falling among others, and because the REDUX and MFERS steady-state retention patterns are close but not exact.

While we observe some variation around the new steady state in costs for both the convert and grandfathering cases beyond the first three years, the variations are not large. Thus, the model does not predict large spikes (or valleys) in the pattern of costs or retention in transition to the steady state, regardless of which strategy—grandfathering or convert—that DoD chooses. However, the cost differences between MFERS and REDUX would be smaller than those shown in Figure 3 when the real government discount rate is increased to 2.75 percent and MFERS would cost more when the rate is assumed to be 5 percent. Thus, the results are sensitive to the assumption about the real government discount rate.