

# How Do Federal Civilian Pay Freezes and Retirement Plan Changes Affect Employee Retention in the Department of Defense?

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## Key findings

- A concern for civil service managers is whether pay and benefit reductions are making it more difficult to sustain the federal workforce.
- Planners and policymakers in the federal government have little capability to assess how changes in pay will affect federal civil service retention.
- RAND has begun extending its Dynamic Retention Model to permit analysis of federal civilian worker decisions to stay or leave federal service in response to changes in compensation.
- Compensation changes could have a noticeable effect on retention in the federal civilian workforce.
  - Simulations of a three-year pay freeze suggest that the number of GS employees with at least a bachelor's degree who stay with the civil service is 7.3 percent lower in the long run than it would have been with no pay freeze.
  - A mandated increase in retirement contributions could result in as much as an 8.6-percent decline in retention of the GS workforce with four or more years of college or could have virtually no effect, depending on individual savings behavior.
- How important these effects are in terms of defense readiness and cost is unclear and an important area for further investigation.

As the Department of Defense (DoD) wrestles with declining budgets, much attention has been given to the impact on military compensation. In 2013, the defense budget included the smallest increase in military pay since the early 2000s. Presently, a congressional commission is examining the merits of changing the military retirement system, motivated in part by long-term financial savings. In making these decisions, policymakers have drawn on robust analyses of the effect of compensation changes on service members' decisions to join and remain in service.

However, little is known about the effect of compensation changes on the federal civilian workforce in DoD—even as civilian employees experienced three straight years of pay freezes between 2011 and 2013. The retirement plan was changed during the same period, mandating an increase in the retirement contribution rate for employees hired after 2012. Civilian federal workers received a 1-percent pay increase in January 2014, and President Obama proposed another 1-percent pay raise for 2015—a rate viewed as inadequate by federal labor unions after years of pay and benefit reductions.<sup>1</sup>

For civil service managers, a key concern is whether the reduction in pay and benefits is making it more difficult for the federal government to recruit and sustain an adequate workforce, especially in critical skill areas. Federal agencies must be able to attract and retain personnel with the right skills, capabilities, and experience levels to meet their workforce requirements. Understanding retention is part of that equation and is particularly important for DoD, given the significant

contribution made by the federal civil service workforce to military readiness.

Planners and policymakers in the federal government have little capability to assess how changes in compensation will affect federal civil service retention—specifically in terms of the size and experience mix of the civilian workforce. But a new capability under development at RAND is beginning to provide some insight.

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## ASSESSING COMPENSATION POLICY

The Dynamic Retention Model (DRM), initially developed several decades ago, is a modeling capability that has been used successfully in analyzing the effects of changes in military compensation and retirement benefits on active and reserve component retention.<sup>2</sup> The initial version of the model appeared in the 1980s, and its capability for policy analysis has been substantially deepened over the past ten years. Recently, an initial effort has begun to extend this model to include a portion of the DoD federal civil service workforce, offering an opportunity to evaluate the effect on retention of compensation changes—i.e., the recent three-year pay freeze, unpaid furloughs, and changes in retirement benefits.<sup>3</sup>

In the model, civil service employees make decisions during the course of their career about whether to stay in the civil service, leave and enter the private-sector labor force, or retire. As in the real world, these decisions are forward-looking—they reflect an individual's employment history but are made amid uncertainty about what the future holds in terms of employment opportunities, pay and benefits, and other related considerations. Individuals revisit their decisions each year, in effect comparing the perceived value of staying in the civil service to that of outside alternatives.

The model also takes into account factors affecting an individual's preference for employment in the DoD civil service relative to other employment options. These factors differ across individuals and help explain why an individual might choose civil service employment even when job opportunities in the private sector are more financially lucrative.

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## THE THREE-YEAR PAY FREEZE

RAND used the DRM capability to study federal employee retention in DoD—in particular, employees under the Gen-

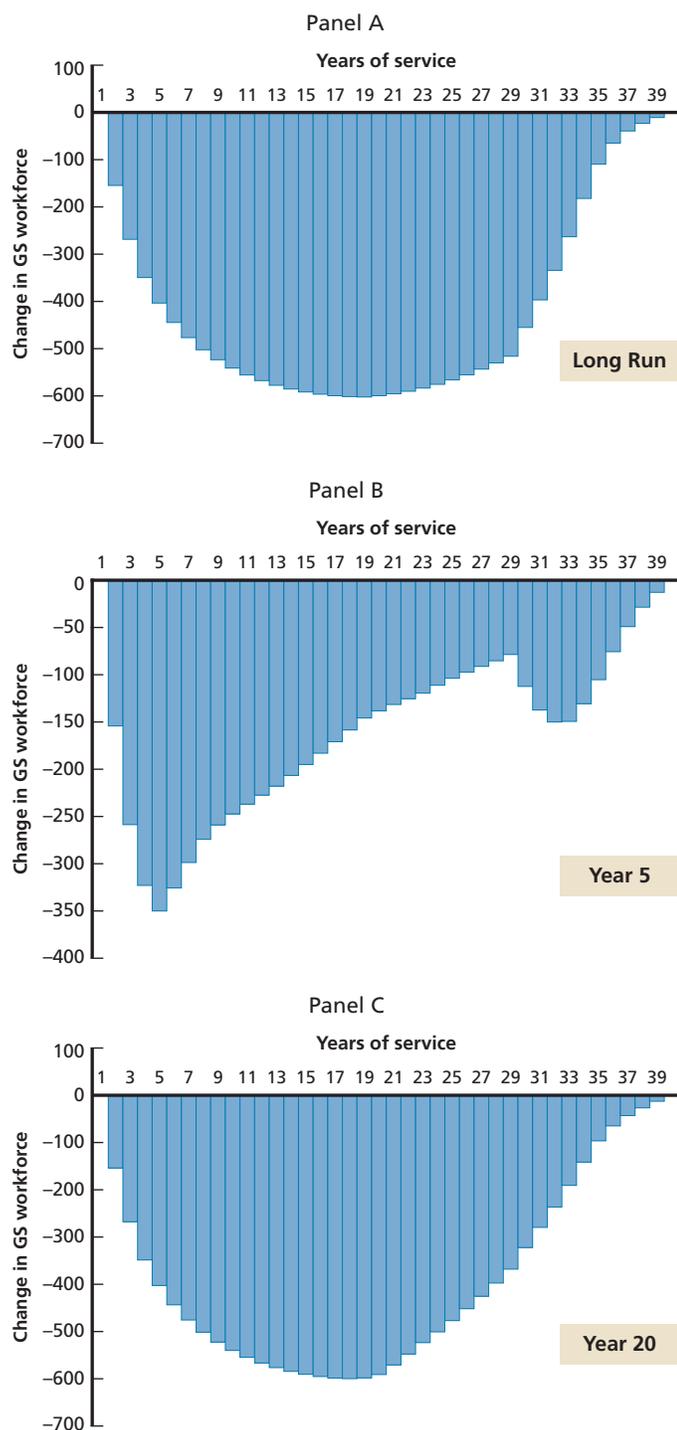
eral Schedule (GS) who have earned a bachelor's or advanced degree. One focus of analysis examined the impact of a three-year pay freeze, similar to that which occurred between 2011 and 2013.

During those years, federal civil service employees would have expected to receive a pay raise of 1 percent per year, given the changes in the Employment Cost Index derived by the Bureau of Labor Statistics. This index is used to set civilian pay raises, according to the Federal Employee's Pay Comparability Act of 1990.<sup>4</sup> Given that the model is estimated using real (inflation-adjusted) dollars for civil service and private sector pay for inputs, the pay freeze was simulated in the model using a 1-percent reduction in real pay for each of the three years, with different assumptions about whether civil service employees would recoup the loss in pay at some time in the future. RAND analyzed three scenarios: a permanent pay cut, a cut where pay is restored by Congress to its pre-freeze trajectory immediately following the pay freeze, and a cut where pay is restored after a ten-year delay. In each of these scenarios, RAND assumed hiring remained unchanged.

Not surprisingly, the case in which the cut in pay is permanent had the most dramatic impact on retention in our simulations. This is illustrated in Figure 1, which shows the change in the size of the GS workforce with four years of college or more by years of federal service. When employees expect no restoration in pay, in the long run the number of GS employees projected to stay with the civil service across all years of service is 7.3 percent lower than it would have been had there been no pay freeze (see Panel A).<sup>5</sup> Given a workforce size of 225,888 (the size of the DoD GS workforce with at least a baccalaureate degree in 2011), this represents 16,476 fewer individuals retained.

During the intervening years—i.e., before the long-run effect is reached—the effects on retention build slowly over time, with the greatest impact in the mid-career years, for those individuals who are not yet eligible for immediate retirement. By the end of the three-year pay freeze, the number of GS employees retained is 2.2 percent lower than it would have been had a pay freeze not been put in place (not shown). By year five, the number retained is 3.3 percent lower, representing a drop of 7,367 employees, with the greatest effect felt by more junior personnel. Panel B in Figure 1 is a snapshot at year five of the change in the GS workforce by years of service. For example, by year five, the drop among those with five years of service is the largest, at 351 employees. Even after 20 years, the full long-run effect has not yet been reached (Panel C).

**Figure 1. Change in the GS Workforce with a Permanent Pay Freeze**



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For the second scenario, there is little change in long-run retention when civil service employees anticipate that pay will be restored immediately following the freeze. But in the third scenario—the case of the ten-year delay, representative of what could happen when federal employees face uncertainty about whether and when Congress will restore pay—retention falls during the transition years. In this case, the GS workforce that is retained is 1.9 percent lower (or 4,356 fewer) than it would have been three years after the pay freeze, 2.8 percent lower (or 6,366 fewer) five years after the pay freeze, and 3.5 percent lower (or 7,931 fewer) ten years after the pay freeze. Although these changes reverse after pay is restored, it takes time for the workforce to return to baseline levels. Even 20 years after the pay freeze, the GS workforce still in service is 1.4 percent below the baseline, despite the fact that pay was restored after ten years. So, the results suggest that uncertainty over when pay will be restored can have a significant effect on retention.

A similar analysis examined the effect of an unpaid six-day furlough, modeled as a 3-percent cut in annual pay in one year—akin to the unpaid furlough that federal civil service employees experienced in fiscal year 2013, as a result of sequestration. This analysis showed little change in retention. It did not, however, account for changes in expectations workers may have about the possibility of future freezes and furloughs. Such changes could have a negative, or even a positive, effect on retention.

## RETIREMENT BENEFITS IN FLUX

RAND also used the DRM to analyze the impact on DoD civilian employee retention as a result of the higher employee contribution rates mandated under Public Law 112-96. Employees hired in 2013 had to contribute 3.1 percent of their salary into the Civil Service Retirement and Disability Fund, up from 0.8 percent for those hired prior to that point. Employees hired in 2014 and later are required to contribute 4.4 percent.<sup>6</sup> These contributions help cover the cost of the Federal Employees Retirement System (FERS) defined-benefit plan, known as the basic plan.

According to the Congressional Research Service, the Office of Personnel Management estimates that the cost of the FERS defined-benefit plan is 12.7 percent of pay.<sup>7</sup> Thus, when employees contribute 0.8 percent, the government contribution is 11.9 percent (12.7 – 0.8); when they contribute 3.1 percent, the government contribution falls to 9.6 percent (12.7 – 3.1).

A recent congressional proposal would further increase the employee contribution rate to 6.35 percent, though this proposed change is not included in our analysis.

These mandated employee contributions are independent of contributions employees might make to the FERS defined-contribution plan, known as the Thrift Savings Plan (TSP). Employee contributions to the TSP are not mandated, but employees receive an automatic 1-percent contribution and then a matched government contribution up to 5 percent, depending on the employee contribution. Of course, employees may choose to save using additional financial vehicles, such as Individual Retirement Accounts, real estate, and the stock market.

The effect on retention of higher employee contribution rates for the FERS defined-benefit plan depends on employees' savings behavior. In other words, employees can choose how much of their current pay to spend or save. If employees were already saving enough of their base pay to cover the mandated increase in FERS contributions, or at least 4.4 percent of their pay, then the amount of money from each paycheck available to be spent would stay the same.<sup>8</sup>

In some cases, employees might choose to shift contributions from one part of the FERS plan to another—lowering the amount deposited into the FERS TSP and using that money to cover the higher contributions to the defined-benefit plan. When employees make the choice to lower their TSP contributions, the amount contributed by their agencies into the TSP is also reduced. This is a costly change to the employee because shifting a dollar out of the TSP means two dollars less saved in the TSP, the employee's dollar plus the one-dollar match by the government. The end result is that FERS retirement benefits will be smaller with the higher mandated contribution rate.

In other cases, employees might cover the increased contribution by shifting money from other types of savings, such as stocks or bonds—leaving TSP contributions unchanged. Of course, if employees were saving less than 4.4 percent, they will have to save more out of their paychecks to reach the mandated contribution, which, in turn, means they will have less money to spend today.

RAND used the DRM to analyze these different savings decisions. Since the DRM does not model the change in wealth from personal savings (i.e., it includes current compensation and government retirement benefits), we bounded the range of effects that the higher retirement contribution could have on retention by two cases: (1) the case with no wealth effect on retention and (2) the case of fully protecting personal savings by replacing personal savings contributions with reductions in

current consumption. As in the analysis of the pay freeze, we assumed hiring is unchanged in each of the cases.

The first case, which represents no effect from a change in personal wealth (the lower bound), assumes members already save at least 4.4 percent, so there is no change in current pay available for consumption, and TSP contributions are not used to pay the higher mandated contributions. Not surprisingly, because there is no change in pay, there is no change in civil service retention in this case.

In a second case, employees do not change their spending habits, but instead reduce the amount deposited into their TSP accounts to cover the mandated increase in defined-benefit contributions. Agency contributions are assumed to fall from 5 percent to 3 percent as a result of this decision, which lowers the TSP fund accumulation. In this case, we find that the number of GS employees retained with four or more years of college is only 0.8 percent lower in the long run than it would have been had the contribution rate not increased.

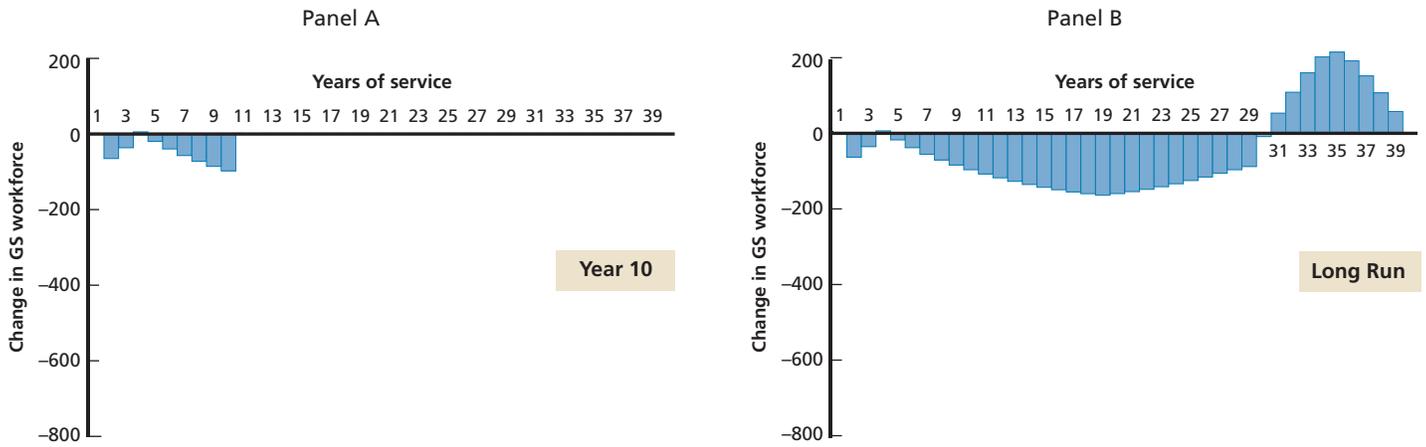
The impact unfolds slowly over time as employees hired after 2013 gain experience and those hired before 2013 leave the civil service (Figure 2). By the end of the fifth year, there is virtually no change in the GS workforce with at least four years of college (not shown). The shift of funds from the employees' TSP accounts decreases the government matching contributions into the TSP and decreases the value of the TSP fund at retirement, an effect that in general decreases the value of the career in all years.

However, employees have an incentive to stay at least three years to vest in TSP to lock in the contributions the government has made on their behalf, and this diminishes the downward pressure on retention in these early years. Once personnel are vested in the TSP, the drop in the number of GS employees retained becomes larger, and by the end of the tenth year, the number has fallen by 0.2 percent (Figure 2, Panel A) or by a total of 458 employees, assuming a force size of 225,888.

In the long run, the number of GS employees retained is lower among those with fewer than 30 years of service, but actually increases among the most-senior personnel (see Panel B). Retirement-eligible employees with more than 30 years of service have less incentive to leave because the lower TSP contributions have led to a lower TSP fund available at retirement. In the long run, the number of GS employees falls by 1,765 employees (0.8 percent).

In the third case examined, representing the likely upper bound of the effect, employees must reduce their current spending to cover the higher retirement contributions—by 2.3 per-

**Figure 2. Change in GS Workforce with Higher Mandated Contribution Rate and Lower TSP Contribution Rate**



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cent for those hired in 2013 and by 3.6 percent for those hired into federal service in 2014 and beyond.<sup>9</sup> There is no change in TSP contributions. In this case, the number of GS employees who stay in the civil service drops by 8.6 percent in the long run as a result of the increase in retirement contributions (Figure 3, Panel B), or a drop of 19,402 employees.

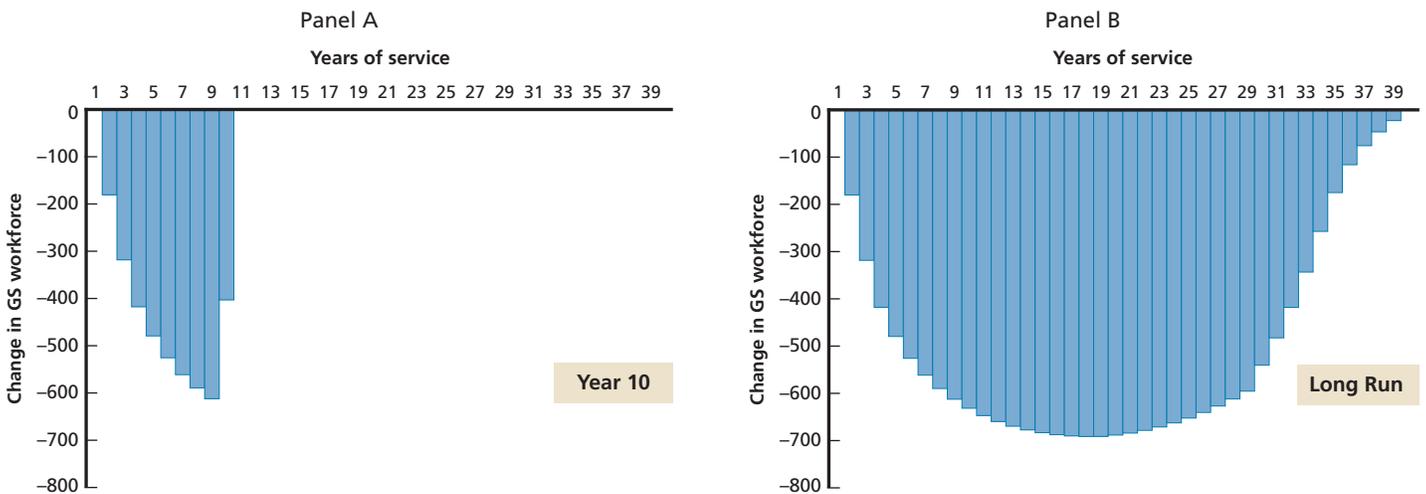
As in the second case, the long-run effect on the workforce occurs slowly over time, but the impact is considerably different. For example, after ten years, far more junior personnel depart federal service in the early years after the new retirement policy goes into effect, as they look ahead and anticipate lower net pay over the course of their careers (see Panel A). As these junior personnel age, the retention effect is compounded.

The main finding, then, is that the impact on retention of higher mandated contributions to the defined-benefit plan

depends on how the mandate affects the amount employees save and whether savings are redirected from their TSP contributions to cover higher contributions to the defined-benefit plan. There may be no change in retention or a decline of as much as 8.6 percent of the GS workforce with four or more years of college leaving federal service because of the new retirement mandate.

The DRM can be used to evaluate the retention effects of other changes to FERS, such as eliminating the defined-benefit portion of the retirement system for newly hired civil service workers, as was proposed by the Senate in late 2013,<sup>10</sup> or changing the benefit formula so that it is based on the highest five years of pay rather than the highest three years of pay—a reform proposal put forward by the Congressional Budget Office.<sup>11</sup> These proposals reduce the retirement benefit and will

**Figure 3. Change in GS Workforce with Higher Mandated Contribution Rate and Lower Net Current Pay**



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likely affect civil service retention; the size of the effects warrants further investigation.

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## NEXT STEPS

The analysis described here is based on a new prototype capability that estimates the effect of compensation changes on retention in the federal civilian workforce. While representing only a select part of the DoD civilian workforce—GS employees with a baccalaureate or advanced degree—the results of the DRM illustrate that compensation changes could have a noticeable effect on retention. How important these effects are in terms of defense readiness and cost is unclear and an important area to investigate further. A better understanding of these effects would contribute to the current policy debate surrounding appropriate federal civilian pay raises and proposals to further reduce retirement benefits.

With continued research, the type of analysis presented here can be used to examine other compensation questions. For example, the model can be used to assess adequacy of federal pay levels. The results provided show the response of federal

employees to compensation changes, but do not compare that response to workforce requirements—a necessary and important component of assessments of the adequacy of pay. The DRM can also help identify changes in the compensation structure that could help planners adjust the experience mix of the civilian workforce, should that be desired.

In addition, the DRM capability can be used to analyze other occupational areas within DoD, such as the cyber workforce; other pay systems, such as the science, technology, engineering, and math (STEM) workforces in the various demonstration programs; specific demographic groups, such as women and minorities; and specific locations of interest. Within DoD, the model can be used to study compensation effects on the “total force”—one that includes active and reserve component military personnel as well as civil service employees. The capability can be used to study workforce issues in other federal agencies as well—the Department of Veterans Affairs, Homeland Security, or the Intelligence Community, to name a few.

Given the importance of the federal workforce, it is critical that planners and policymakers have the capability to understand how changes in compensation and personnel policy affect the workforce. The DRM can provide such a capability.

## NOTES

<sup>1</sup> “Labor Unions Upset with Obama’s Plan for 1 Percent Federal Worker Pay Hike,” FoxNews.com, February 25, 2014. As of April 18, 2014: <http://www.foxnews.com/politics/2014/02/25/labor-unions-upset-with-obama-plan-for-1-percent-federal-worker-pay-hike/>

<sup>2</sup> Beth J. Asch, Michael G. Mattock, and James Hosek, *A New Tool for Assessing Workforce Management Policies over Time: Extending the Dynamic Retention Model*, Santa Monica, Calif.: RAND Corporation, RR-113-OSD, 2013. As of June 19, 2014: [http://www.rand.org/pubs/research\\_reports/RR113.html](http://www.rand.org/pubs/research_reports/RR113.html)

<sup>3</sup> Beth Asch, Michael Mattock, and James Hosek, *Federal Civil Service Retention: Assessing the Effects of Pay Freezes and Other Federal Employee Compensation Changes in the Department of Defense*, Santa Monica, Calif.: RAND Corporation, RR-514-OSD, 2014. This companion report presents details of the DRM for DoD civilians, the model estimates, and tests of validity. As discussed in that paper, we used 24 years of data on defense civil service employees to estimate the model. The data are longitudinal and track individual employment histories of the 1988 entry cohort through 2012. The model predictions of actual retention behavior as well as out-of-sample behavior are excellent.

<sup>4</sup> The President may limit the annual increase by executive order.

<sup>5</sup> The 7.3-percent decrease from baseline is for the steady state—the time when all employees have spent their entire career under the lower pay. Since civil service careers can span 40 or more years, it can take more than 40 years for the steady state to occur.

<sup>6</sup> Ken Zawodny, “FERS-Revised Annuity Employee, FERS-RAE,” Retirement Information Center blog, Office of Personnel Management website, May 13, 2013. As of April 18, 2014: <http://www.opm.gov/blogs/Retire/2013/5/13/FERS-Revised-Annuity-Employee-FERS-RAE/>

<sup>7</sup> Katelin P. Isaacs, *Federal Employees’ Retirement System: Benefits and Financing*, Washington, D.C.: Congressional Research Service, January 2014. As of May 28, 2014: [http://digitalcommons.ilr.cornell.edu/key\\_workplace/1220/](http://digitalcommons.ilr.cornell.edu/key_workplace/1220/)

<sup>8</sup> It is possible that the shifting of funds away from other investments toward contributions to the defined-benefit portion of FERS could cause individuals to re-optimize and even increase their savings to ensure achieving a given targeted savings level at retirement. It is also possible that wealth, including savings, over the lifetime of the member is lower when FERS contributions increase because members who were saving—either in FERS or in some other investment vehicle—with the expectation of a future return are now forced to provide higher FERS contributions without a change in the FERS returns. Changes in overall wealth, including savings, could affect retention in the civil service. Since we do not model the savings decision, we are unable to incorporate these possible effects on retention behavior. That said, as discussed in Asch, Mattock, and Hosek (2014, forthcoming), our model incorporates both current compensation and future retirement wealth and our models fit the data extremely well.

<sup>9</sup> These amounts reflect the difference in the old and new contribution levels: 3.1 percent minus 0.8 percent (2.3) for those hired in 2013; 4.4 percent minus 0.8 percent (3.6) for those hired in 2014 and after.

<sup>10</sup> U.S. Senate, 113th Congress, S. 1678, Public-Private Employee Retirement Parity Act, November 12, 2013 (introduced). As of June 19, 2014: <http://thomas.loc.gov/cgi-bin/query/z?c113:S.1678.IS>:

<sup>11</sup> Congressional Budget Office, *Options for Reducing the Deficit: 2014 to 2023*, Washington, D.C., November 2013. As of June 19, 2014: <http://www.cbo.gov/sites/default/files/cbofiles/attachments/44715-OptionsForReducingDeficit-3.pdf>

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## About This Report

RAND researchers have used the Dynamic Retention Model to successfully analyze the effect of changes in military compensation and retirement benefits on active and reserve component retention. This year, the model was used for the first time to begin evaluation of the retention decisions of civil service employees as a result of compensation changes. This report presents, in brief, the key findings of RAND research on the three-year civilian pay freeze and unpaid furloughs (RR-514-OSD). It also includes new analyses of the effect on civil service retention of recent and proposed changes in federal civilian retirement benefits.

This path-breaking work is important because civil service managers are concerned about recruiting and retaining an adequate workforce but little is known about the effect of compensation changes on the federal civilian workforce. Furthering this type of analysis to better understand the retention effects of compensation changes for civil service employees can contribute to the current policy debate surrounding federal civilian pay and benefits.

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