Workforce Downsizing and Restructuring in the Department of Defense

The Voluntary Separation Incentive Payment Program Versus Involuntary Separation

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Preface

The U.S. Department of Defense (DoD) civilian workforce provides essential executive, managerial, administrative, and support services for the planning, programming, and management of defense activities. The nature of defense activities changes in response to changes in national security objectives, conditions, and capabilities, and this can lead to changes in the size and shape of the DoD civilian workforce. The research in this report focuses on two types of workforce changes: drawdowns and reorganizations. These workforce changes commonly lead to some separation of workers from the DoD civilian workforce, even though there are extensive procedures to determine whether other DoD positions might be available to displaced workers. The separation of a worker may be voluntary or involuntary, and a key policy tool for voluntary separation is Voluntary Separation Incentive Payment (VSIP). The purposes of this research are to place VSIP in context relative to involuntary separation, determine the effectiveness of alternative levels of VSIP, consider the effects of a change in the formula used to compute VSIP, and quantify the cost of VSIP relative to the cost of involuntary separation.

This research was conducted within the Forces and Resources Policy Center of the RAND National Defense Research Institute, a federally funded research and development center sponsored by the Office of the Secretary of Defense, the Joint Staff, the Unified Combatant Commands, the Navy, the Marine Corps, the defense agencies, and the defense Intelligence Community.

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Summary

The U.S. Department of Defense (DoD) has been downsizing and restructuring its civil service workforce since 2011, and plans to continue this drawdown through 2021. An important tool for mitigating the adverse effects of force restructuring is the Voluntary Separation Incentive Payment (VSIP), which is paid to civil service personnel who accept a buyout offer and voluntarily leave federal service. However, VSIP is capped at $25,000, the level authorized by Congress in 1993 when the VSIP authority was enacted, and individuals can receive this cap or the amount of benefits provided by a severance pay formula, whichever is smaller. Given changes in the consumer price index, the VSIP cap would need to be $41,000 in 2015 to maintain the same real value as 1993. The decline in the real value of VSIP has led to questions about whether VSIP should be increased to enable DoD to support current and planned force reductions. Moreover, it has led to questions about whether VSIP is effective in inducing adequate voluntary separations and whether it is as cost-effective or more cost-effective relative to other downsizing strategies, especially involuntary separation.

The purpose of the research summarized in this report is to provide analysis to address these questions. We rely on RAND's dynamic retention model (DRM) for DoD civilians to assess how increasing the VSIP cap affects voluntary separations and to compute the impact of varying the VSIP cap on the DoD budget and on government outlays. This provides a schedule of response to different amounts of VSIP. In practice, VSIP is typically accompanied by Voluntary Early Retirement Authority (VERA), which allows employees to retire as early as age 50 with 20 years of service, compared with optional retirement at age 60 with 20 years of service under the Federal Employees Retirement System (FERS), and our analysis includes VERA along with VSIP. We compare the budget and outlay impacts of varying VSIP with the impacts under involuntary separation for the reductions in force (RIFs) of similar sizes. Finally, we estimate the cost-effectiveness of varying the VSIP at the margin relative to involuntary separation. Our estimates of the change in costs and outlays assume that positions vacated as a result of downsizing are eliminated, though we also discuss the implications of the estimates for restructuring when vacated positions may be filled by potentially lower-cost personnel. We also describe the VSIP, VERA, and severance pay programs; present relevant tabulations of these programs using DoD civilian personnel and pay data; and provide an overview of our DRM capability, describe important extensions we made to implement downsizing and restructuring policy analysis with the DRM, and how we estimate cost and budget effects. The costing is done in the context of the DRM, and workload data or comparisons were not part of the calculations in determining costs associated with any of the tools. A related technical report (Knapp, Asch, Mattock, Hosek, forthcoming) provides details on the DRM capability we use.

Key Findings

The analysis assumes a one-year window for downsizing. Table S.1 summarizes the key findings on the effects on separations during the first year of increasing VSIP and expanding involuntary separations, average experience of the force retained, and the change in cumulative net DoD costs and government outlays over a five-year period. Table S.2 summarizes the key estimates of marginal costs and savings to DoD and to government outlays.[1]

We find that increasing the VSIP cap is effective in achieving a larger drawdown of 5.7 percent and avoiding involuntary separations, when combined with VERA. VSIP, when offered, is available to employees with at least one year of continuous employment and in practice is virtually always accompanied by VERA. VERA expands the age and years-of-service range for retirement eligibility and does so without imposing a decrement on an employee's retirement benefit for those covered by FERS. The real value of the VSIP cap of $25,000 has declined as a result of inflation since VSIP was created in 1993. Had the real value been maintained, VSIP in 2015 would be $41,000. At this higher level, we find that separations would be 12,842, rather than 8,899 under the lower cap of $25,000, or about 45 percent higher. Increasing the cap to, say, $55,000, would induce even more separations, to 17,075. The average expe-

Table S.1
Summary of Estimates of the Responsiveness of Separations, Costs, and Outlays to Increases in VSIP and Involuntary Separation (costs and outlays in billions of 2015 dollars)

	% Change in Force Size Relative to Baseline of No VSIP+VERA	Reduction in Force Size Relative to Baseline Force of 225,888	Average Years of Service (Baseline: 12.87)	Change in Outlays (5-Year Net Cumulative)	Change in DoD Costs (5-Year Net Cumulative)	Cost to Employees Subject to Involuntary Separation	Change in Outlays + Cost to Employees	Change in DoD Costs + Cost to Employees
VSIP + VERA: No Threat of Involuntary Separation								
$25K VSIP cap	−3.9%	8,899	12.48	$(2.09)	$(3.38)	$0	$(2.09)	$(3.38)
$41K VSIP cap	−5.7%	12,842	12.31	$(2.80)	$(4.54)	$0	$(2.80)	$(4.54)
$55K VSIP cap	−7.6%	17,075	12.12	$(3.53)	$(5.75)	$0	$(3.53)	$(5.75)
Involuntary separation with bumping and retreating (3–24 years of service)								
Smaller downsizing*	−4.0%	8,956	12.92	$(2.91)	$(3.42)	$1.45	$(1.45)	$(1.97)
Larger downsizing*	−5.7%	12,835	12.93	$(4.18)	$(4.93)	$2.07	$(2.11)	$(2.86)

NOTE: Figures are rounded.

*SMALLER downsizing is 4.0 percent, larger downsizing is 5.7 percent.

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[1] Savings to DoD include the savings from salary and retirement costs avoided for employees who are separated, while costs include downsizing-related costs, e.g., VSIP in the case of the use of voluntary incentives and the costs of severance pay and transitional assistance in the case of involuntary separation. Retirement costs include agency contributions to the FERS Thrift Savings Plan and the defined benefit accrual charge paid by DoD. The change in Treasury outlays includes all of the elements of savings and costs that are included in the computation of savings and costs to DoD with the exception of the defined benefit accrual charge, which is an intergovernmental transfer and not an outlay. Instead, the change in Treasury outlays includes changes in retirement payments made to DoD civilian retirees that occur as a result of VSIP with VERA or as a result of involuntary separation. The elements of costs and savings to DoD and the Treasury included and excluded from the analysis are discussed in detail in Chapter Three.

Table S.2
Summary of Marginal or Incremental Cost (Savings) and Outlays per Additional Separation of VSIP with VERA and of Involuntary Separation, in Thousands of 2015 Dollars

	VSIP Cap of $41,000 Versus $25,000 (No Threat of Involuntary Separation)		Involuntary Separation with Bumping and Retreating (3–24 years of service)	
	1st Year	**5-Year Cumulative**	**1st Year**	**5-Year Cumulative**
Separations	12,842 vs. 8,899		12,835 vs. 8,956	
Change in outlays	$38.73	$(180.74)	$(7.44)	$(328.19)
Change in DoD costs	$9.39	$(294.52)	$(20.09)	$(386.73)
Cost to employees subject to involuntary separation	$0.0	$0.0	$158.56	$158.56
Change in outlays + cost to employees	$38.73	$(180.74)	$151.12	$(169.63)
Change in DoD costs + cost to employees	$9.39	$(294.52)	$138.47	$(228.17)

rience of the workforce that is retained would fall when VSIP with VERA is offered and falls by more at higher VSIP levels. The drop in experience means that personnel with more years of experience are more likely to take the VSIP with VERA offer. While our analysis does not incorporate how productivity changes after VSIP is offered, the concentration of separations among more-senior personnel could reduce workforce capability to the extent that more-experienced personnel are more capable. But, it could open up promotion opportunities for junior personnel (and increase their retention) if those senior personnel are in leadership positions. A policy based on voluntary separation also avoids workplace turmoil that occurs under a policy of involuntary separation.

VSIP, accompanied by VERA, generates net savings to DoD both after the first year (not shown in Table S.1) and cumulatively over a five-year horizon. The savings are in 2015 dollars and are not discounted over the five-year horizon. The savings take the form of costs avoided as a result of eliminating positions including avoided salary costs, Thrift Savings Plan contributions on behalf of employees, and defined benefit accrual costs that represent DoD contributions to the Civil Service Retirement and Disability Fund on behalf of employees. VSIP with VERA also generates a net savings to the Treasury cumulatively (undiscounted) over a five-year horizon, though it comes with an increase in outlays in the first year from VSIP and after the first year because of the increase in retirees induced by VSIP and VERA. After the first year, the savings in cost-avoidance is not quite great enough to overtake the increase in outlays due to VSIP and VERA or normal retirement payments, but over a longer time horizon, the savings overtake the increase in outlays. In fact, the net cumulative savings over five years are greater at higher VSIP levels.

We also considered the retention and cost effects of changing the VSIP formula by allowing VSIP to be the maximum, rather than the minimum, of the cap and severance pay. We find that this alternative formula would generate a large number of VSIP takers at significant net savings to DoD and to the Treasury. While the focus of our analysis is on downsizing and the effects on costs of the elimination of positions, it also provides information on the net savings under restructuring, when vacated positions are not eliminated but filled by other employees. We find that the cost of replacements must be at most between 73 and 88 percent

of the savings generated by vacating the positions for restructuring to produce a net cumulative savings over five years to DoD.

In addition, we find that involuntary separations of about the same number as produced by VSIP at a cap of $25,000, about 8,900 separations, also creates net savings over five years to DoD and the Treasury, and the savings are larger when involuntary separations equal about the number of separations produced by a higher cap of $41,000, about 12,800 separations. As we discuss in the main text of the report, our analysis approximates the effects of "bumping and retreating" rules that determine which employees actually separate. As a result of these rules, an employee who would otherwise be involuntarily separated can remain in service but displace a lower-graded employee with less retention rights who is then separated. In consequence, the employees who actually separate tend to be in lower grades with fewer years of service than those who take VSIP.[2] These differing effects of VSIP versus involuntary separation on the experience mix of the workforce that is retained suggest that these alternative approaches could have different productivity effects as a result of the change in experience mix, though the direction and magnitude of these effects is an open question. We also find that, relative to VSIP, involuntary separations generate more net cumulative savings to the Treasury over a five-year horizon and roughly about the same net cumulative savings to DoD for a smaller drawdown and more savings to DoD for a larger one.

However, the estimates of net DoD cost savings and outlay savings in Table S.1 do not incorporate the cost borne by employees who are involuntarily separated under a RIF, net of the severance pay they receive. This cost takes the form of the value of the civil service career they lost and is measured as the expected value of staying in the civil service net of the expected value of leaving and net of severance pay received. The table shows that involuntary separations equivalent in number to separations from a VSIP of $25,000 (about 8,900 separations) would cost employees $1.45 billion, while involuntary separations equivalent in number to separations from a VSIP of $41,000 would cost over $2.0 billion to employees. These figures are not included in government outlay or DoD budget figures—if they were, the final two columns in Table S.1 show the impact. We find that net cumulative savings to DoD and to outlays over five years would be considerably less under involuntary separations and, importantly, would be less than the savings under VSIP. That is, under this broader concept of cost, involuntary separations would generate fewer savings.

The changes in outlays and costs in Table S.1 show the budgetary and Treasury impacts of VSIP with VERA, but, for information on the relative cost-effectiveness of VSIP at the margin, we need information on the incremental costs and savings due to an additional separation generated by increasing VSIP compared with an alternative. The alternative we consider is an expanded RIF. Table S.2 summarizes our estimates of marginal DoD and outlay cost and savings. (Note that the figures are in thousands of dollars). The marginal cost is defined as the change in net cumulative costs or savings associated with achieving additional reductions with either a larger VSIP (with VERA) cap or with additional involuntary separations divided by the change in separations. The tabulations in Table S.2 indicate that involuntary separations are more cost-effective to DoD and the Treasury than increasing VSIP, both considering net DoD costs and outlays after the first year and net cumulative costs and outlays over a five-year horizon. After the first year, an additional separation generates a net savings to DoD and the

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[2] Because we are approximating these rules, the number of personnel involuntarily separated is approximately but not exactly equal to the number of personnel separated under VSIP with VERA.

Treasury when that separation is involuntary with severance pay but a net cost when it is voluntary with VSIP. Over a five-year horizon, both types of separation generate a net cumulative savings to DoD and the Treasury, but the savings are larger at the margin under involuntary separation.

The results with regard to the relative cost-effectiveness of VSIP versus involuntary separation are quite different when we incorporate the incremental cost to employees subject to involuntary separation, a cost not borne by DoD or the Treasury. Specifically, incorporating the employee costs results in VSIP being more cost-effective at the margin. As shown in Table S.2, the incremental cost to employees of VSIP is zero because separations are voluntary, so, for these employees, the value of leaving exceeds the value of staying in the civil service. But, under involuntary separation, the incremental cost to employees is $158,560. When we include this cost to create a broader metric of marginal cost, we find in the final two rows that cumulative savings to the Treasury at the margin are greater under VSIP ($180,740 versus $169,630) than under involuntary separation, and cumulative net savings to DoD are also greater ($294,520 versus $228,170).

While our estimates of the cost of involuntary separation include transition costs, such as relocation and retraining costs, as well the costs of retained pay, and we created a broader measure of cost that includes the impact on those who are separated, there are still some elements of the costs of a RIF that are not easily incorporated into the cost figures in Table S.2. Compared to voluntary separation, a RIF via involuntary separation can create more disruption and turbulence because the bumping and retreating rules result in multiple employees changing positions to generate a single separation. Employees must adapt to new positions and new co-workers and supervisors, and moving employees around in this way can generate uncertainty, delays in workflow, and skills/competency gaps for organizations. Evidence from past studies indicates that such downsizing can hurt morale and may create imbalances in the experience mix of the workforce if separated employees are not replaced with workers with the same experience mix—which may have prolonged effects on the capability of the workforce over time. The estimates in Tables S.1 and S.2 do not include these costs, and so we are likely to understate the costs of a RIF with involuntary separation. Other costs that were not included are the costs of equal employment opportunity (EEO) complaints, Merit Systems Protection Board (MSPB) appeals, and labor union grievances, as well as the workload costs of RIF, particularly when multiple RIFs are conducted to reach end-state reductions while maintaining mission accomplishment.

In conducting a RIF or force restructuring, policymakers and planners have tended to prefer voluntary incentives to involuntary separations, despite the smaller cost savings to the Treasury and about the same amount of savings to DoD. A Congressional Budget Office analysis in 1993 also found that outlay savings are larger under involuntary separation than under a buyout like VSIP, on net, but concluded that, despite this finding, buyouts provided a "soft landing" and helped agencies avoid the problems that are perceived to be associated with layoffs, including workplace turmoil, morale problems and associated productivity and retention losses with declining employee engagement, issues of unfairness, and the need to preserve needed skills. Our estimates of the cost of involuntary separation to employees who are actually separated provide a partial estimate of some of the costs that are not included in the budgetary estimates. The estimates are sizable. As shown above, for a larger drawdown, the costs to employees who are involuntarily separated exceed $2 billion, even after netting out the value of severance pay that is provided to these employees. The preference for voluntary incentives

suggests that planners informally incorporate these costs and their implications for workforce productivity and retention into their decisionmaking, increasing the likelihood of selecting a voluntary rather than involuntary approach to RIF or restructuring.

Given the large downsizing that is planned by DoD between 2017 and 2021, our analysis indicates that increasing the VSIP cap could be an important tool in achieving these future reductions in a cost-effective manner. With an increased cap, VSIP will provide a stronger incentive for voluntary separation and help to avoid or diminish the use of involuntary separations. Although the apparent cost savings, as reflected in the budget, are lower when VSIP and VERA are used to achieve voluntary separations, the organization benefits by avoiding off-budget costs, such as workplace turmoil deriving from bumping and retreating and the uncertainty associated with these processes. Also, workers benefit because those who separate have chosen to do so voluntarily and therefore do not bear the cost implicit in involuntarily losing their employment.

Acknowledgments

Introduction

The U.S. Department of Defense (DoD) has been downsizing and restructuring its civil service workforce since 2011, and plans to continue this drawdown through 2021. The downsizing comes after a substantial increase in the size of the federal workforce between 2000 and 2011, when it grew from 660,000 direct-hire employees to 767,000.[1] After reaching a peak in 2011, defense civilian employment fell by more than 40,000 employees to 725,000 in 2015. But, according to DoD budget materials for fiscal year 2017, civilian employment in DoD is expected to decrease by 14.2 percent during the five-year planning period between 2017 and 2021, outpacing the planned 8.1 percent reduction in average strength of military personnel. So far, downsizing has been accomplished through attrition, in part a result of the federal pay freezes between 2011 and 2013,[2] reductions in force (RIFs) together with the use of severance pay and incentives to induce voluntary separations through the Voluntary Early Retirement Authority (VERA) and Voluntary Separation Incentive Payment (VSIP). VSIP is the lesser of severance pay, which is based on a formula that depends on years of service and basic pay, and a cap. VSIP is currently capped at $25,000, the level authorized by Congress in 1993 when VSIP was enacted. Given changes in the consumer price index, VSIP would need to be $41,000 in 2015 to maintain the same real value as in 1993.

Different downsizing approaches have different advantages and disadvantages, including different implications for costs to DoD and changes in government outlays. As we discuss in greater depth in this report, incentives for voluntary separation can help avoid negative morale effects and turbulence associated with RIFs and involuntary separations.

The decline in the real value of VSIP makes it a less potent tool for generating voluntary separations and leads to the question of whether the VSIP cap should be increased and, if so, by how much. More broadly, the amount of the VSIP cap, and the structure of VSIP more generally, should be chosen such that they are effective in inducing adequate voluntary separations and are cost-effective relative to other downsizing strategies. That is, VSIP should be no more costly at the margin than other instruments for downsizing.

The questions addressed by the research summarized in this report are whether the current level and structure of VSIP meet these criteria and whether and how VSIP could be improved. To address these questions, we make use of RAND's dynamic retention model

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[1] Direct hires include both U.S. and foreign national civilian direct hires, but not foreign national indirect civilian employees that support DoD forces overseas. Figures cited in this paragraph come from DoD budget materials (U.S. Department of Defense, Office of the Under Secretary of Defense [Comptroller], 2015; U.S. Department of Defense, Office of the Under Secretary of Defense [Comptroller]/Chief Financial Officer, 2016).

[2] Asch, Mattock, and Hosek (2014) use the DRM to show the negative effect of pay freezes on DoD civil service retention.

(DRM) for DoD civilians to assess the effects of increasing the VSIP cap on civil service retention, DoD costs, and government outlays. We also estimate the cost-effectiveness of achieving downsizing and restructuring goals with VSIP rather than with involuntary separations.[3] The DRM is a model that provides a quantitative assessment of the retention effects and cost implications of changing the level and structure of compensation. The capability has a solid foundation in the literature and theories of how personnel make retention decisions over their career, is firmly grounded empirically with data on retention decisions at the individual level of personnel careers, and includes a capacity to perform simulations of the retention and cost effects of relevant policy changes.

More specifically, the DRM is a structural, stochastic, dynamic discrete-choice model of individual behavior in which individuals make retention decisions under uncertainty over their careers and have unique (or heterogeneous) tastes. In the model, employees make retention decisions throughout their careers about whether to remain in or leave an organization. The DRM incorporates a taste factor that captures an individual's preference for working at his or her employer relative to the external market and includes persistent nonmonetary and monetary factors not otherwise included in the model. Individuals are forward-looking. They have expectations about the likelihood of future events and know their eligibility for future benefits, such as retirement benefits, conditional on the outcomes of these events. These expectations are incorporated into their current decisions, and their current decisions are also affected by their past employment history.

We first developed the DRM for civil service personnel in Asch, Mattock, and Hosek (2014) and further enhanced it in Knapp, Asch, Mattock, and Hosek (forthcoming). The model used for our analysis of VSIP is developed in the latter report. The model covers defense civilian employees in the Federal Employees Retirement System (FERS) who are under the general schedule (GS) pay plan and have at least a bachelor's degree. Development of DRM capabilities requires substantial investment, and those investments for the DoD civilian workforce have only begun in recent years. The Office of the Secretary of Defense requested that our initial efforts to develop a DRM capability focus on the GS workforce with at least a bachelor's degree covered by FERS. Ideally, we would have models and results for other segments of the DoD workforce, including blue-collar employees and those covered by other retirement systems, but DRM capabilities for those segments of the workforce must still be developed. Consequently, the DRM results presented in this report are for a subset of the DoD civilian workforce. While we do not know how the results would differ for the remainder of the workforce, results from past research suggest that the direction of the results, if not the magnitudes of the results, are likely to be similar, as we discuss in the concluding chapter of this report.

We supplement the DRM analysis with a discussion of VSIP, VERA, and severance pay, which is paid to eligible workers when an involuntary separation occurs. We also present information about the recipient populations based on data from Defense Manpower Data Center (DMDC) personnel files. Further, we discuss elements of downsizing and reorganization that are less amenable to measurement. For example, when downsizing or reorganization occurs, employees displaced from their positions may be placed in another DoD civilian position through the RIF process of "bumping and retreating," but the extent of this process is hard to measure. Bumping and retreating occurs when downsizing is accomplished with

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[3] Yet another approach to achieving downsizing is through pay freezes. We do not consider that approach in this report.

involuntary separation and refers to the situation in which an employee who would otherwise be involuntarily separated can remain in service but displaces a lower-graded employee with less retention rights who is then separated. The prospect of involuntary separation, along with possible bumping and retreating, creates turbulence that past research suggests can hurt job satisfaction, employee engagement, morale, and productivity. We review this literature in the appendix, as well as the available literature on downsizing practices in the private sector. Our analysis provides a quantitative and qualitative assessment of the cost-effectiveness of voluntary incentives versus involuntary separations and an analysis of how varying the level and structure of VSIP affects retention.

Relevant Past Studies

Four previous studies are particularly relevant to our analysis. The first three studies were done in the 1990s or use data from the 1990s, while the third was done more recently but focuses on the downsizing of military forces rather than the civil service workforce.

A 1993 Congressional Budget Office (CBO) study examined different methods of reducing federal employment and provided estimates of the cost to the government (e.g., federal outlays) of each method and the effects on the workforce. The study considered the near- and longer-term costs and savings of eliminating federal positions with layoffs (e.g., involuntary separations), hiring freezes, early retirement, and voluntary separation incentives (e.g., VSIP). The study found that both VSIPs and involuntary separations yield net savings over a five-year period, with the net savings being larger under involuntary separations. In fact, the study found that involuntary separations yielded more net savings over a five-year period than early retirement (with or without buyouts) or hiring freezes. Buyouts were estimated to be more costly than layoffs because organizations end up paying many more employees to leave than they have layoffs to avoid, and some employees who would have left anyway are paid an incentive. That said, over the long term—a 30-year period in the CBO analysis—the decrease in costs ("savings") from eliminating positions is considerable, regardless of method used. CBO concludes that, in the long term, the different cost savings of alternative approaches may not be the most important consideration. The main consideration is the savings from having eliminated the position.

A 1996 U.S. General Accounting Office (GAO) study compared the cost and savings of buyouts, for example, VSIP, and involuntary separations.[4] Unlike CBO, GAO focused on agency costs and savings rather than savings or outlay costs to the government. GAO found that both buyouts and involuntary separations generate net savings over a five-year period but that the savings from buyouts generally exceed the savings from involuntary separations because buyout recipients are typically paid more than those who separate involuntarily. The bumping and retreating that occurs under involuntary separation ultimately tends to eject workers with lower seniority and lower pay than those separated under a buyout, so the departure of employees under a buyout scenario produces a greater decrease in cost.

In some respects, both the GAO and CBO studies are dated. For example, they focus on employees who are typically covered by the Civil Service Retirement System (CSRS), and the rules for early retirement under CSRS are different than for early retirement under FERS.

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[4] The U.S. General Accounting Office was renamed the U.S. Government Accountability Office in 2004.

Today, the majority of employees are covered by FERS. Furthermore, since these studies were published, DoD was given new authority for using VSIP for downsizing and workforce shaping, called VSIP II, allowing VSIP to be used with RIF authority (Department of Defense Instruction [DoDI] 1400.25, 2009). This new authority reduces the relevance of these earlier studies. Finally, these studies do not incorporate the incentive effects of voluntary separation incentives on separations.

Asch, Haider, and Zissimopoulos (2003) conducted the only past study that provides estimates of how the retirement behavior of civil service personnel in DoD respond to VSIP and early retirement incentives. The study finds that VSIP has a sizable effect on retirement rates among those covered by CSRS. However, the study did not provide cost estimates, nor compare the cost-effectiveness of VSIP and other downsizing and workforce shaping policies, such as involuntary separation. Furthermore, most civilians are now covered by FERS, not CSRS; the study considered only the responsiveness of retirement-eligible personnel and not the effect on the retention of the rest of the workforce, including mid-career and more-junior personnel; and the study did not consider the responsiveness of civilians to changes in the VSIP cap. Consequently, civil service personnel managers have no analytic basis or empirical evidence on the relative cost-effectiveness of VSIP or on the responsiveness of civilians to changes in the VSIP cap to guide policy decisions regarding the use of VSIP as a workforce-shaping tool.

Mattock, Hosek, and Asch (forthcoming) use a dynamic retention model of Army active duty retention and Reserve participation to assess quantitatively how voluntary separation pay can be designed to meet Army drawdown goals within a certain time frame. The DRM capability for Army enlisted and officer personnel was used to provide quantitative estimates of how varying the level of voluntary separation pay, the targeting of the pay, and the window of availability affected the ability of the Army to reach specific drawdown targets, the cost of the policy, and the net savings over a five-year period. The study found that voluntary separation pay can be designed to draw down Army forces rapidly and without creating a hollow force-effect, whereby gaps were created in the experience mix of the Army. The authors found that outlays initially increase but that net savings are achieved over several years as result of costs avoided from basic pay and retirement accrual costs. Net savings are less when the window of availability is increased or if members anticipated receiving the incentive. In the latter case, member retention increases as individuals who would usually leave are induced to stay to be sure to qualify for the incentive.

In addition to these three studies, a number of studies have considered downsizing practices in the private sector. Our review uncovered no past study that provided an estimate of the retention and cost effects of voluntary separation incentives compared with involuntary separation. Instead, these studies focus on the effect of downsizing on profitability and return on assets as well as the effects of job insecurity on the attitudes, well-being, and performance of the employees who remain. The literature finds mixed evidence on the effect of downsizing on firm performance. Some studies find that downsizing does indeed reduce costs and improve profitability, while others suggest that downsizing can lead to a loss of valuable institutional knowledge or simply an increase in workload for remaining employees. Regarding the effects of downsizing and job insecurity, the available evidence from the literature indicates that downsizing hurts the morale of the surviving employees. Past studies find that job insecurity is negatively associated with job satisfaction and employee engagement with the organization as measured by amount of trust and commitment expressed by remaining employees. The literature also provides evidence to indicate that work effort is lower at higher levels of down-

sizing and perceived organizational performance is lower. Our summary of the review of these studies is provided in the appendix.

The analysis presented in this report is most closely related to the Mattock, Hosek, and Asch (forthcoming) study of the use of voluntary incentives in the armed services. Like that study, this analysis relies on a DRM capability. That said, aside from the obvious fact that this analysis is applied to the defense civilian workforce rather than the armed services, it compares the use of voluntary incentives with other drawdown strategies.

Overview of Tasks and Organization of This Report

As mentioned, our analysis seeks to assess the effects of increasing the VSIP cap and restructuring VSIP on civil service retention, DoD costs, and government outlays and provides estimates of the cost-effectiveness of achieving downsizing and restructuring goals with VSIP and VERA versus other approaches, particularly involuntary separations along with the payment of severance pay. Our analysis has three broad tasks:

1. Understand policies for drawing down and/or restructuring the defense civilian workforce, focusing specifically on policies related to buyouts and reductions in force. This task involves describing the relevant policies, incentives, and pays available for workforce downsizing and restructuring; using administrative data on defense civilians, including pay data, to describe the extent to which DoD has used these incentives and pays and the characteristics of the employees who have received them; and discussing the advantages and disadvantages of different policy approaches.
2. Provide a schedule of retention responsiveness and associated cost changes in VSIP. For this task, we use the DRM to simulate the change in retention, cost, and outlays of varying the cap on VSIP. As part of this analysis, we consider to what extent the separation effects of VSIP are lower because the real value of VSIP has declined over time.
3. Compare the cost-effectiveness of achieving a given drawdown with voluntary incentives versus other approaches, including involuntary separation and a combination of involuntary separation with VSIP. This task involves using the DRM to compute the marginal or incremental cost or savings of achieving an additional separation using voluntary incentives versus other approaches. We put the DRM cost estimates in context by also discussing costs that may be relevant but are more difficult to measure, as revealed in the framework from task 1.

The focus of the analysis is on the costs and savings of eliminating positions using voluntary incentives versus other strategies that rely on involuntary separations. However, DoD also uses VSIP to restructure the defense workforce, so that, rather than eliminating positions, vacated positions are filled by other employees. In this case, cost savings are realized only if the positions are restructured to lower grades.

In considering alternative approaches to VSIP to eliminating positions, we focus on involuntary separation. Yet another approach to downsizing is a hiring freeze. The 1993 CBO study discussed above considered hiring freezes as an alternative and found that it takes longer to achieve a downsizing through a hiring freeze, imposing a higher cost of this approach. We do

not consider a hiring freeze as an alternative in this study, given the sponsor's interest in an analysis relevant to achieving downsizing in the near term.

The report is organized as follows. Chapter Two summarizes the results of task 1. It describes policies, incentives, and pay for downsizing; presents tabulations of the use of these incentives and pays by DoD and the characteristics of those receiving these incentives and pays; and discusses the considerations involved in choosing different drawdown strategies. Chapter Three provides an overview of the DRM capability and extensions we made to implement an analysis of VSIP, VERA, and involuntary separations. The results of task 2 are presented in Chapter Four, where we show the schedule of retention and cost responsiveness to changes to VSIP. Chapter Five presents the results of task 3; we present marginal cost and savings estimates and discuss the relative costs of the use of voluntary incentives versus involuntary separations. We present conclusions in Chapter Six. The appendix provides a summary of the literature on private-sector downsizing practices.

Review of Severance Pay, Voluntary Separation Incentive Pay, and Voluntary Early Retirement Authority

When faced with the need to downsize or reshape its workforce, a DoD agency or organization has several tools at its disposal: severance pay, which is paid to eligible involuntarily separated employees; VSIP, in which eligible employees first indicate their willingness to separate voluntarily, then the organization selects the employees to be separated from this group and pays them a VSIP amount upon separation; and VERA, in which employees nearing retirement are offered the opportunity to retire early without any penalty to the amount of their retirement annuity. Typically, all three programs are used simultaneously to accomplish the workforce reshaping or reduction. While many agencies must seek Office of Personnel Management (OPM) approval to offer VSIP or VERA, DoD has statutory authority to offer these programs without OPM approval.

In this chapter, we review the main features of the severance pay, VSIP, and VERA programs, including eligibility for the programs, amounts of payments, and eligibility for health insurance, life insurance, unemployment benefits, and transition assistance under the programs. Our discussion of VERA is preceded by a short discussion of retirement benefits under FERS, in which VERA is nested. We provide example calculations of severance pay and VSIP amounts. In addition, we present tabulations based on administrative data related to severance pay, VSIP, separations (other than those with severance pay or VSIP), and retained-grade employees.

Reduction in Force

The overall context in which we discuss severance pay, VSIP, and VERA is a reduction in force. A reduction in force occurs when DoD determines that a certain number of positions must be abolished to reduce costs, or eliminate work or shift positions from one job series or occupation to another to meet mission requirements. Virtually all RIF actions are the result of a reorganization of some type (e.g., the agency reorganizes as the result of a shortage of funds, lack of work, restructuring, etc.) (OPM, 2009).

In this chapter, we use the term *RIF* to mean a reduction in the workforce resulting from downsizing or reshaping. The downsizing or reshaping can be achieved by some combination of voluntary and involuntary separations and moving retained employees to different positions outside the realm of the downsizing or reshaping. Depending on context, "RIFed" can mean being displaced from one's current position but not necessarily separated, being separated voluntarily or involuntarily as a consequence of a RIF, or strictly being *involuntarily* separated as

a consequence of the RIF. We use the term *RIF* to refer to the overall context of downsizing or reshaping and the terms *voluntary separation* and *involuntary separation* to describe those specific types of separation. Also, *involuntary separation* here refers only to separations under a RIF and does not include separations for cause.

An agency can avoid involuntary separations under a RIF if it is able to reassign or retrain affected employees to vacant positions in the same grade or pay in another job series, organization, or geographic area, or can separate them voluntarily. This is done through the Priority Placement Program (PPP),

> an automated mandatory placement program used to match eligible well-qualified employees, most of whom are subject to displacement, with vacant positions throughout DoD. It enables DoD to maintain a relatively stable work force during base realignment and closure, reduction-in-force, contracting out, etc., and minimizes the adverse effect of these actions on employees. (American Federation of Government Employees, no date)[1]

As mentioned, severance pay is paid to employees who are involuntarily separated. In comparison, VSIP and VERA are tools to induce voluntary separations. VERA expands the eligibility conditions for early retirement. VSIP is a financial incentive available across a wide range of employee years of experience. Thus, VSIP can be offered along with VERA and to employees with less experience than would qualify them for VERA. Employees not eligible for VERA; not willing to accept VSIP or, although willing, not offered VSIP; and not successful in locating another position in the DoD civilian workforce are involuntarily separated and paid severance pay.

The process and requirements for using voluntary separation programs are outlined in DoDI 1400.25, Vol. 1702, *DoD Civilian Personnel Management System: Voluntary Separation Programs.* The process works as follows: When downsizing or restructuring, an agency decides which positions to eliminate or restructure and when these actions will take place. The agency then defines a "competitive area" that establishes the geographical and organizational boundaries for reduction or reorganization. Employees compete with other employees in the same competitive area for retention, but do not compete with employees outside the competitive area (even if within the same geographic area or organization) (OPM, 2009). Thus, a RIF cannot be targeted at specific individuals but rather is targeted at certain types of jobs, organizations, and geographic regions. Given the competitive area, the agency defines "competitive levels." According to OPM,

> Each competitive level includes positions with the same grade, classification series, and official tour of duty (e.g., full-time, part-time, seasonal, or intermittent). . . . The agency places two similar positions (e.g., same grade, classification series, work schedule, etc.), in the same competitive level when the position descriptions for the two positions show that an employee in either one of the positions needs no more than 90 days to be able to perform the key tasks of the other position. (OPM, no date-c)

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[1] A full description of PPP may be found in the *Priority Placement Program (PPP) Handbook* (U.S. Department of Defemse 2011).

Agencies must follow retention regulations when deciding who will be released by considering tenure of employment, type of appointment, veterans' preference, length of service, and performance ratings (OPM, 2009; DoDI 1400.25, 2009).

Under the rules and regulations governing a RIF, an individual in a targeted position may not be the individual who is ultimately separated. According to OPM's *Workforce Reshaping Operations Handbook* (2009), "The RIF regulations provide released employees with three types of potential assignment rights to positions in different competitive levels through assignment by [emphasis added]:

- 'Bumping,' which is the assignment of an employee to a position in a different competitive level that is held by another employee in a *lower retention tenure group*, or in a lower subgroup within the same tenure group;
- 'Retreating,' which is the assignment of an employee to a position in a different competitive level that is held by another employee with *less service in the same retention subgroup*; and
- Offers of vacant positions, which are based on the same retention standing procedures that apply to an employee's bump and retreat rights."

Under these provisions, the person holding the position that is eliminated in the RIF may, for example, be offered placement in the position of another employee in a lower-graded position in the same competitive area but at a different competitive level.[2] The displaced employee may similarly be offered placement in the position of another employee or a vacancy at a lower grade. In these situations, employees placed in lower-graded positions may retain their grade and the pay of their former position for up to two years if otherwise eligible. Employees who are not eligible for grade retention are eligible for pay retention, which may or may not result in a reduction in pay (5 CFR 536).

Once the competitive area and the target size of the reduction are established but before implementing the RIF, the agency surveys employees in the affected area and other areas to identify those who would accept VSIP and voluntarily leave their position. But employees willing to take VSIP are not guaranteed to receive it. The agency must decide whether or not to offer VSIP, and it considers a number of factors and uses its judgment in making this decision. If an employee is "surplus" (the employee is not needed to accomplish the work requirement that will exist after the downsizing or restructuring), would paying VSIP and abolishing the resulting vacancy save the employee or a lower-standing employee from RIF separation? If the employee is not surplus, would a vacancy in this position provide an opening for an employee in a position currently designated for elimination? Does the individual have irreplaceable skills? Employees not offered VSIP and separated involuntarily may be eligible to receive severance pay.

VERA, if offered, is available to all employees meeting the eligibility criteria. For employees eligible for VERA, VSIP is often added as an incentive to separate voluntarily. However, at

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[2] The position must be "Held by an employee in a lower tenure group, or in a lower tenure subgroup within the same tenure group; and at the same grade, or down to three grades or grade intervals (or equivalent) below the position of the released employee" (OPM, 2009).

the current VSIP cap of $25,000, rarely do VSIP and VERA fully eliminate the need to separate some employees involuntarily.[3]

While severance pay, VERA, and VSIP are used to achieve workforce reduction or reshaping goals, they differ in a number of respects summarized in the following sections.

Severance Pay

Eligibility and Amount

Employees separated by a RIF are authorized to receive severance pay if they meet the following eligibility requirements (OPM, no date-c).

- Be serving under a qualifying appointment.[4]
- Have a regularly scheduled tour of duty.
- Have completed at least 12 months of continuous service. This continuous service may consist of one or more civilian federal positions held over a period of 12 months without a single break in service of more than three calendar days.[5]
- Be removed from federal service by involuntary separation for reasons other than inefficiency (e.g., poor performance).
- Employees who resign voluntarily after learning that their position will be RIFed or after receiving notice that all positions in a given job series or functional area will be transferred to another geographic or commuting area are considered to have involuntarily separated for the purpose of severance pay.

Employees are not eligible for severance pay if they

- are serving in a nonqualifying appointment or a qualifying appointment that is set to be terminated within one year of appointment[6]

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[3] Conversation with Office of the Secretary of Defense officials.

[4] Qualifying appointments include a career or career-conditional appointment in the competitive service or the equivalent in the excepted service; a career appointment in the Senior Executive Service; an excepted appointment without time limitation, except under Schedule C or an equivalent appointment made for similar purposes; an overseas limited appointment without time limitation; a status quo appointment, including one that becomes indefinite when the employee is promoted, demoted, or reassigned; a time-limited appointment in the Foreign Service, when the employee was assigned under a statutory authority that carried entitlement to reemployment in the same agency, but this right of reemployment has expired; and a time-limited appointment (or series of time-limited appointments by the same agency without any breaks in service) for full-time employment that takes effect within three calendar days after the end of a qualifying appointment.

[5] 5 CFR 550.705 states:

> The positions must have been under one or more qualifying appointments; one or more temporary nonqualifying appointments followed by a current qualifying appointment, or an appointment to a position in a nonappropriated fund instrumentality of the Department of Defense or the Coast Guard that precedes the current qualifying appointment in the Department of Defense or the Coast Guard, respectively.

[6] Nonqualifying appointments include an appointment at a noncovered agency (see the definition of *agency* in 5 CFR 550.703); an appointment in which the employee has an intermittent work schedule; a presidential appointment; an emergency appointment; an excepted appointment under Schedule C or an equivalent appointment made for similar purposes; a noncareer appointment in the Senior Executive Service or an equivalent appointment made for similar purposes; a time-limited appointment (except for a time-limited appointment that is qualifying because it is made effective within three calendar days after separation from a qualifying appointment), including a term appointment; an overseas limited appoint-

- have declined a reasonable offer of assignment to another position
- are eligible for an immediate annuity from a Federal civilian retirement system or from the uniformed services
- are receiving injury compensation under 5 U.S.C. Chapter 81, Subchapter I.

The calculation of severance pay is based on years of service, age, and salary. The employee receives one week's pay for each year of his or her first 10 years of service and two weeks' pay for each year beyond 10. To include months in this calculation, each 3 months adds another 25 percent of one year. For example, an employee with 13 years and 7 months of service would receive 10 weeks for first 10 years, then 6 weeks for the next 3 years, and 1 week for the leftover 7 months for 17 total weeks of severance pay (OPM, no date-c). An employee with 10 years of service is entitled to 10 weeks' pay, while an employee with 15 years of service receives 20 weeks' pay. Thirty years of service brings 50 weeks' pay, and of course an employee with 31 years would have 52 weeks' pay. No more than 52 weeks' pay may be paid to an employee, so years of service beyond 31 do not add to countable weeks. Stated in a formula:

Weeks of Severance Pay = Min(years of service up to $10 + 2 \times$ *years of service above* $10, 52$).

The weekly rate of basic pay is based on the weekly average for the last position held by the employee during the 26 biweekly pay periods immediately before separation. There is also an age adjustment. For each full year past age 40, the employee receives an additional 10 percent of the basic amount. For leftover months, each 3 months qualifies for 25 percent more of the annual amount (OPM, no date-c). The appropriate formulas are:

Adjusted Weekly Basic Pay = $(1 + 0.1 \times (Max(Age - 40, 0))) \times$ *Weekly Basic Pay*

Severance Pay = Weeks of Severance Pay $\times$ *Adjusted Weekly Basic Pay.*

A 35-year old employee with 10 years of service would have severance pay equal to 10 x Weekly Basic Pay, or 10 weeks' pay. A 45-year old employee with 20 years of service would have severance pay of 30 x 1.5 x Weekly Basic Pay, or 45 weeks' pay.

Severance pay is subject to deductions for income and Social Security taxes. Severance pay may be paid as a lump sum[7] or in payments be made at the same pay period intervals that salary payments would be made if the recipient were still employed, which would be biweekly. A person with ten weeks of severance pay would receive five bi-weekly payments, for example. At the time of the RIF, the released employee may also receive lump-sum payment for accrued annual leave (OPM, no date-c).

There are three limitations on the receipt of severance pay. First, for part-time employees, the calculation uses the actual rate of pay. Second, no credit is allowed for military service, unless the employee had restoration rights. Third, severance pay has a lifetime limitation of 52 weeks. So, if an employee received 10 weeks severance pay at some point in the past, and then

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ment with a time limitation; a limited term or limited emergency appointment in the Senior Executive Service, as defined in 5 U.S.C. § 3132(a), or an equivalent appointment made for similar purposes; a Veterans Readjustment Appointment; a Presidential Management Fellows appointment.

[7] 5 CFR 550.709 allows for lump-sum payment.

returned to federal service, severance pay is limited to 42 more weeks, regardless of salary rates (OPM, no date-c).[8]

Receipt of severance pay has implications for future federal employment. If an individual entitled to severance pay later accepts a position with the federal government or the government of the District of Columbia, he or she is no longer eligible for severance pay, and severance pay is terminated. The agency paying the severance pay will record the weeks of severance pay received by the employee, and these weeks count toward the lifetime limit of 52 weeks of severance pay.

Health and Life Insurance

Employees released due to a RIF can continue health and life insurance. Health coverage continues for free to the employee for 31 days after separation. The separated employee can then elect to continue receiving benefits under the Federal Employees Health Benefit (FEHB) program. However, continued coverage is not automatic. The separated employee must request the coverage in writing within 60 days of separation (or within 60 days of receiving a notice from the agency that FEHB coverage is terminating). Coverage can continue enrollment for 18 months following separation. During this time, the agency continues to pay its share and any additional administrative costs. The individual continues to pay his or her share (OPM, no date-c).

For life insurance, Federal Employees Group Life Insurance (FEGLI) covers separated employees without cost to the separated employee for 31 days. Separated employees who are not eligible for an immediate annuity can convert all or part of the life insurance to an individual policy without taking a medical examination by purchasing the individual policy from any eligible insurance company. In this case, individuals pay the entire premium of the conversion policy, and the conversion must be made within 31 days after the effective date of the separation (OPM, no date-c).

Unemployment Insurance Benefits and Transition Assistance

Employees released due to a RIF are eligible for other types of support. First, they are eligible for unemployment insurance. These benefits are administered and paid by the state in which the employee lives (OPM, no date-c), and the agency contributes to the unemployment insurance fund. Second, employees are eligible for transition assistance, including access to information, retraining, and career planning programs. One example of such a program is the Agency Career Assistance Plan, which provides assistance to released employees to find new employment in the public or private sectors as well as selection priority for vacant positions within the agency. Employees within DoD are also eligible for the PPP and interagency transfers. If the individual is placed elsewhere in DoD, retraining and relocation costs are covered. The Inter-

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[8] The following types of service are creditable for computing an employee's severance pay: civilian service as an employee (as defined in 5 U.S.C. § 2105), excluding time during a period of nonpay status that is not creditable for annual leave accrual purposes under 5 U.S.C. § 6303(a); Service performed with the United States Postal Service or the Postal Rate Commission; military service, including active or inactive training with the National Guard, when performed by an employee who returns to civilian service through the exercise of a restoration right provided by law, executive order, or regulation; service performed by an employee of a nonappropriated fund instrumentality of DoD or the Coast Guard and who moves to a civilian position with DoD or the Coast Guard, respectively, without a break in service of more than three days; and service performed with the government of the District of Columbia by an individual first employed by that government before October 1, 1987, excluding service as a teacher or librarian of the public schools of the District of Columbia. See OPM, 2009.

agency Career Transition Assistance Plan (ICTAP) is designed to help employees affected by a RIF find jobs in other agencies (OPM, no date-c).

Voluntary Separation Incentive Payment

Eligibility and Amount

The Voluntary Separation Incentive Payment Authority, also known as buyout authority, allows agencies that are downsizing or restructuring to offer employees lump-sum payments of up to $25,000 as an incentive to voluntarily separate. By allowing employees to volunteer to leave, agencies can reduce the number of involuntary separations they must use.

VSIP programs are not targeted at individuals but rather at specific jobs or organizations. Before offering VSIP, agencies develop a VSIP plan that covers management decisions about issues such as which organizations and positions will be offered the VSIP, how the VSIP program will be used to modify the structure of its organizations (consolidating locations, merging programs, etc.), how the VSIP will save the agency money, how long the VSIP will be offered, and which positions will be excluded from the VSIP and why. VSIP can be used not only in the part of the organization that is downsizing or restructuring, but also in other parts in order to create vacancies by inducing voluntary departures.[9] DoD has its own VSIP authority outlined in DoDI 1400.25, Vol. 1702, though the provisions closely match OPM guidance.

There are limitations on the types of personnel who can receive the VSIP according to both OPM (no date-e) and DoDI 1400.25, Vol. 1702. To be eligible an employee must

- be serving in an appointment without time limit
- be currently employed by DoD for a continuous period of at least 12 months
- be serving in a position covered by an agency VSIP plan (i.e., in the specific geographic area, organization, series and grade)
- apply for and receive approval for a VSIP from the agency making the VSIP offer.

    Employees meeting any of the following conditions are not eligible:

- are reemployed annuitants
- have a disability such that the individual is or would be eligible for disability retirement
- have received a decision notice of involuntary separation for misconduct or poor performance
- previously received any VSIP from the federal government
- during the 36 month period preceding the date of separation, performed service for which a student loan repayment benefit was paid, or is to be paid
- during the 24-month period preceding the date of separation, performed service for which a recruitment or relocation incentive was paid, or is to be paid
- during the 12-month period preceding the date of separation, performed service for which a retention incentive was paid, or is to be paid.

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[9] The departures might be in a different geographic location. An employee in the part of the organization that is downsizing or restructuring might be offered a position in a different location through PPP. If the employee accepts the position and relocates, there will be relocation costs.

Compensation provided by the VSIP is the lesser of severance pay the employee would be entitled to receive without adjustment for any previous payment made, and an amount determined by the agency head, not to exceed $25,000 (OPM, no date-e). Stated in a formula:

$$VSIP = Min(Severance\ Pay,\ Cap)$$

$$Cap = Min(Amount\ Set\ by\ Agency\ Head,\ \$25,000).$$

Like severance pay, VSIP may be paid in a lump sum or in installments.[10]

When VSIP is offered with VERA, an eligible employee can retire early, receive a retirement annuity, and receive VSIP of up to $25,000. Similarly, when VSIP is offered to an employee eligible to retire without VERA, VSIP is also an inducement to retire. Thus, VSIP can advance the age at which a retirement-eligible employee retires, and the combination of VERA plus VSIP does so by simultaneously expanding the set of employees eligible to retire and providing an incentive to retire.

Employees who are not eligible for retirement may view VSIP relative to the chance of being retained, although perhaps in a different position, and the chance of being involuntarily separated and receiving severance pay. It may be difficult to assess these chances. The chance of being offered another position through RIF will depend on the employee's skills and retention standing with respect to other employees in competition, which Human Resources determines. The chance of being involuntarily separated will depend on the generosity of the VSIP: the higher the VSIP, the greater the number leaving voluntarily and the lower the chance of involuntary separation. At the same time, a higher VSIP is more attractive to the employee.

Receipt of VSIP, like severance pay, has implications for future federal employments.[11] Employees who receive VSIP and later take employment for compensation with the federal government within five years of the date of the separation, on which the VSIP is based, must repay the entire amount of the VSIP to the agency that paid it. Repayment must occur before the individual's first day of reemployment. Employees who receive VSIP may not be reemployed by DoD for a period of 12 months from the date of the buyout and may not register in the DoD PPP.

For younger employees with less service, VSIP may equal the severance payment, while for older employees with more service VSIP is likely to be less. Based on the severance and VSIP formulas, Table 2.1 shows severance and VSIP amounts for workers making $1,000 per week and $1,500 per week, or $52,000 and $78,000 annually. There are four cases for each worker: age 35 with 10 years of service, age 40 with 15 years of service, age 45 with 20 years of service, and age 50 with 20 years of service. For the younger workers with less service, severance and VSIP are the same, while for workers at age 45 with 20 years of experience, severance is much larger than VSIP. For the intermediate case, age 40 with 15 years of service, severance and VSIP are the same for the $1,000 per week employee, but severance is higher for the $1,500-per-week employee. For the final case, a worker age 50 with 20 years of service, the

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[10] This is in accordance with DoDI 1400.25, Vol. 1702. Also, there are two installment options: (1) The first installment is paid six months after separation and the second is paid 12 months after separation, or (2) VSIP is paid biweekly until exhausted.

[11] DoDI 1400.25, Vol. 1702, and 5 U.S.C. § 9902(g)(6)(B). There is a similar provision for other agencies. See OPM, no date-e.

Table 2.1
Examples of Severance Pay and VSIP Amounts

Age	Weekly Pay	Years of Service	Adjusted Weeks[a]	Severance Pay	VSIP
35	$1,000	10	10	$10,000	$10,000
40	$1,000	15	20	$20,000	$20,000
45	$1,000	20	30	$45,000	$25,000
50[b]	$1,000	20	n.a.	n.a.	$25,000
35	$1,500	10	10	$15,000	$15,000
40	$1,500	15	20	$30,000	$25,000
45	$1,500	20	30	$67,500	$25,000
50[b]	$1,500	20	n.a.	n.a.	$25,000

[a] Adjusted weeks equal one week for each full year of creditable service through 10 years and two weeks for each full year beyond 10 years (OPM, no date-a).

[b] This case assumes VERA is offered and the individual at age 50 with 20 years of service is eligible for VERA and therefore ineligible for severance pay.

table assumes that VERA is offered along with VSIP. This worker is eligible for an immediate retirement annuity and is therefore ineligible for severance pay.

Even if severance is higher than VSIP, it might not be preferred to VSIP. For instance, employees who anticipate finding a new job easily could indicate a willingness to accept VSIP and would do so if offered.

Health and Life Insurance and Unemployment Benefits

Employees accepting VSIP are eligible for health and retirement benefits. Employees retiring in conjunction with VSIP authority must have been covered under the FEHB program for the last five years of their federal civilian service in order to continue to receive such coverage in retirement. If the employee has been covered less than five years, the employee must have been covered for all service since the employee was eligible for these benefits. These requirements can be waived. DoD can grant pre-approved waivers to employees who meet three criteria:

1. are covered under the FEHB Program continuously
2. retire during the statutory VSIP or DoD-approved VSIP period
3. receive VSIP.

Coverage as an annuitant is identical to coverage as an employee, but premiums are not paid on a pre-tax basis (OPM, no date-e).

Employees who take VSIP and are not eligible for an immediate annuity can receive health coverage for a limited time. Specifically, the employee receives temporary coverage for up to 31 days after the employment and enrollment in FEHB program terminates, with conversion privileges. The individual is also eligible for temporary continuation of coverage for up to 18 months. If the benefits are extended, the employee must pay 102 percent of the premiums (the employee's share, plus the government's share, plus 2 percent of the total) (U.S. Department of Agriculture, no date).

Employees who take a VSIP are not eligible for unemployment insurance or any kind of transition assistance (OPM, no date-e). However, employees accepting a VSIP are also eligible for a retirement annuity if they meet the qualifications for retirement, according to the conditions of the VERA described above. They are not eligible for the Discontinued Service Retirement offered to employees affected by a RIF.

Retirement Benefits

Most federal civil service employees are under FERS rather than its predecessor, CSRS.[12] Since the majority of employees are now under FERS, this study does not focus on CSRS. The FERS basic annuity formula for employees who are under age 62 at separation for retirement, or age 62 or older with less than 20 years of service, is a monthly annuity equal to 1 percent of the high-three average salary for each year of service. The formula for employees of age 62 or older at separation with 20 or more years of service is an annuity equal to 1.1 percent of the high-three average salary for each year of service.

Employees who retire of their own volition have an "optional" retirement. An employee is eligible for optional retirement under several conditions (Table 2.2): age 62 and 5 years of service; age 60 and 20 years of service; or at a "minimum retirement age" (MRA). The MRA is 55 if born before 1948 and increases to 57 if born in 1970 and after. For instance, an employee born in 1960 would meet the MRA of 56 in 2016. However, employees who retire at the MRA may be subject to a reduction in their retirement benefit. Employees retiring at the MRA with at least 10 years but less than 30 years of service will have their benefit reduced by 5 percent a year for each year under age 62. For example, if the employee with MRA of 56 chose to retire at age 56 with 20 years of service, the benefit would be reduced by 30 percent. But there is an exception: If the employee is age 60 and has 20 years of service, the employee is eligible for optional retirement and therefore the annuity is not reduced.

There are provisions in place to govern retirement benefits for employees separated under a RIF. Employees may be eligible for "early retirement," sometimes called "early optional retirement." According to OPM, if an agency undergoes "a major reorganization, reduction in force, or transfer of function, and a significant percentage of the employees will be separated, or will be reduced in pay, the head of your agency can ask the OPM to permit *early optional retirement* for eligible employees."[13] This type of retirement would include VERA (next section).

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[12] According to OPM (2013), in 2013 7.45 percent of federal civilian non-postal employees were under CSRS and 88.9 percent were under FERS. Because now the vast majority of employees are under FERS, our analysis assumes the retirement system is FERS.

[13] There is also another type of retirement, a discontinued service retirement. It "provides an immediate, possibly reduced, annuity for employees who are separated against their will" (OPM, 1998, Chapter 44, p. 1). The employee must not have refused a "reasonable" job offer for an alternative position to the one being discontinued. Such an offer would have to be in the commuting area under the DoD PPP, of the same tenure and work schedule, and not more than two grades or pay levels lower than the current position. However, there is no annuity reduction in FERS for those retiring under a discontinued service retirement under age 55. Our discussion focuses on early optional retirement and in particular on VERA. The reason for this is that when an organization is downsizing or restructuring, VERA allows for early optional retirement without any penalty to retirement benefits and without any presumption that the organization try to find a reasonable position for an employee. VERA widens the retirement window and, unlike discontinued service retirement, does not deny early retirement benefits to employees who refuse a reasonable offer should one be made.

Table 2.2
Retirement Benefit Eligibility

Retirement Option	Criteria for Qualification
Optional Retirement FERS	Age 62 and 5 years of service
	Age 60 and 20 years of service
	Min age and 10 years of service (min age is 55 if born pre-1948 and 55–57 if born 1948–1970)[a]
Early optional FERS for employees affected by a RIF or reorganization	Age 50 and 20 years of service
	Any age and 25 years of service
Optional Retirement CSRS	Age 62 and 5 years of service
	Age 60 and 20 years of service
	Age 55 and 30 years of service
Early optional CSRS for employees affected by a RIF or reorganization	Age 50 and 20 years of service
	Any age and 25 years of service[b]

[a] If retirement occurs at minimum age with at least 10, but less than 30 years of service, the annuity will be reduced by 5 percent for each year under 62. The reduction can be avoided by deferring to age 60 with at least 20 years of service, or age 62 with fewer than 20 years of service.

[b] Annuity reduced 2 percent for each year under 55.

For RIFed employees who fall under CSRS, who are now relatively few in number, there is similarly an option and a discontinued service plan. These too are summarized in Table 2.2. There is an annuity reduction of 2 percent per year for each year under age 55 for employees enrolled in CSRS.

The FERS annuity for workers under age 62 at separation for retirement, or age 62 or older with less than 20 years of service, is 1 percent of the high-three average salary for each year of service:

$$FERS\ Annuity = 0.01 \times (High\ 3\ Average\ Salary) \times (Years\ of\ Service)$$

For workers age 62 or older at separation with 20 or more years of service, the formula is 1.1 percent times high-three average salary times years of service (OPM, no date-b). (As mentioned, early optional retirement is possible but reduces the annuity by 5 percent for each year under age 62, excepting those workers who have 20 years of service at age 60.)

Voluntary Early Retirement Authority

Eligibility and Amount

The VERA program allows agencies that are undergoing downsizing or restructuring to temporarily lower the age and service requirements for retirement in order to increase the number of employees eligible to retire. This helps to encourage voluntary separations and thereby decrease involuntary separations (DoDI 1400.25, 2009; see also OPM [no date-d]). While other agencies must obtain approval from OPM for authority to offer VERA, DoD has its own authority.

An agency using VERA to reshape its workforce must determine and publicize the maximum number of VERA approvals that will be offered and the length of time that the "window" will be open. Positions may be targeted based on organizational series, grade, skill/knowledge areas, organization, geography, or any combination of these factors (DoDI 1400.25, 2009).

In addition, eligibility for VERAs is based on years of service and age. Employees under FERS must meet the following requirements (DoDI 1400.25, 2009):

- meet the minimum age and service requirements: At least age 50 with at least 20 years creditable federal service, or any age with at least 25 years creditable federal service
- have served in a position covered by the OPM (or DoD) authorization for the minimum time specified by OPM (or DoD), usually 30 days prior to the date of the agency request
- serve in a position covered by the agency's VERA plan
- separate by the close of the early-out period.

VERA benefits for employees under FERS are based on the FERS formula as given above.[14] The annuity begins on the first day of the month following retirement (DoDI 1400.25, 2009; see also OPM [no date-d]). Employees retiring after December 31, 2013, may use 100 percent of unused sick leave toward service credit. Employees who take the VERA option and retire under age 55 do not have a reduction to their annuity.[15]

VERA takers can receive a FERS annuity supplement if they have completed at least one calendar year of FERS service before reaching the MRA (55 to 57 depending on date of birth; see Table 2.2). The annuity supplement is paid only to age 62, when Social Security begins, and is subject to an earnings limitation (OPM, no date-d). The supplement approximately equals the Social Security benefits earned while a FERS employee.[16]

VERA receipt does have some implications for future federal and nonfederal employment. For federal employment, if an annuitant is subsequently hired by a federal agency, the individual is considered a "reemployed annuitant." Reemployed annuitants continue to receive the annuity as well as their salary, subject to certain conditions (5 U.S.C. § 9902[h]).[17] If the

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[14] The discussion here focuses on employees under the FERS. There are still a small number of employees under the CSRS. For these employees, the following provisions govern the calculation of the annuity:

Commencing date of annuity: If the employee retires on the 1st, 2nd, or 3rd day of a month, annuity begins the following day. Otherwise, annuity begins the first day of the month following retirement. Calculation of annuity: Annuity is calculated based on the average high-3 salary and years and months of creditable service. Unused sick leave can be used for additional service credit. If the employee is under age 55, this calculation is reduced by one-sixth of one percent for each full month he/she is under age 55 (i.e., 2 percent per year). (OPM, no date-d).

We describe the rules for FERS employees because our simulation results in later chapters pertain to employees covered by FERS. In 2011, 86.3 percent of all DoD civilians were covered by FERS.

[15] A FERS transferee with a CSRS component in his or her annuity, who retires before age 55, will have the CSRS portion of the payable annuity reduced by one-sixth of 1 percent for each full month he or she is under age 55, which amounts to 2 percent per year. No reduction will be applied to the FERS component of the annuity. This one-sixth decrement also applies to discontinued service retirement for employees' years under CSRS.

[16] "The special retirement supplement is paid in addition to gross monthly Federal Employees Retirement System (FERS) annuity benefits. It represents what you would receive for your FERS civilian service from the Social Security Administration (SSA) and is calculated as if you were eligible to receive SSA benefits on the day you retired" (OPM, 2012).

[17] Reemployed annuitants serve at the will of the appointing officer. Annuitants who previously accepted a VSIP may not be reemployed within 12 months after separation (unless waived by the Secretary of Defense or his designee) or within five years following separation unless the VSIP is repaid or the Secretary of Defense has approved a waiver based on finding the individual is the only qualified applicant for the position.

annuitant accepts a nonfederal employment, he or she is not subject to restrictions, unless the annuitant is a FERS annuitant who qualified for an annuity supplement. For these individuals, the supplement could be reduced or eliminated due to an earnings limitation (OPM, no date-d).

Health and Life Insurance, Unemployment Benefits, and Transition Assistance

VERA packages also include health and life insurance provisions. To be eligible for continued coverage under the FEHB program, employees retiring under VERA must have been covered under the program for the last five years of their federal civilian service, or for all years since the employee was eligible for these benefits if this is less than five years, unless the requirements are waived (OPM, no date-d). OPM grants waivers for these requirements to employees who meet the following criteria (OPM, no date-d):

1. have been covered under the FEHB program continuously since the beginning date of the agency's OPM-approved VERA authority
2. retire during the statutory VERA or OPM-approved VERA period
3. receive a VERA.

For life insurance, the FEGLI can be continued through the retirement system so long as the employee has carried FEGLI for at least five years before retirement. The value and cost of this coverage to the retiree depend on the elections made at retirement (OPM, no date-d).

VERA recipients are not eligible for unemployment insurance benefits or transition assistance or training.

Contrasting Severance Pay, VSIP, and VERA

Table 2.3 summarizes the features of severance pay, VSIP, and VERA that have been discussed. Clearly, a key difference is that VSIP and VERA relate to voluntary separations, whereas severance pay is for involuntary separations.

For employees near retirement, retiring under VERA and taking VSIP, if offered, may make the most sense. However, for mid-career employees with roughly 15 or more years of service, VSIP may not be appealing and VERA may not be an option. First, VSIP will equal severance pay but is limited to no more than $25,000. Second, taking VSIP means forgoing transition assistance, unemployment insurance benefits, and long-term health coverage. Furthermore, employees facing a possible RIF do not know whether they will be adversely affected in RIF and so may be unwilling to voluntarily leave if they have hope of retaining employment within DoD. Yet, VSIP might be appealing to some employees for reasons just discussed.

Similarly, from DoD's perspective, the most cost-effective way to reduce or restructure the workforce will depend on which employees take the VSIP, VERA-and-VSIP, or optional retirement-and-VSIP offer; what they would have done in the absence of the offer (they might have retired in a few years anyway); and which employees are finally released by the RIF and receive severance pay. Today, voluntary separation via VSIP may be attractive to older employees with more years of service. Younger workers with less service may prefer to take their chances in RIF placement, on the one hand, or involuntary separation with severance pay, on the other. Other younger workers, sitting on the stay/leave fence, might prefer VSIP to the gamble.

Table 2.3
Comparison of Separation Tools

	Severance Pay/Involuntary Separation	VSIP	VERA
Voluntary?	No	Yes	Yes
Compensation	Severance pay, based on years of service and salary and age, paid bi-weekly or in a lump sum	Amount based on years of service and salary, paid in lump sum or installments	Retirement annuity based on years of service and salary, paid monthly
Health insurance	Free for 31 days, available temporarily afterwards with premium payment	Free for 31 days, available temporarily afterwards with payment of employee and employer premiums (those retiring with VSIP receive coverage as in VERA)	Yes, for those meeting requirements at retirement
Life insurance	Conversion possible, free for 31 days	Conversion possible, (those retiring with VSIP receive coverage as in VERA)	Yes, as part of retirement
Retirement annuity	Yes, if eligible for retirement based on age and years of service, for all employees	Only for those eligible for retirement annuity including under VERA if offered	Yes
Unemployment insurance	Yes	No	No
Training/transition assistance	Yes	No	No

In effect, VSIP and severance pay define a policy tradeoff space. Raising the VSIP cap and making it more generous relative to severance pay—but not necessarily greater than severance pay—can be expected to increase voluntary separations, decrease involuntary separations, and thereby decrease internal turbulence from bumping and retreating associated with involuntary separations relative to voluntary separations.[18] This would increase the total cost of VSIP and decrease the total cost of severance pay to the organization. Involuntary separation also comes at a cost to the employee, who would prefer to stay but is forced to leave. The analysis in Chapter Four explores this policy space.

There are aspects of the severance/VSIP comparison not covered in Chapter Four, however. They represent real but intangible (or unmeasured) costs of a RIF and they are not captured in available data.

In general, a RIF creates uncertainty about who will stay, who they will replace, what their job will be, and who will go. Past research indicates that job insecurity caused by reductions in force is negatively related to employee morale and work effort, as discussed in the appendix. The turbulence and uncertainty could also hurt the quality of the match between the employee and his or her job, for example, the suitability of the employee to the position offered. A job match would be poorer, for instance, if an employee's skill, experience, and interest aligned less well to the requirements at the destination position obtained via bumping or retreating than at the origin (sending) position. Second, there are significant administrative costs that must be absorbed by the agency. It has the task of identifying, for each affected employee, positions

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[18] "By allowing employees to volunteer to leave the Government, agencies can minimize or avoid involuntary separations through the use of costly and disruptive reductions in force (RIFs)" (OPM, no date-e).

eligible for bumping or retreating, and of identifying or creating vacancies in other parts of the organization suitable for placement. Third, because the process of bumping and retreating is governed by highly specific rules, the end result of RIF could be a disproportionate workforce that loses employees with relatively few years of experience. The outflow of these employees could create a workforce experience profile that could continue into future years without the hiring of employees with appropriate experience levels to offset this effect, and this might lead to too few senior mentors and a smaller pool from which to promote supervisors.

Voluntary separations can lessen these costs. Employees self-identify their willingness to accept VSIP, and, when offered VSIP, employees no longer have uncertainty about how the RIF will affect their employment position. Those employees voluntarily separating are removed from the RIF, and this lessens the adverse impact and turbulence. Voluntary separations would have an adverse effect, however, if the workers who left tended to be higher quality. As a result, management would want to try to find positions elsewhere within the organization, or elsewhere in civil service, that would be good fits for, and attractive to, these employees in order to prevent their departure.

Tabulations on Separations and Retained-Grade Employees

In this section, we summarize the data related to separations in the historical record. Our goal is to tabulate the number of employees subject to downsizing and/or restructuring efforts to provide some broad background information about these efforts as revealed in available personnel and pay data. Some of these employees separated, and we tabulate those who separated with VSIP or with conversion from severance payments. Some employees subject to these efforts did not separate but were subject to bumping and retreating rules that placed them in a new position at a lower grade or pay rate. Retained pay/grade status may occur for reasons other than being affected by RIF. These include involuntary changes to a lower grade for failure to meet the physical requirements of a position, failure to complete a supervisory probationary period, return from overseas to a lower-graded position, conversion from other than National Security Personnel System (NSPS) pay-banded systems to the GS pay schedule, reclassification to a lower grade, etc. Instances of retained pay/grade status resulting from these reasons are not separately identified in our data. We tabulate separations with VSIP or with severance pay and the number of employees in a retained grade or pay rate status.[19] For comparison, we also tabulate the number of separations through attrition or retirement (e.g., separations apart from those related to downsizing or restructuring as indicated by the receipt of VSIP or severance pay).[20]

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[19] Our data do not have the detailed information that would allow us to identify employees who were placed into a position vacated by an employee who accepted VSIP or VERA. We are primarily using pay data that are at the person level, not the position level; we do not have position data.

[20] We were unable to reliably separate out VERA eligibility in our data. For example, an individual who is eligible for optional retirement who took a VERA offer could be coded as either voluntary retirement or early optional retirement. That is, we could not always distinguish between VERA retirements and non-VERA retirements. VERA retirements are included in our tabulations of retirement eligibility in Tables 2.4 and 2.5.

We use biweekly pay data from 1999 through 2014 for full-time DoD civil service workers who are on the GS or the NSPS pay scales.[21] The biweekly pay data include an individual's current employment status, his or her current pay, and any special pays, such as VSIP or severance pay. The pay file contains a pay rate determinant that tracks factors relevant to an employee's pay, such as retained pay or retained grade. We also use the 1999–2014 DoD civil service personnel records for information on personal characteristics that are not included in the pay files, such as education and retirement eligibility.

Identifying employees subject to downsizing or restructuring in the data is somewhat challenging, and we took an approach using the pay file to identify these employees.[22] Separation can occur through various paths in the data; for instance, an employee might first be observed to have a retained pay/retained grade status and later to receive severance pay. In identifying instances of separation, we begin with the start of a spell where an individual receives separation pay or VSIP, or has a retained pay or grade, or is separated without any further pay (we refer to these as separations unrelated to downsizing or restructuring). We associate at most one spell of any type (e.g., VSIP, retained pay or grade) with each civil service worker per fiscal year. If multiple spells occur within a given year, we give priority to separations resulting in a payment first, separations resulting in no payment second, and retained pay or grade last. For example, we might observe an individual who first is flagged as "retained pay" in fiscal year 1999, and then observe this individual at a future time, perhaps in the same year or in a future year. When the individual is observed again, the "retained pay" flag might have been removed, or perhaps the individual separates. If, say, "retained pay" is observed twice in the same year, then we only record the first instance. If "retained pay" is followed in the same year by a severance payment or VSIP, then we identify this as a "severance pay separation" or a "VSIP separation." If separation occurs in the same year but without severance pay or VSIP, then it is a "separation unrelated to restructuring or downsizing." Note that the first instance might not begin with "retained pay" or "retained grade" but simply be "severance," "VSIP," or "unrelated to restructuring or downsizing" separation, in which case we use this information in categorizing the observation.

By Characteristic

Table 2.4 compares the average age and years of experience as well as selected characteristics for severance pay recipients, VSIP recipients, separations unrelated to restructuring or downsizing, and employees newly flagged with a retained grade or retained pay among full-time employees with at least a bachelor's degree (BA/BS+)—the group for which we estimate the DRM. For comparison, Table 2.5 presents similar data for all full-time employees under either the GS or

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[21] The NSPS pay schedule was introduced in 2006. Many GS positions were converted to NSPS positions. The NSPS pay scale offered greater flexibility in pay raises than the GS pay scale. However, the system was controversial and was repealed in October 2009. All employees were returned to the GS pay scale (or an alternative pay scale) by January 2012.

[22] We initially considered using both the master personnel file, which contains nature of action codes (NOACs), and the pay file, which contains information about the type of separation payment, e.g., VSIP or severance. However, in exploratory work we found that NOACs were often not consistent with pay data showing, for example, receipt of VSIP. Among VSIP recipients, 43 percent had a NOAC "separation incentive," 31 percent had "retirement voluntary," 10 percent had "retirement—special option," 5 percent had "individual cash award," and the remainder had a variety of other NOACs. Thus, NOAC does not uniquely identify a VSIP recipient. We therefore settled on an approach using only the pay file, which was suitable given that an aim of our research was to identify VSIP recipients, severance pay recipients, and retained grade employees.

Table 2.4
Characteristics of Separations and Retained Grade, Full-Time Employees Under the GS or NSPS Systems with at Least a Bachelor's Degree, 1999–2014

Characteristic	Severance Pay	VSIP	Separation Not Related to Downsizing or Restructuring	Retained Grade/Pay, Different Position
Mean age	49.7	58.7	49.9	49.5
Mean years of service	18.7	28.8	17.7	18.6
5% fewer years of service than[a]	4	13	—	—
95% fewer years of service than[a]	36	30	—	—
Mean grade (Scale: 1–15)	11.0	12.1	11.1	9.8
Mean basic pay[b]	$74,283	$89,567	$76,022	$80,382
Retirement eligible[c]	6%	94%	43%	39%
Veteran	20%	32%	33%	34%
BA/BS	72%	67%	65%	68%
Master's	25%	29%	30%	30%
Professional	1%	1%	1%	1%
Doctorate	2%	2%	4%	2%

NOTE: Separation not related to downsizing or restructuring excludes separations resulting in a VSIP or severance payment. Inclusion in the table is conditional on an individual-level match in the personnel file. An individual's schooling and retirement eligibility are detected by linking pay and personnel files. Not all records in the pay file find a match in the personnel file because the timing of separation in the pay file may occur after the individual's record has been removed from the personnel file.

[a] For instance, among separating employees receiving severance pay, 5 percent (95 percent) of the sample had fewer than 4 (36) years of service.

[b] Presented in 2014 dollars using the Consumer Price Index for All Urban Consumers (CPI-U).

[c] Retirement eligibility is based only on 2010–2014 because the variable was correctly coded only after fiscal year 2009. Retirement eligibility is defined as being eligible for an annuity either through the FERS or CSRS defined benefit pension or Social Security's Old-Age benefit and can include early optional retirement, e.g., VERA.

NSPS systems from 1999 through 2014. Although our empirical analysis will focus on BA/BS+ employees (Table 2.4), we include Table 2.5 to show the similarity to Table 2.4. This provides some basis for thinking that if the dynamic retention model were estimated for non–BA/BS+ employees, the results would be qualitatively similar to those for the BA/BS+ employees.

VSIP separations are voluntary, while severance pay separations are involuntary. Separations unrelated to restructuring or downsizing include individuals who separated but did not receive a severance or VSIP. Employees with a retained grade or pay status include those who were displaced from their initial position and accepted a position in the organization with a lower grade—up to two grades lower—but retained their initial grade or pay.[23] Grade reten-

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[23] We exclude an employee from the retained pay calculation if he or she had retained pay or grade and remained in the *same* position. More than 96 percent of the individuals with retained pay/grade in the same position occurred in fiscal years 2010–2012, when positions were converting from the NSPS to the GS. Also, if the employee declines a position within two grades or pay levels, eligibility for grade/pay retention terminates.

Table 2.5
Characteristics of Separations and Retained Grade or Pay, All Full-time Employees Under the GS or NSPS Systems, 1999–2014

Characteristic	Severance Pay	VSIP	Separation Not Related to Downsizing or Restructuring	Retained Grade/Pay, Different Position
Mean age	48.9	58.5	44.8	48.5
Mean years of service	18.8	28.7	14.2	18.7
5% fewer years of service than[a]	4	14	—	—
95% fewer years of service than[a]	35	40	—	—
Mean grade	8.61	10.16	8.27	7.79
Mean basic pay[b]	$57,153	$70,981	$54,634	$63,789
Retirement eligible[c]	7%	95%	43%	35%
Veteran	18%	31%	33%	34%
High school[d]	46%	37%	40%	43%
Some college[d]	25%	32%	25%	29%
BA/BS[d]	20%	21%	23%	19%
Master's[d]	7%	9%	11%	8%
Professional[d]	<1%	<1%	<1%	<1%
Doctorate[d]	1%	1%	1%	<1%

NOTE: See notes for Table 2.4.

[d] In computing the values in Table 2.5, the schooling categories were scaled to reflect only those with matched personnel and pay files.

tion lasts two years, and during this period they are paid at their prior rate but cannot receive pay increases.

Mean Age and Years of Service

In Table 2.4, the difference in age and years of service between VSIP and severance pay recipients is stark. Although when VSIP is offered, it is not limited to those employees with the most service. VSIP recipients average nearly 60 years of age and nearly 30 years of service. This suggests that VERA is typically offered along with VSIP, and the VSIP/VERA combination is attractive. Granted that the combination of VSIP/VERA is attractive, if VSIP alone were attractive to employees less than 50 years of age (and ineligible for VERA), we would expect the average age of all VSIP recipients to be considerably less than 60. Ninety-four percent of VSIP recipients with at least a bachelor's degree are eligible to retire either through VERA or because they meet criteria for optional retirement. The results also suggest that when employees are involved in a reduction in force, most would rather take their chances of being involuntarily separated and receiving severance pay than choosing to leave voluntarily and receive VSIP. Severance pay recipients with at least a bachelor's degree have a mean age 50 and 19 years of experience. In addition, nearly all BA/BS+ severance pay recipients, 95 percent, have fewer than 36 years of service, while 5 percent have fewer than 4 years of service. Thus, the vast majority

of BA/BS+ severance pay recipients in the data have from 4 through 36 years of service, and nearly all are in the range of 3 through 24 years. We use the 3–24 range in the simulations in Chapter Five. In contrast, the year-of-service range for VSIP recipients shows 5 percent with fewer than 13 years of service and 95 percent with fewer than 30 years of service.

For the entire GS and NSPS DoD civil service population (Table 2.5), the range for years of service is about the same, with 95 percent of involuntary separations having fewer than 35 years of service. The range for all full-time VSIP recipients is wider, with 95 percent having fewer than 40 years of service.[24] Recall that severance pay is greater than VSIP for employees who are older than age 40 and/or better paid. It is reasonable to expect that severance pay being higher than VSIP—perhaps much higher as shown in Table 2.1—is a factor favoring the use of VSIP for ages above 40 from the standpoint of DoD. In addition, RIF procedures tend to favor the retention of employees with higher tenure, and those with lower tenure are more likely to be separated and receive severance pay. This too is a factor in why the age range is younger for severance pay than for VSIP.

In Table 2.4, mean age and mean years of service are similar for separations not related to restructuring or downsizing, severance pay separations, and individuals with retained pay or grade. For instance, among the BA/BS+ employees, the mean age is about 49 years and the mean years of service is about 18 years. By comparison, VSIPs' means are 59 years of age and 29 years of service.

Mean Grade and Basic Pay

Consistent with younger mean age and fewer years of service, involuntary separations have a lower mean pay grade and lower mean basic pay than VSIP recipients. In Table 2.4, basic pay for VSIPs averages $89,567, compared with $74,283 for those receiving severance pay. Retained-grade employees fall between, with an average pay of $80,382. Their mean grade, 9.8, is two steps below that of VSIPs and one step below that of severance pay recipients. The comparatively high pay of retained-grade/retained-pay employees relative to those receiving a severance payment indicates a strong desire to be offered a placement through the RIF process rather than leave voluntarily or involuntarily.

Mean and Median Severance Pay and VSIP Amounts

Figure 2.1 shows mean and median severance pay and VSIP from 1999 through 2014, in 2014 dollars, among individuals with at least a bachelor's degree. Focusing on VSIP, the mean and median are nearly the same every year and equal $25,000 in 2014. This results from the $25,000 cap on VSIP and the fact that VSIP recipients almost always receive the cap amount. The apparent increase in mean and median VSIP moving back in time from 2014 to 1999 is a consequence of putting the amounts in 2014 dollars; the $25,000 cap has been in place throughout the entire period, and a nominal VSIP of $25,000 in 1999 was worth about $35,000 in 2014 dollars. With respect to severance pay recipients, even though they are younger and have fewer years of service than VSIP recipients, mean severance pay is often greater than VSIP over our sample period, while median severance pay is often less than VSIP.

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[24] Six percent of severance pay recipients with at least a bachelor's degree appear to be eligible to retire under FERS but are not. This could occur, for instance, if an employee refunded his or her FERS contributions at an earlier age and had not yet accumulated enough creditable years of service to qualify for FERS retirement. It could also occur because years of service in the pay file include years of service in the armed forces, if any; these years are included when calculating leave time but not FERS retirement.

Figure 2.1
Mean and Median Severance Pay and VSIP, by Year, 1999–2014, for Full-Time Employees Under the GS or NSPS Systems with at Least a Bachelor's Degree
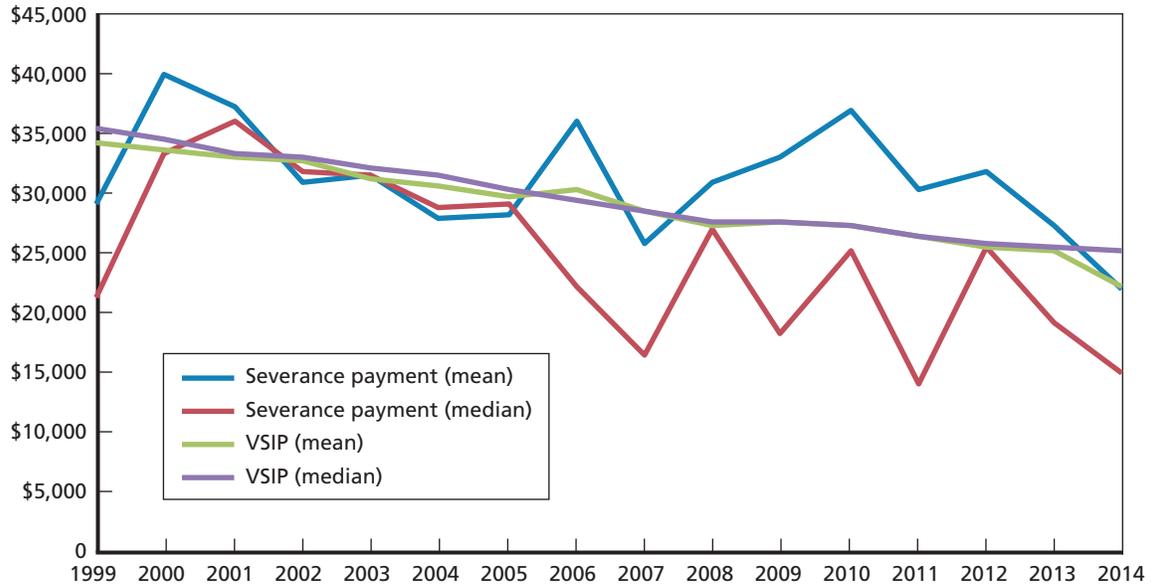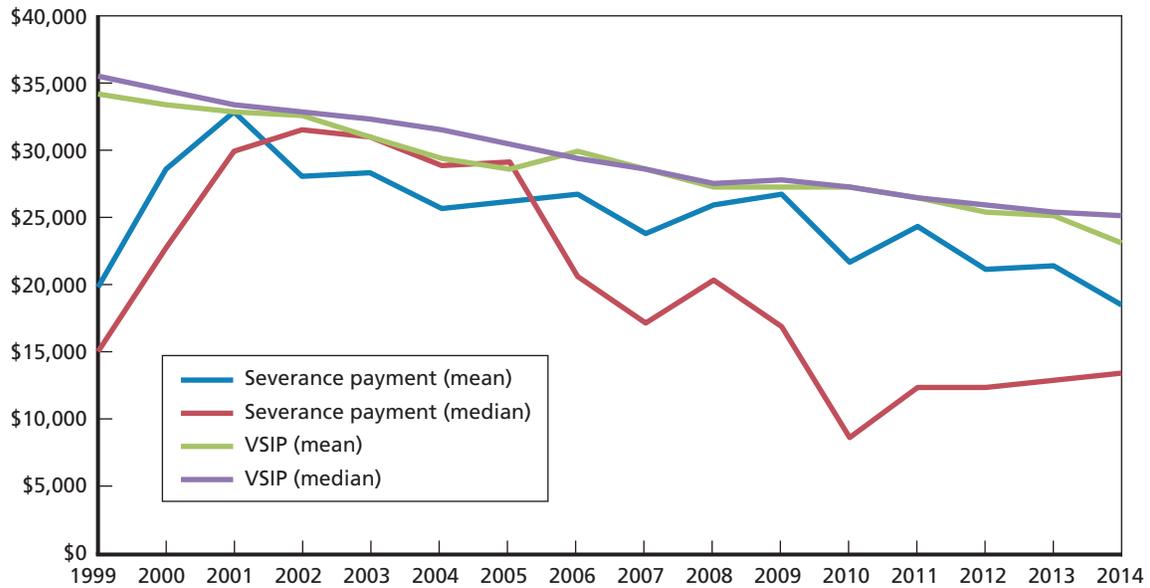

NOTE: Values presented in 2014 dollars and are inflated using the CPI-U. The oscillations in the severance payments are driven by the composition of the sample receiving severance payments.
RAND *RR1540-2.1*

The lower median comes from the majority of severance pay recipients having ten or fewer years of service and being under age 40. The severance pay formula "kicks up" for years of service above ten and age above 40, which results in mean severance pay being above the median and, as it happens, above VSIP, which is capped at $25,000.

Figure 2.2 presents the mean and median amounts for all GS and NSPS employees, regardless of education. Lower earnings cause mean and median severance pay to be less than those of the BA/BS+ sample. In addition, the mean and median severance payments are both less than VSIP. As in Figure 2.1, the mean and median VSIP values are quite close and again reflect the $25,000 cap. Apparently, most VSIP recipients, regardless of their educational background, have enough years of service to qualify for the maximum benefit.

Figure 2.2
Mean and Median Severance Pay and VSIP, by Year, 1999–2014, for All Full-Time Employees Under the GS or NSPS Systems

NOTE: Values presented in 2014 dollars and are inflated using the CPI-U. The oscillations in the severance payments are driven by the composition of the sample receiving severance payments.
RAND *RR1540-2.2*

Veteran Status

One-third of the VSIP recipients and one-fifth of the severance pay recipients are veterans. The higher veteran percentage of VSIP recipients may reflect the employment of military retirees in the DoD civil service and, possibly, the operation of veteran preference as a competitive factor in retaining one's job and in bumping and retreating in prior downsizing or restructuring.[25] Approximately one in three separations unrelated to restructuring or downsizing, or 33 percent, were veterans, which reflects the high prevalence of veterans in the DoD civilian workforce.

Level of Education

Several aspects emerge from a comparison of the education distributions across the columns of Table 2.5. First is the high percentage—46 percent—of employees with only a high school education among severance pay recipients. This percentage is substantially higher than in the other categories. Second, VSIP recipients are more likely, 32 percent, to have some college, compared with the other categories. Finally, employees with a separation unrelated to restructuring or downsizing have a higher percentage with four or more years of college than any of the other categories. Thirty-five percent have four or more years of college, which compares to 31 percent for VSIP, 28 percent for retained pay or grade, and 28 percent for involuntary separations with a severance payment. These patterns reflect separation options that correlate with

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[25] "Possibly," because our data does not identify veteran preference. Also, not all veterans are eligible for preference in a RIF action.

education, suggesting that more highly educated employees are less likely to be affected by a RIF action either voluntarily or involuntarily.

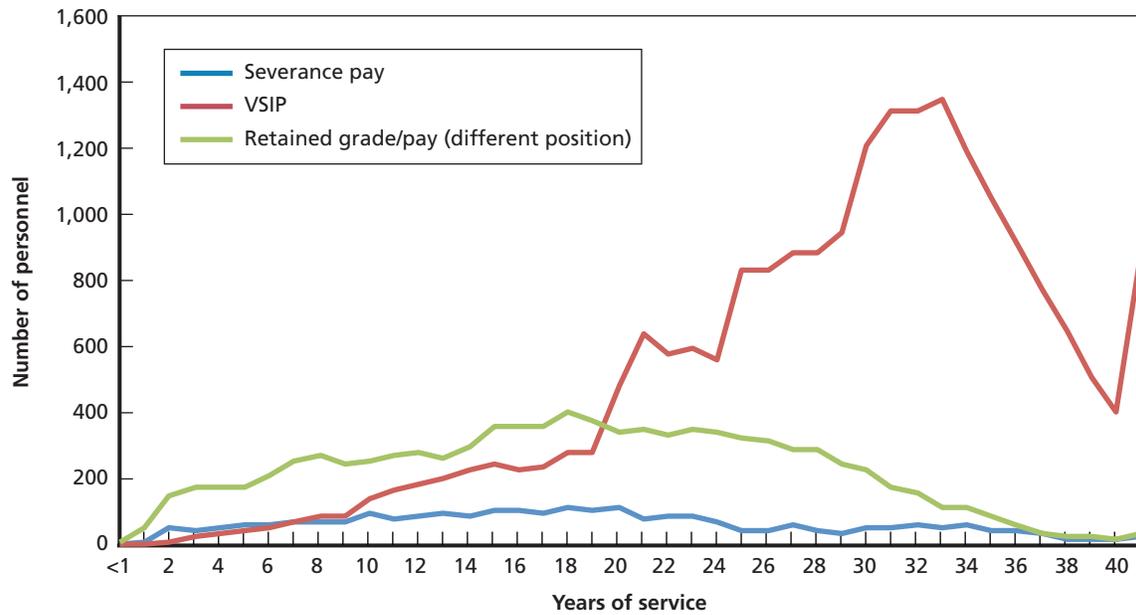**Severance Pay, VSIP, and Retained Grade or Pay by Years of Service**

As mentioned, the VSIP formula limits the amount of VSIP to be equal to severance pay up to the VSIP cap of $25,000. VSIP, therefore, offers no financial advantage over severance pay. Also, VSIP recipients are not eligible for unemployment insurance benefits and transition assistance, but they are available to involuntarily separate. Further, DoD civil service employees have a revealed preference for their job over other jobs. Many employees facing a RIF may elect to take their chances of remaining employed, though perhaps at a different position, and running the risk of being involuntarily separated, as opposed to indicating a willingness to accept VSIP and accepting it if offered. At the same time, there are always employees near the margin of staying or leaving. Employees who were thinking about leaving and who might have already lined up a new job would not need unemployment benefits or transition assistance and, if they were under age 40 and not highly paid, would be no worse off accepting VSIP rather than severance pay. They might prefer that their résumé show a voluntary job move rather than involuntary dismissal with a spell of unemployment. An exception to this logic is employees who are eligible to retire or who become eligible through VERA. These employees have good reason to opt for the combination of VSIP plus the retirement annuity under VERA or, if eligible, optional retirement, versus involuntary separation. Recall that employees are not eligible for severance pay if they are eligible for an immediate annuity from a federal civilian retirement system or from the uniformed services. Thus, severance pay is off the table for an employee eligible to retire or who is currently receiving an annuity (e.g., retired military).

Figure 2.3 shows the number of severance pay and VSIP recipients and retained-grade/retained-pay employees by year of service for individuals with at least a bachelor's degree, and Figure 2.4 is similar but for all full-time employees. The patterns line up nicely with the discussion above. Though somewhat higher at lower years of service, the number of workers receiving severance pay rises gradually from two to 20 years of service and then tapers to 25 years of service. However, some workers with more than 25 years of service receive severance pay. This is unexpected, since individuals are not eligible for severance pay if they are also eligible for a federal retirement annuity. A possible explanation is that these individuals' creditable years of service differ from their actual years of service. This would result if during their career these individuals requested their retirement contributions be refunded during a break from working in the federal civil service.

VSIP recipients are highly prevalent in the retirement range, which begins after 20 years of service. However, as one might expect, among employees with fewer than 20 years of service the number of employees affected by a RIF or reorganization through involuntary separation or retained pay/grade exceeds the number of VSIP recipients.

Two other features stand out in the figure. First, the number of VSIP takers with 20 or more years of service dwarfs the combined number of VSIP and severance pay recipients with fewer than 20 years of service. There were 64,731 VSIPs with 21 or more years of service, and a total of 17,633 severance pay and VSIPs with 20 or fewer years of service. The relatively large number of VSIPs with 20 or more years of service decreased the senior workforce but deflected the full impact of the RIF from junior workers. Second, there were 33,274 retained-pay or retained-grade employees. The retained-grade count is the product of bumping and retreating. A position abolished under a RIF or reshaping can generate a cascade of employee moves

Figure 2.3
Severance Pay and VSIP Recipients and Retained-Grade Employees, by Years of Service, Full-Time Employees with at Least a Bachelor's Degree, 1999–2014

NOTE: The final years-of-service category is for 41 *or more* years of service.

RAND *RR1540-2.3*

Figure 2.4
Severance Pay and VSIP Recipients and Retained-Grade Employees, by Years of Service, All Full-Time Employees, 1999–2014
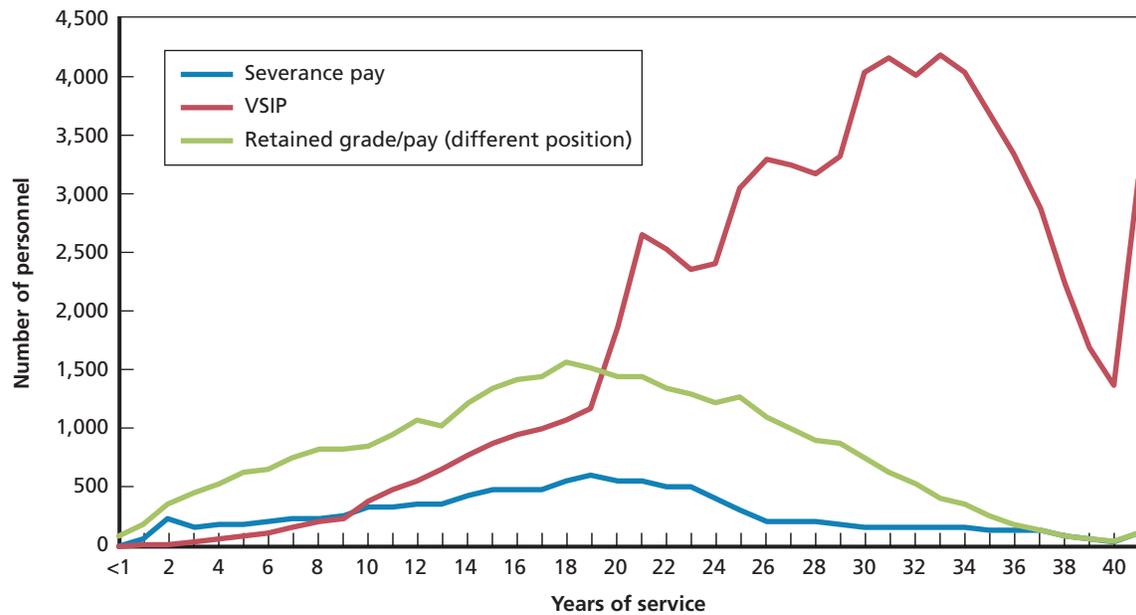
NOTE: The final years-of-service category is for 41 *or more* years of service.
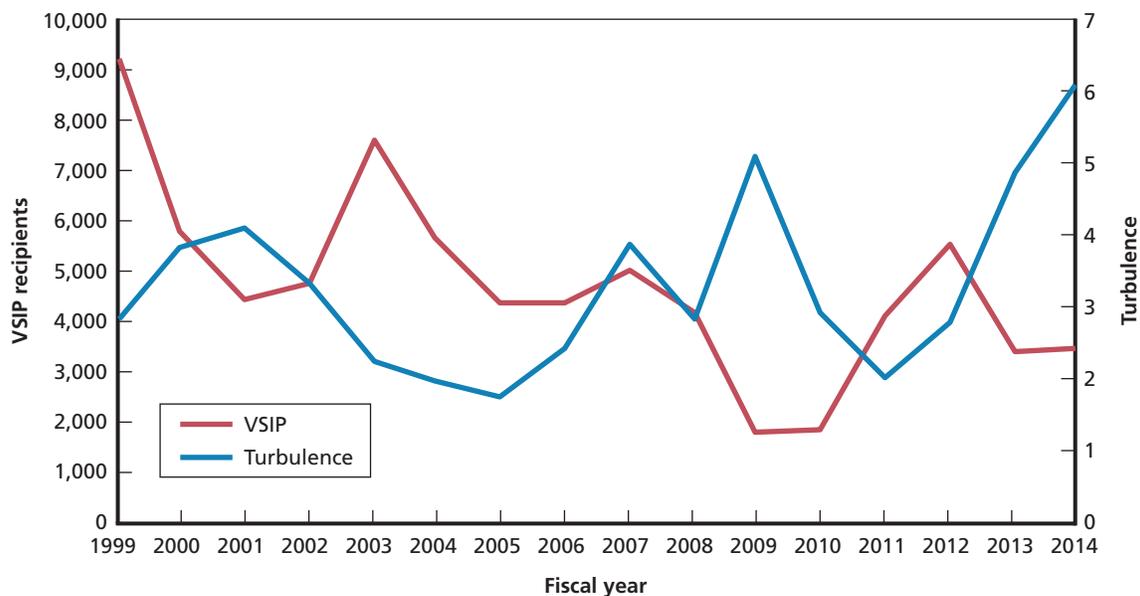
RAND *RR1540-2.4*

via bumping and retreating. This entails a significant administrative effort as well as organizational turbulence and employee uncertainty, yet these costs come at the benefit of finding alternative, suitable positions for displaced employees.

One measure of turbulence is the ratio of newly flagged retained-grade and retained-pay employees to severance pay recipients. From 1999 to 2014, the ratio of retained-grade/pay employees to severance payments varied from 2 to 8.7 in most years. VSIP takers are not included in the ratio; they depart voluntarily and do not participate in RIF. In some cases, VSIP is used to create a vacancy in a different organization that can be filled by an employee affected by downsizing or reorganization, which in effect serves to limit the adverse impact and turbulence. In this case, the employee might find a position through the PPP and would have to relocate.

More broadly, an increase in voluntary departures appears to decrease turbulence (defined above). Figure 2.5 shows a negative association between turbulence and VSIP recipients by year from 1999 through 2014. The correlation between turbulence and VSIPs is −0.41.

Looking ahead, Chapter Four simulates the change in voluntary departures under higher values of the VSIP cap. In addition to these simulations, we observe here that the extent of decrease in turbulence will depend on the details of the RIF. If it eliminated positions in a way that affected employees uniformly across years of service, then under the current VSIP approach voluntary departures would be concentrated on employees with 20 or more years of service. This would decrease turbulence, as fewer senior employees would be bumping and retreating. Bumping and retreating would still occur among less senior workers, but this too could be decreased if VSIP were more attractive to employees with fewer than 20 years of service.

Figure 2.5
Association Between VSIP Receipt and RIF-Induced Turbulence

NOTE: Turbulence is measured as the ratio of individuals receiving retained pay/grade for a different position to individuals receiving severance pay. The figure includes all educational levels.
RAND *RR1540-2.5*

Summing Up

DoD uses several tools to help achieve downsizing and restructuring of its civilian workforce, including VSIP, VERA, and involuntary separation. Often, these tools are used in tandem with one another. Agencies identify positions to eliminate or restructure, and individuals in a targeted position may not be the individuals who are ultimately separated. Bumping and retreating rules mean that the individuals who are separated will often have less seniority, while RIFed employees who are retained, albeit in a lower grade, may retain their grade and the pay of their former position for up to two years if eligible. Employees separated by a RIF are authorized to receive severance pay if they meet other eligibility requirements. Agencies that are downsizing or restructuring may also offer VSIP as an incentive to induce individuals to voluntarily separate, thereby reducing the number of involuntary separations that would be required to meet a downsizing or restructuring target. VSIP is typically offered with VERA, and the combination of these programs expands the set of employees that are eligible to retire and provides an additional incentive to retire.

We use DoD civilian personnel and pay data from 1999 through 2014 to tabulate the characteristics of DoD civilians who separate through normal attrition versus with VSIP or with severance pay, and we tabulate the number of employees in a retained grade or pay status. Not surprisingly, we find dramatic differences in the average age and years of service of VSIP versus severance pay recipients. On average, VSIP recipients are nearly 60 year of age and have nearly 30 years of service, while severance pay recipients are nearly 49 years of age and have 19 years of service. Furthermore, 94 percent of VSIP recipients are eligible for retirement, either because of VERA or because they meet the criteria for optional retirement. We find that VSIP recipients almost always receive the $25,000 cap in our data, while mean severance pay is often greater than the VSIP cap, despite the younger ages and fewer years of service of severance pay recipients. We also consider a measure of turbulence associated with RIF, namely the ratio of retained-grade/pay employees to severance pay recipients. If numerous employees were bumped for a given position eliminated, we would expect this ratio to be relatively high. From 1999 to 2014, the ratio of retained-grade employees to severance pay recipients varied from 2 to 8.7. We find that an increase in voluntary departures through VSIP appears to be negatively associated with the turbulence measure, suggesting that voluntary departures and the use of VSIP reduce turbulence.

Overview of Dynamic Retention Modeling Capability

Our analysis of VSIP employs RAND's DRM of DoD civil service personnel and its capability for simulating the effect of personnel compensation policies, including incentive pays to induce voluntary separation, or simulating the prospect of involuntary separation. This chapter provides an overview of the model.

We developed a dynamic stochastic programming model of the retention of civil service personnel in DoD in Asch, Mattock, and Hosek (2014) and estimated the model using data on the 1992–2000 entry cohorts in Knapp, Asch, Mattock, and Hosek (forthcoming). These two reports are companions to this report in terms of describing in technical detail of the research methodology, estimation results, and simulation capability. In this chapter, we give a brief, nontechnical description of the model. In addition, we discuss how we extended the DRM to consider the effects of VSIP with a threat of involuntary separation and also how we computed costs. Readers already familiar with the model may wish to skip ahead to the next chapter.

The Decision Model

At the core of the DRM is a dynamic programming model of individual decisionmaking. The model considers individual stay/leave decisions over a finite horizon consisting of discrete periods (years) and takes into account the uncertainty associated with making a decision to stay in the DoD civil service or to leave based on the knowledge in hand at the time.

The current choice depends on current returns and the value of future opportunities, as well as individuals' tastes for DoD civil service versus external opportunities. To evaluate future opportunities, the individual reasons forward to consider all possible future stay/leave decisions, and then reasons backward along each path, assuming the best choice will be made in the last period, then the second-to-last, and so on to the current period. This reasoning provides information on the payoff to the stay/leave decision facing the individual today.

This calculation is complicated—but realistic—in allowing for uncertainty about outcomes in each future period. This is handled by assuming that the individual will make the best choice given the conditions realized in that period; depending on the realizations, the choice to stay will be better than the choice to leave, or vice versa. In the current period, the individual cannot know what the future realizations will be (they are uncertain), but can compute the expected value of being allowed to choose to stay or leave and make the best choice. That is, one alternative will be the best—the one that realizes the maximum value—and although the individual cannot know which one it will be, the individual can compute the expected value of the maximum.

Regarding tastes for civil service, the model recognizes that individuals get intrinsic satisfaction from being in the civil service and might have higher or lower civil service and civilian (non–civil service) opportunity wages than indicated by financial returns incorporated into the model. The net value of these persistent differences in satisfaction and wages are referred to as the individual's "taste" for the DoD civil service, an idiosyncratic component of returns from service that is constant over time for a given individual. The taste factor in the model captures nonmonetary aspects of service that are of intrinsic value to the individual, including the value of public service, interest in national defense, the security of civil service employment, and so forth, as well as "quality of life" aspects of being in DoD. The model allows each individual to have his or her own taste for a career in the DoD civil service, where taste is relative to a civilian job outside the civil service.[1]

The DRM approach has been used to analyze retention in a number of contexts, including the retention of active and reserve personnel in the military. Transplanting the model to the field of DoD civil service retention requires the introduction of elements relevant to civil retention behavior. These elements cover six areas:

1. DoD civil service pay and civilian pay outside of the civil service. The DRM includes information about civil service pay by year of service and age, as well the vesting points, eligibility points, and benefit formulas for civil service retirement benefits under FERS; and about civilian pay.

2. Individual differences (or heterogeneity) in taste for a DoD civil service career. As researchers, we do not observe tastes for service, but we assume tastes follow a known probability distribution function and we estimate the parameters of that distribution, as discussed below.

3. Individual characteristics, such as age at entry, veteran's status, and level of education. An individual's age is one component in determining eligibility for civil service retirement benefits, and thus plays into his or her decision to stay or leave. Veteran's status may be associated with a higher taste for the DoD civil service. Level of education is related to the DoD civil service positions individuals are competitive for and hence their current and future pay in the DoD civil service; education is also related to the current and future pay available to an individual outside the civil service.

4. The value an individual assigns to staying or leaving. For someone in the DoD civil service, staying brings a current-period return of the civil service pay at that year of service, plus the discounted expected value of the maximum of the stay/leave decision in the next period, which, as mentioned, depends on reasoning forward and then reasoning

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[1] In the model, an individual who leaves DoD civil service may either move to another federal agency or leave federal service altogether. Thus, the value of leaving could include federal pay and expected federal retirement benefits in the next federal job. We could extend the DRM to incorporate movement to other federal agencies. However, with the available data, we do not know how long individuals stay in federal employment if they are not in DoD. Consequently, in the current analysis, we assume all DoD separations are separations from federal employment, although we recognize that this leads to measurement error of the value of external opportunities for those who transfer. In addition, in the DRM, we assume that once individuals leave DoD civil service, they do not reenter at a later date. This, in fact, is not true. Civil service employees can flow in and out of DoD civil service. Furthermore, the DRM can accommodate such flows, as is done in Asch, Hosek, and Mattock (2014) and earlier studies that permit flows of military personnel in and out of the reserve components. In the data we use, 10 percent of full-time GS entrants with at least a bachelor's degree and enrolled in FERS ever return between entry and the end date of our data, 2012. We therefore exclude this possibility (and these observations) for the estimation of the model parameters.

backward. Leaving brings a civilian wage plus the discounted present value of the future returns to a civilian career, plus the discounted present value of any civil service retirement benefits the individual has accrued.

5. A "finite horizon" (i.e., a maximum career length in the civil service). The maximum final period is at 40 years of service, and any individual still staying retires from the DoD civil service. Retirement benefits may of course be received after this period, and the present value of these benefits is entered as a return in the final period.

6. Uncertainty. Individual uncertainty over future events may cause an individual to raise or lower the relative values staying or leaving. Uncertainty is characterized by random draws from a distribution. The draws are annual shocks of uncertainty to the value of each choice that can be positive or negative. A positive draw adds value to an alternative, while a negative draw detracts. For instance, a positive draw for the "stay" alternative might represent a favored assignment, and a positive "leave" draw might represent an interesting non-DoD-civil-service career opportunity.

Basing the Model on Actual Retention Data

The decisionmaking model provides a rich framework for understanding retention behavior over a DoD civil service career in the presence of uncertainty and allowing for different tastes among individuals. But for policy analysis, the model's credibility depends on whether it can accurately describe civil service retention behavior. The model structures retention decisions as a dynamic program in which the individual wants to choose the best career path. The model is tied to reality because the model's parameters are estimated using actual retention data and then examined to see how well the estimates match actual retention decisions.

To estimate the model, we use its mathematical structure along with assumptions about types of distributions for taste and shocks to derive expressions for the probability of staying. That is, as analysts, we cannot observe individual members motivations and taste for service, or the random shocks they face, but we make an assumption about the distributions of tastes across members and the distribution of the shocks, and estimate the parameters of those distributions using data on actual retention behavior. We assume that tastes have a normal distribution, which has the attractive property of being a distribution commonly observed in nature. We assume shocks have extreme value distributions, which leads to closed form (logistic) expressions for the probability of staying, an aid to estimation. So, for each period and entry age, we derive an expression for the probability of staying. For a DoD civil service member in year of service 30 who entered at age 25, for example, there is an expression for the probability of staying. Since the probabilities in different periods are independent of one another—the model is Markov—the probabilities of staying for each period can be multiplied together to obtain a probability for any given sequence of "stay" decisions, or in other words, a probability for any given DoD civil service career length.

We use longitudinal data on personnel entering the DoD civil service from 1992 through 2000, as described in Knapp et al. (forthcoming). Our DRM parameter estimates are for the GS DoD workforce with at least a bachelor's degree who are covered by FERS. We observe individuals at entry through 2012 or until separation. Thus we observe individuals for up to 20 years. Perhaps an individual entered the DoD civil service at age 25, served 20 years, and then separated. The model provides a probability expression for this career profile, and for

those of every other entrant in 1992 through 2000. Multiplying the career profile probabilities together gives an expression for the sample likelihood, which we use in estimating the model parameters.

A feature of our data is that new employees enter at different ages. An employee entering at age 45 in 1992 and staying would be eligible at age 62 in 2009 for optional retirement with full benefits. An employee entering at age 40 in 2000 could be observed at age 52 in 2012, eight years away from eligibility for full benefits at age 60 in 2020. An employee entering at age 30 in 1997 could be observed at age 45 in 2012. These examples indicate that although our data are for entrants in 1992 through 2000, and extend through 2012, they provide the opportunity to observe retention behavior over different stages of a possibly 40-year long career. A maintained assumption of our analysis, however, is that the taste distribution at entry into civil service is independent of entry age.

Each probability, and hence each career profile and the entire likelihood, depends on the same set of the model's underlying parameters, and these are the objects of estimation. The parameters include the mean and variance of taste, the variance of the shock distribution, and the personal discount factor. In addition, the parameters to be estimated include the probability of attrition in the first year of service and the probability of an individual "disappearing" in 1997 because of a reorganization that caused the export of some DoD functions to a newly created agency external to DoD.[2] The model fit is quite good, as seen in Figure 3.1 from Knapp, Asch, Mattock, and Hosek (forthcoming). Thus, the model represents the global

Figure 3.1
Model Fit, Single Model Combining 1992–2000 Cohort Data
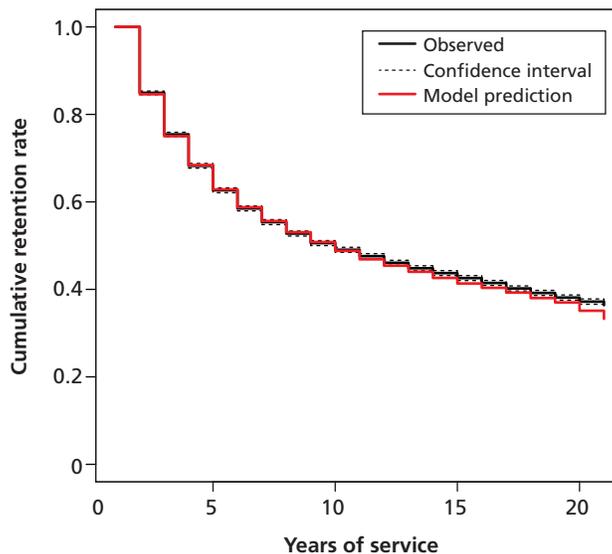
NOTES: Lambda = 45.15, mu = –4.159, standard deviation = 2.952, beta = 0.93.
RAND *RR1540-3.1*

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[2] Specifically, in 1997, the National Imagery and Mapping Agency (NIMA) was created, a major employer of cartographers, by combining various defense functions including the Defense Mapping Agency (DMA).

behavior of DoD civil servants well, deriving that behavior from the decisions made by individual members.

Policy Simulation Capability

The model's mathematical structure and estimated parameters provide a foundation for simulating the effect of alternative personnel policies on DoD civil service retention. The parameters pertain to the tastes of the population entering the DoD civil service and the distribution generating the shocks occurring in each period and state. The parameters are the primitives of the model and not functions of personnel policy currently in place but conceptually independent of it. Nevertheless, the observed behavior during the time period of our data is driven in part by personnel policies, and this occurs through the behavioral response to the incentives implicit in the civil service expected wage profile and the parameters of the retirement system. The assumption that the wage structure and retirement parameters are statistically independent of the parameters to be estimated—namely, the taste distribution and shock parameters—is common in structural models (Heckman, Humphries, and Veramendi, 2016). Thus, in estimation the model is coded to embed the parameters of the civil service expected wage profile and the retirement system, and in simulation the model is coded with the parameters of alternative policies while maintaining the assumption that the estimates of the underlying parameters (taste distribution, shock variance) remain unchanged.

Simulations can be done for the steady state and for the transition to the steady state. In the steady state, all individuals are under the new policy, and their outcomes can be compared with those from a simulation of the baseline (current) policy. Steady-state comparisons show how one system performs relative to another in the long term. But the transition to steady state is also of great interest, particularly in the case of policies that are temporarily in effect. By their nature, incentives that are offered to encourage voluntary separation at a particular calendar time are temporary.

Simulations use a large number (e.g., 10,000) of synthetic individuals for a given level of education (e.g., bachelor's degree or higher). A synthetic individual consists of draws from the taste distribution, and draws from the shock distribution for shocks for each period for up to a 40-year career.

A steady-state simulation starts with individuals at entry into the DoD civil service and follows them for up to 40 years. Decisionmaking moves forward in time, with shocks revealed to the individual only in the year in which they occur, not before. Based on the individual's current year of experience and age (and possibly veteran's status), the model computes the probability of choosing to stay, and a choice is drawn from a uniform distribution whose support represents the relative size of the probability of staying versus the probability of leaving. The state vector is then updated for the next period. Here, the state in the next period has one more year of DoD civil service experience and a one-year increment to a person's age. Another choice is then made, and so on for future periods. The string of choices over an up-to-40-year period provides a year-by-year record of the individual's retention in the DoD civil service—a simulated career profile.

For a simulation of the transitional effects of the introduction of a new policy, the logic is similar, but the simulation must track the behavior of each cohort of currently serving members as well as new entrants, and do so in calendar time (Asch, Mattock, and Hosek, 2014). All new

entrants in a transitional simulation—those who enter once the new policy is implemented—are handled the same as in a steady-state simulation. Currently serving members, however, are under the baseline policy in the past and under the new (possibly temporary) policy in the year it is implemented. Thus, their year of service at the year of implementation defines their cohort after the advent of a policy intervention. The simulation keeps track of each individual's retention experience under the baseline system and going forward under the new policy.

The transitional simulation keeps track of individuals in each cohort (where, as mentioned, cohort is defined by the member's year of service at the time the new policy is implemented) as they move through their DoD civil service careers. The simulation also keeps track of calendar time, so in any calendar year the simulation knows the retention of cohort members under a new policy and can aggregate across individuals for an aggregate retention profile by year of service for a given calendar year, and of course do so for a sequence of calendar years. Such a sequence shows how the retention profile of DoD civil service members present in each calendar year evolves over time, in effect forming a movie of the impact of the policy on the retention structure of the force. The structure moves toward its steady state as cohorts of members serving when the policy was implemented gradually flow out of the force and the force becomes wholly populated by members who entered after the year of implementation.

Several types of output are produced for both the transitional and steady-state simulations. These include graphics of the retention profile (cumulative retention by year of service) and tables of the cost of current compensation, the cost of deferred compensation, and their sum, the total cost of compensation. The output can also include tables of the cost of incentive pays, severance pays, and changes to retirement outlays if appropriate to the policy being modeled.

Scaling Simulations to the Civil Service Force Size

Our DRM parameter estimates are for the GS DoD workforce with at least a bachelor's degree who are covered by FERS. As mentioned, our simulations use a large number (e.g., 10,000) of synthetic individuals. Therefore, we must appropriately scale the simulations to the overall size of the GS DoD workforce with at least a bachelor's degree covered by FERS.

To scale the simulations, we use the number of full-time, nonseasonal employees under the GS pay plan with at least a bachelor's degree at the end of 2011, computed using DMDC civilian personnel data for DoD. We use the DMDC "GS and equivalent" or broadly defined GS pay plan categorization that includes the "GS," "CZ," "GG," "GW," and "GM" codes.

We find there were 225,888 such employees in 2011. Importantly, the 225,888 employees include those under all retirement plans, not just FERS. The reason we did not restrict our tabulations to those only under FERS is that FERS became effective January 1, 1987, and has not been in existence long enough for an employee to have spent an entire career under this system. For our analysis, we require an estimate of the steady-state number of GS employees with at least a bachelor's degree under FERS. Had we restricted the tabulation to include only those under FERS, we would have produced an undercount of the steady-state number of employees. We estimate the steady-state number under FERS by using the size of the DoD GS workforce with at least a bachelor's degree in 2011, including employees under all retirement systems.

The 225,888 figure should be viewed as an estimate of the steady-state DoD GS workforce under FERS with at least a bachelor's degree, even though the computation of this figure itself is not conditional on employees being covered by FERS. We use this 225,888 estimate as

the baseline force size in our simulations, and changes in the force size and retention as a result of VSIP and involuntary separation are measured relative to this baseline.

Costing Methodology for DoD Costs and Treasury Outlays

In addition to simulating retention under baseline and alternative policies, we compute the change in DoD personnel costs and in Treasury outlays on behalf of DoD personnel under each policy. As we discuss in this subsection, in our computations, personnel costs include elements of current compensation, for example, salary payments, and those associated with retirement.

To help guide the discussion, Table 3.1 shows conceptually the elements of cost and cost savings that we include in our analysis and indicates the elements that contribute to our computation of the cost and savings to DoD and to the Treasury. The elements of savings to DoD are the savings from the salary payments of those who separate and the savings from the reduction in retirement-related costs associated with these employees. The elements of costs to DoD are the costs associated with downsizing and restructuring, and these are the cost of VSIP to separating employees in the case of the use of voluntary separation incentives or the costs and severance pay and transition assistance in the case of involuntary separation. Another source of costs, specific to involuntary separation, is the cost of retained grade/pay. As discussed in Chapter Two, as a result of bumping and retreating rules, an employee may displace another employee and take a lower-grade position while retaining his or her pay for a two-year period.

Table 3.1
Elements of Costs and Savings Included in the Computation of the Savings to DoD and to the Treasury

	DoD Cost Savings Computation	Treasury Outlay Savings Computation
Elements of cost savings		
Salary change[a]	X	X
TSP contribution change	X	X
DB accrual charge change	X	
Elements of cost or outlay change		
VSIP[b]	X	X
Severance pay[c]	X	X
Transition costs for outplacement, relocation, retraining[c]	X	X
DB outlay change		X

NOTE: DB = defined benefit.

[a] The computation of the salary cost savings under involuntary separation incorporates the added cost of retained pay during the two-year period that retained/grade is applicable.

[b] Element is relevant only in the computation of savings and costs under VSIP and VERA.

[c] Element is relevant only in the computation of savings and costs under involuntary separation with severance pay.

We incorporate the cost of retained pay in our computation of the change in salary under involuntary separation. That is, the salary cost savings computation is adjusted for the cost of retained pay during the two-year period following the involuntary separation action.

Retirement costs in our analysis are the cost of FERS and include agency contributions made to the defined contribution plan or Thrift Savings Plan (TSP) on behalf of employees and the accrual charge paid by DoD to fund the defined benefit (DB), called the FERS basic plan. TSP agency contributions are assumed to be 5 percent for all employees. The Thrift Savings Plan Investment Board Agency retains an agency's contributions to an employee's TSP account if the employee leaves before vesting and are, therefore, still a cost to the agency. To compute the cost of the basic benefit plan, we use the normal cost percentage of the pay bill for the force, consistent with OPM's actuarial practice. This gives an amount—an accrual charge—sufficient to cover the retirement liability of the workforce that retires from DoD civilian service under FERS. The accrual charge is the cost to U.S. taxpayers of providing the basic benefit plan to the civil service workforce. Part of this charge is borne by DoD, and part is borne by the employees. In the cost figures we show in Chapters Four and Five, we use the full cost of providing the benefit, borne by both DoD and the employees. This is the cost factor that OPM assigns to the FERS basic plan to reflect the actuarial liability included in government financial statements for FERS. For fiscal year 2015, OPM estimated a normal cost of the FERS basic annuity at 14.8 of payroll for those first hired in 2013 or later. We use this figure in our estimates (OPM, 2015).

As discussed in Chapter Two, those who are involuntarily separated receive transition services, including outplacement services, and retraining and relocation, if needed. Unfortunately, we were unable to access current estimates of these transition costs. Therefore, we used the $12,856 figure, per separation, provided by GAO (1996) and used the Employment Cost Index to adjust it to 2015 dollars. In 2015 dollars, this figure is $22,625 per separation, and we use this figure as our estimate of transition costs per separation in our costing analysis.

We also compute net savings or costs to the Treasury in terms of changes in outlays. Table 3.1 shows that the elements of the change in Treasury outlays include all of the elements of savings and costs that are also included in the savings and costs to DoD, with the exception of the DB accrual charge. The accrual charge is an intergovernmental transfer of funds from DoD to the Civil Service Retirement and Disability Fund on behalf of employees. In contrast, outlays of the Treasury, such as payments of retirement benefits to DoD civilian retirees, represent the outflow of dollars from the government. Changes in DB retirement benefits paid to DoD civilian retirees will change government outlays. As shown in Table 3.1, changes in retirement payments to retirees are not an element included in DoD costs but are an element included in the computation of the change in Treasury outlays.

DB retirement benefit payments, and therefore Treasury outlays, may change under downsizing and restructuring because DoD civilians may change the timing of their retirement decisions as a result of VSIP and VERA. For example, VERA provides an unreduced annuity to those retiring early; employees who opt to retire earlier than they otherwise would receive a lower annuity payment because they retire under VERA with fewer years of service and a lower final salary. Consequently, VERA can lower DB annuity outlays as a result of the change in the characteristics of those who retire, though the amount depends on the extent to which retirement timing and annuity payments are lower. DB outlay changes can occur in both the short run and long run. Short-run changes will be affected by the change in number of retirees as a result of VERA (e.g., more employees may retire earlier) and changes in their

annuity payments. Changes in the long run will be affected by changes in the number of employees retiring later in their career as well as changes in annuity payments. Interestingly, VERA may affect Treasury outlays but have little effect on DoD retirement costs, at least in the short run. Retirement costs are dictated by the accrual charge that DoD faces, and that charge is based on the retirement behavior of the entire civil service. It can take time for the accrual charge to adjust to changes in retirement behavior resulting from VERA, so DoD accrual costs are unlikely to change in the short run. Furthermore, even if the accrual charge eventually changes, the impact to DoD is diluted.[3] In our costing analysis, we assume VERA has no effect on the DoD accrual charge in the five-year time horizon we consider.

Several elements of costs and outlays were excluded from our analysis. First, we exclude costs related to the Federal Employees Health Benefits Program. In 2015, the cost factor for the FEHB, representing DoD's share of the contribution to the total health benefit premium, was $5,469 per enrolled employee (OPM, 2015). Because the cost factor is a fixed dollar amount per employee, the cost savings in terms of cost avoided of a downsizing a given number of employees is identical under VSIP versus involuntary separation, and exclusion of this cost will have no effect on our estimate of the change in DoD costs under VSIP with VERA versus involuntary separation. We note that, for DoD retirees, the government share of premiums are paid from general revenue—the Treasury, according to the Congressional Research Service (Isaacs, 2015)—and those outlays from the Treasury could differ for retirees who separated under VSIP and VERA versus involuntary separation insofar as the VSIP and VERA offer changed the timing of retirements. We ignore this effect in our computations of the change in Treasury outlays.

Second, we also exclude the costs associated with the FEGLI benefit. The cost in 2015 to DoD was a cost factor of .02 percent of basic pay (OPM, 2015). Exclusion of this cost could affect our comparison of the change in DoD costs under VSIP with VERA versus involuntary separation insofar as the changes in experience mix, and therefore the basic pay bill, differ under these two policy regimes and the experience mix of those separating differ. As we show in Chapters Four and Five, we find that the changes in experience mix do in fact differ. However, because the cost of this benefit is so small, we expect the change in FEGLI costs to be quite small and the differences in the change under VSIP and VERA versus involuntary separation to be quite small as well.

Third, we exclude unemployment insurance in our computations of the change in DoD costs. As discussed in Chapter Two, DoD civilians are eligible for unemployment insurance only if they are involuntarily separated, and they are not eligible for this benefit if they accept VSIP or VERA. The cost to DoD of unemployment insurance for an employee is the agency contribution to the unemployment insurance fund and is equal to 6 percent of the first $7,000 of taxable pay in the case of the Federal Unemployment Tax Act (FUTA)) tax. Since the full-time federal employees relevant to our analysis earn more than $7,000 on average (see Table 2.4), FUTA-related costs to DoD are $420 per employee per year, a fixed amount per employee in our analysis. Downsizing means that the FUTA costs for separating employees are avoided, but the change in cost is identical under VSIP and VERA versus involuntary separa-

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[3] The military retirement system is also funded on an entry-age normal cost method, and a common accrual charge is used for all active duty members, regardless of service branch. In Hosek, Asch, and Mattock (forthcoming), we analyze the implications for policy of an accrual charge that is common across the services versus service-specific. We find, among other things, that a common accrual charge dilutes the cost signal of policy changes for a given service.

tion for a downsizing of a given size since FUTA costs are essentially fixed per employee. Thus, exclusion of FUTA costs will not affect cost comparisons between VSIP and VERA versus involuntary separation. In addition to the federal tax rate, state laws also determine individual state unemployment insurance taxes paid by DoD, and the change in costs could differ under VSIP and VERA versus involuntary separation if these policies affect the pay bill through changes in the experience mix of the retained workforce and if the experience mix of those separating differ. We ignore this effect.[4] Because unemployment insurance is administered by individual states and benefits are paid by the state, changes in unemployment insurance payments have no effect on U.S. Treasury outlays.

Our estimates of the change in DoD costs and Treasury outlays assume that positions vacated as a result of downsizing are eliminated. We discuss later the implications of the estimates for restructuring when vacated positions may be filled by potentially lower-cost personnel. Also, we assume a one-year window for the VSIP program and assume that the costs avoided occur during this first year when individuals separate. The implicit assumption is that individuals separate at the beginning of the first year, thereby avoiding salary and other costs in that first year and in subsequent years. We also consider a five-year time horizon given the relatively short budget horizon of the government and compute net costs or savings to DoD in the first year and cumulative net costs or savings over a five-year period. While our DRM capability can project costs and outlay changes far into the future, our presentation of results focuses on the five-year horizon. Changes in costs and outlays beyond the five-year horizon are not shown. Furthermore, for simplicity and consistency with the methodology used by GAO (1996), we do not discount the costs or outlays over the five-year horizon.

Costing Methodology for Measuring the Cost to Separated Employees of Involuntary Separation

We also compute the cost of involuntary separation to employees who are separated. That is, in addition to computing costs to DoD and changes in Treasury outlays, our costing methodology also recognizes that employees themselves bear a cost of being separated. Individuals who are involuntarily separated would prefer to stay in the civil service; that is why their separation is involuntary. Consequently, they lose the value of a civil service career by being involuntary separated. Computing this loss is straightforward with the DRM.

The net value of the loss to an individual who is involuntarily separated can be thought of as having three main components: a monetary component, which comes from the difference in the present expected value in the streams of income from staying in the civil service for at least one more year versus immediately pursuing a career outside the civil service (including the severance payment); a nonmonetary component, which comes from the present expected value of the stream of nonpecuniary returns ("taste") from staying in a civil service career for at least one more year; and an option-value component, which comes from being free to choose to stay or leave versus being involuntarily separated. The expected value of the stream of income from staying in the civil service for at least one more year of service would reflect the individual's probability of reaching different career lengths and possibly qualifying for different retirement options; the probability of reaching different career lengths will depend on an individual's

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[4] Another effect we ignore is the possibility that the state tax rates faced by DoD change over time to the extent that these tax rates are "experienced rated" and based on the amount of usage of UI by employees involuntarily separated by DoD. That is, tax rates adjust over time. Since the horizon we consider is relatively short—five years—we ignore this effect as well.

taste. In general, those individuals with a higher taste will have a higher probability of having a longer tenure, as they are more likely to weather negative shocks. Thus, individuals with higher taste could be expected to also have a higher value for the monetary component of the loss as well. The DRM can account for all three components of the loss to an individual.

We compute the cost to the separated employee of being involuntarily separated by subtracting the value of leaving plus severance pay in the next period from the value of being able to choose the expected value of the maximum of staying or leaving in the next period. We aggregate over individuals to calculate a total cost to individuals of involuntary separation. Thus, our cost figure nets out severance pay so that it reflects the loss over and above the severance payment received. (The severance pay cost is already included in the DoD cost.) Because the value of the individual's loss is computed using the DRM, it accounts for both monetary and nonmonetary factors. As discussed earlier in this Chapter, these factors include the value of public service to employees and other quality-of-life factors.

Past research indicates that involuntary separation can hurt morale and the productivity of employees who are not separated, as well as cause turbulence and disruption. We do not include these costs in our estimates of the cost of involuntary separation to employees. Consequently, our estimate potentially understates the costs to employees of involuntary separation.

Simulating Downsizing and Restructuring Policies

We have extended the DoD civil service DRM to model how individuals might respond to being offered the opportunity to take VSIP and VERA, including an individual's perception of the threat of a RIF and their possibly being subject to bumping, retreating, or an involuntary separation. We have also extended the model to include involuntary separation that might occur during the execution of a RIF, including the individual's receipt of severance pay. In each case, our modeling assumes the drawdown window is one year. We simulate the number of separations that occur during this first year and compute the cost and outlay changes during the first year and the cumulative changes over a five-year horizon. We describe each of the model extensions in turn.

VSIP and VERA Under the Threat of a RIF

As mentioned, VSIP may have a larger effect on separation behavior if individuals perceive that they face a chance of involuntary separation if they fail to signal a willingness to take the VSIP and VERA offer. Therefore, we extended the DRM so that we can simulate the effects of VSIP and VERA with and without the threat of RIF.

We model the decision of an individual to signal a willingness to take VSIP by determining the maximum of the value of staying and possibly being subject to one of the consequences of a RIF, or leaving with the VSIP and VERA (if eligible). The opportunity to signal a willingness to take VSIP, along with some possibility of a future RIF, changes the relative values of staying and leaving. For someone likely to face involuntary separation if their position is subject to a RIF, staying brings a current-period return of the civil service pay at that year of service, plus the expected discounted value of future returns accounting for the likelihood of being involuntarily separated in the next period and facing the possibility that the future returns involve being in the external market. Leaving brings the value of the VSIP plus a civilian wage plus the discounted present value of any of the future returns to a civilian career including any civil service retirement benefits the individual has accrued (including benefits

payable under VERA, if eligible). The individual evaluates the value of staying or leaving with VSIP and, if the value of leaving with VSIP is greater, signals a willingness to take VSIP.

The value of staying for a person who would not be involuntarily separated, but whose position might be targeted by a RIF, can be thought of as being analogous to that of someone subject to involuntary separation but with very small probability. Thus, the bumping and retreating a person may be subject to would tend to cause them to value staying less than otherwise, and thus more likely to signal a willingness to take VSIP.

As mentioned above, the model output includes the cost to DoD of the VSIP incentive and the incremental effect of induced early retirements on government retirement compensation outlays of VSIP alone or VSIP used in conjunction with VERA.

Involuntary Separation

We approximate selection for involuntary separation by using a random process—not as a reflection of reality but because we do not have the detailed, individual-specific information and criteria that DoD civil service workforce managers use embedded in our model. We mechanically simulate involuntary separation by setting a target probability for involuntary separation by each year of service, and then by making a random draw from a uniform distribution from zero to one for each individual present in that year of service; if the draw is below the target probability, the individual is separated in the next period and given the discounted value of leaving plus separation pay, plus the present value of any civil service retirement benefit accrued.

As discussed above, in addition to computing severance pay costs and transition benefit costs, we also calculate the cost to an individual of an involuntary separation.

Summing Up

The DRM is well suited to analyze alternative civil service restructuring policies with respect to their effect on retention, cost, and outlays in the steady state and during the transition to the steady state. The DRM incorporates forward-looking behavior, thereby allowing future as well as current compensation to enter current decisions, and the model provides a logically consistent framework for intertemporal decisionmaking. Importantly, the model allows for individual preferences toward the civil service—the "nontangibles" of service—and for uncertainty.

In applying the DRM to policy analysis, we estimate its parameters on retention data for the DoD civil service, affording a solid empirical grounding. The estimated model fits the data well; that is, when the estimated model is used to simulate retention behavior under the current compensation system, the retention behavior, when aggregated across the simulated individuals, comes quite close to the retention profile seen in the data. Thus, the model does a good job of capturing global behavior of the DoD civil service, by modeling individual decisionmaking and aggregating up.

A wide variety of alternative force downsizing and restructuring policies can be analyzed using the DRM. It accommodates early retirement plans with various vesting, eligibility, and benefit formulas, as well as incentive pays, such as separation pay. It allows the possibility of a future RIF to play into an individual's decision to indicate a willingness to accept an offer of a voluntary separation incentive package. Extensive simulation capabilities have been developed for the DRM. These include steady-state and transitional simulations, with outputs including

retention, current and deferred cost, and outlays, shown in the steady state and, for transitional simulations, over time. Thus, the DRM and its simulation capabilities can address many of the requirements for policy analysis outlined in this report.

Responsiveness of Separations, Costs, and Outlays to Changes in VSIP

In this chapter, we show the responsiveness of the number of DoD civil service separations, total costs and outlays, and marginal cost and outlays to changes in VSIP. Specifically, we use the DRM to compute the additional separations and associated changes in costs and outlays of maintaining the real value of VSIP in 2015 dollars by increasing the nominal amount to $41,000 versus the current value of $25,000. We also consider the case of increasing the real value of the cap to $55,000. The analysis we perform assumes that VSIP is offered with VERA, regardless of the VSIP cap amount, given that we find that virtually all separations with VSIP are eligible for retirement (Chapter Two). Furthermore, we assume that all personnel with at least three years of service receive the offer. Given that VSIP eligibility requires 12 months continuous service in DoD, the use of three years of service is a conservative assumption on eligibility for VSIP. We show that with the VERA offer, VSIP takers tend to have more years of service than the workforce overall. Because of the relatively low responsiveness of more-junior personnel, we also consider the change in separations, costs, and outlays when we change the VSIP formula to make VSIP attractive to mid-level and more-senior personnel. The formula change involves allowing VSIP takers to receive the larger of severance pay or $25,000, rather than whichever is smaller, as in the current formula.

Finally, because offering VSIP and VERA can signal downsizing to civilians and the possibility of a future RIF if insufficient personnel accept the VSIP offer, some civilians may choose to take VSIP as a way of avoiding being involuntarily separated in the future. The threat of involuntary separation can induce more voluntary separations under VSIP than in the absence of the threat. Therefore, we also show how our results depend on the responsiveness of separations, costs, and outlays to changes in VSIP change when the VSIP and VERA offer are accompanied by a 2 percent chance of being involuntarily separated in the near future. (We discussed the use of a target probability of being involuntarily separated, such as 2 percent, in Chapter Three). Bumping and retreating rules under a RIF affect which employees actually separate and therefore which employees actually face the threat of involuntary separation. Unfortunately, our modeling capability does not include these complex rules. We approximate the effect of these rules by assuming that the impact of the rules is on those with between three and 24 years of service. The lower bound is consistent with our assumption about the VSIP offer and also reflects the unlikelihood that relatively new hires would be targeted for involuntary separation given our tabulations in Tables 2.4 and 2.5 that show that only 5 percent of those receiving severance pay have less than four years of service. The upper bound reflects that those subject to involuntary separation with at least 25 years of service are eligible for discontinued service retirement and so are less likely to be involuntarily separated. This is seen in

Figures 2.1 and 2.2, where we find that the bulk of those receiving severance pay have between three and 24 years of service. Thus, in this analysis, we approximate the threat of involuntary separation by assuming that those with between three and 24 years of service have a 2 percent chance of being involuntary separated.

We begin by first showing the effects of varying VSIP amounts on separations and average experience of the retained workforce during the first year. The analysis assumes a one-year downsizing window. We next consider the effects on the change in DoD personnel costs and in Treasury outlays during the first year and cumulatively over a five-year horizon. Finally, we present results on incremental costs and savings, or the marginal cost/savings, of varying VSIP. The marginal cost/savings computations show the cost or savings on the margin of achieving an additional separation with VSIP.

Responsiveness of Separations to Changes in VSIP

Figures 4.1–4.3 show the change in the number of civilians retained by year of service when VSIP is $25,000 (Figure 4.1), $41,000 (Figure 4.2) and $55,000 (Figure 4.3). The top panel of each figure shows the change when VSIP is offered along with VERA without any threat of an involuntary separation, while the bottom shows the change when civilians expect a 2 percent chance of a future involuntary separation for those with between three and 24 years of service. Table 4.1 summarizes the change in separations. The first column shows the percentage change in the force retained relative to the baseline force when VSIP and VERA are not offered. The assumed size of the baseline force is 225,888, as discussed in Chapter Three. The middle column shows the change in separations as an absolute number, and the final column shows the average experience of the force retained, in years. The baseline average experience level is 12.87 years.

We find that increasing the VSIP cap from $25,000 to $41,000 increases separations from 8,899 to 12,842 in the absence of a threat of involuntary separation, a drop in the force retained from 3.9 percent to 5.7 percent. Not surprisingly, the number of separations is larger when the buyout acceptance decision is accompanied by a 2 percent chance of involuntary separation for those likely to be affected by RIF, including bumping and retreating: 9,770 and 13,805 under the $25,000 versus $41,000 cap, respectively. Employees who are involuntarily separated and receive severance pay are ineligible to receive either normal or early retirement benefits. In contrast, those separating under VSIP and VERA are eligible for both but not severance pay. Thus, even though the threat is small, about 900 additional employees choose to take VSIP when faced with the threat versus in the absence of the threat (9,770 − 8,899 = 871 and 13,805 − 12,842 = 963). Increasing VSIP even more, from $41,000 to $55,000, has an even larger effect. The number of separations induced by VSIP increases to 17,075, or 7.6 percent of the force retained in the absence of an involuntary separation threat, and to 17,990 with a 2 percent threat, or an 8.0 percent drop in the force retained.

These results may also be seen from a different perspective. When a RIF or reorganization begins, employees are surveyed (as mentioned in Chapter Two) to learn about their willingness to accept VSIP if offered. In effect, the choice facing an employee is the willingness to leave voluntarily with VSIP versus not being willing to accept VSIP and being subject to the possibility of involuntary separation as the end result of the RIF process. For many employees, as we show later, the value of their career as a DoD civilian employee is much greater than the value

Figure 4.1
Effects of $25,000 VSIP Cap Together with VERA Offer on DoD
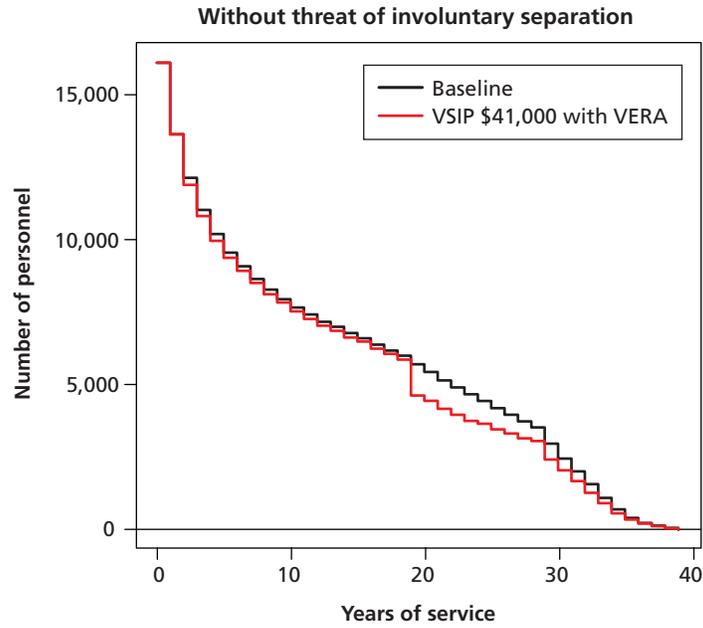**Civilian Retention**
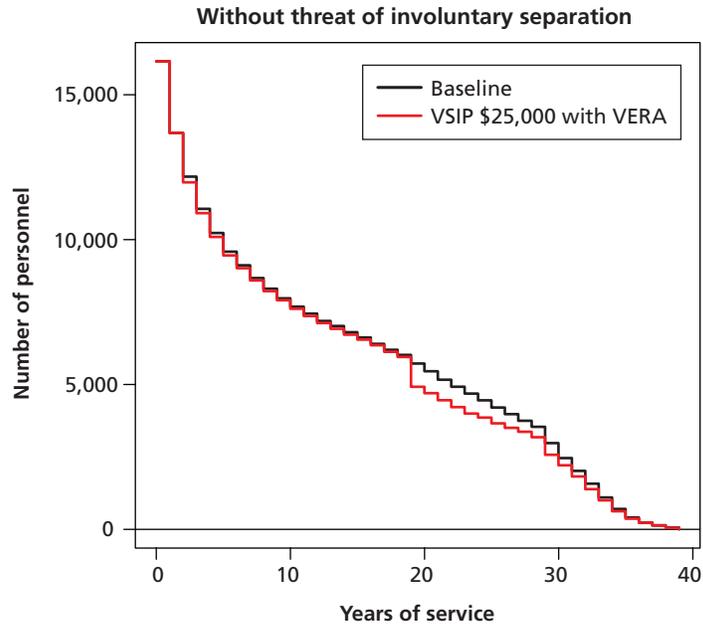
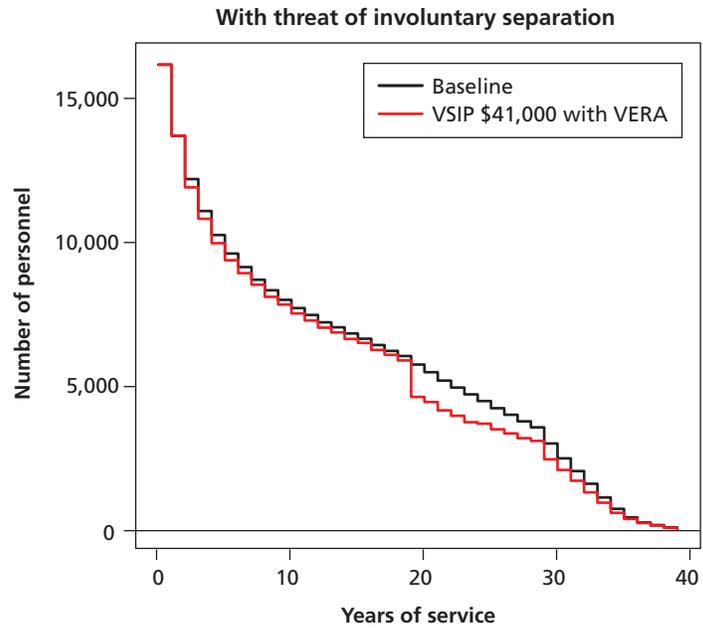NOTES: % change in force = –3.9, net change in force = 8,889, average years of service = 12.48.
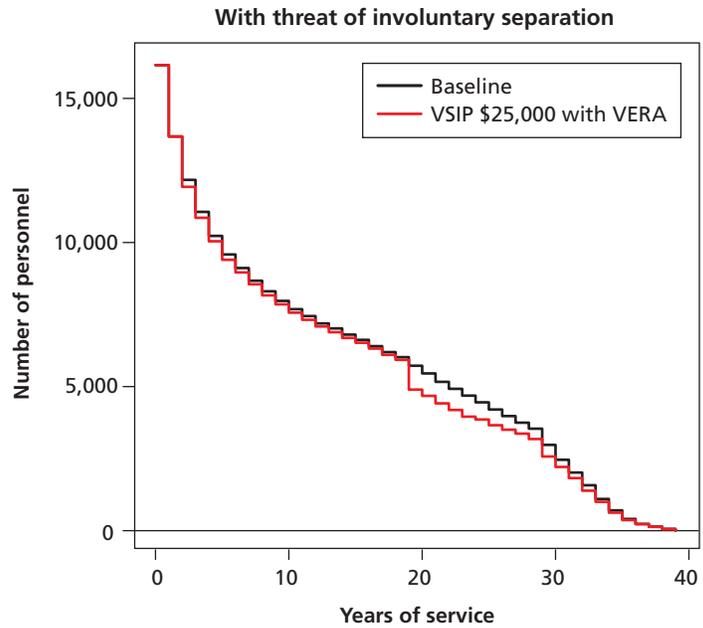
NOTES: % change in force = –4.3, net change in force = 9,770, average years of service = 12.49.

RAND *RR1540-4.1*

Figure 4.2
Effects of $41,000 VSIP Cap Together with VERA Offer on DoD Civilian Retention

Without threat of involuntary separation

NOTES: % change in force = –5.7, net change in force = 12,842, average years of service = 12.31.

With threat of involuntary separation

NOTES: % change in force = –6.1, net change in force = 13,805, average years of service = 12.31.

RAND *RR1540-4.2*

Figure 4.3
Effects of $55,000 VSIP Cap Together with VERA Offer on DoD
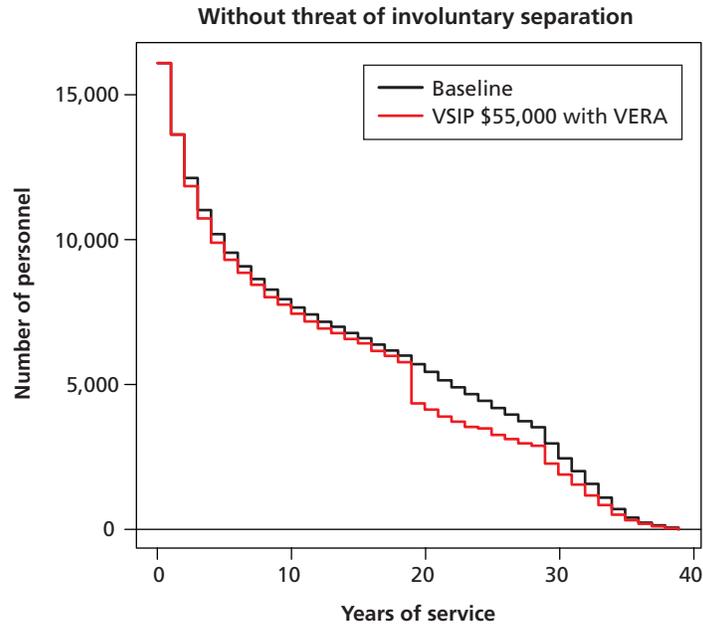**Civilian Retention**

NOTES: % change in force = –7.6, net change in force = 17,075,
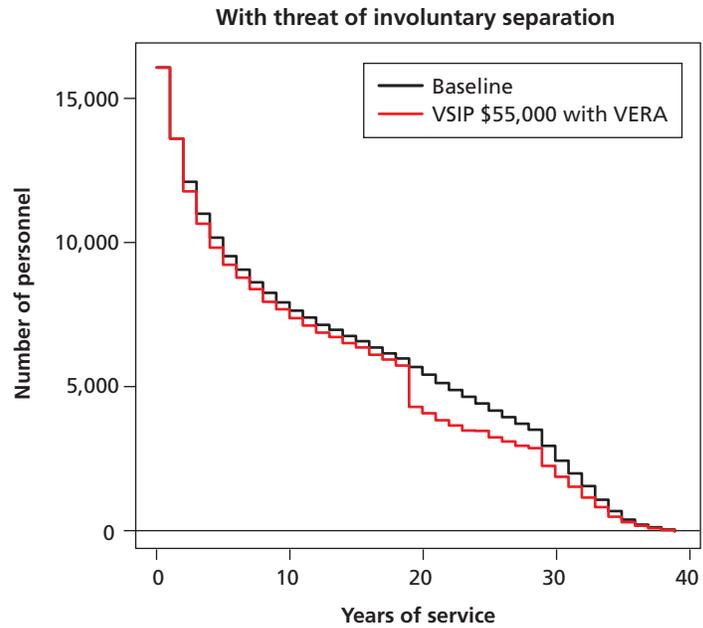average years of service = 12.12.

NOTES: % change in force = –8.0, net change in force = 17,990,
average years of service = 12.12.

RAND *RR1540-4.3*

Table 4.1
Schedule of Responsiveness of Separations Due to Varying VSIP

	% Change in Force Size Relative to Baseline of No VSIP+VERA	Reduction in Force Size Relative to Baseline Force of 225,888	Average Years of Service (Baseline: 12.87)
VSIP + VERA: No Threat of RIF			
$25K VSIP Cap	−3.9%	8,899	12.48
$41K VSIP Cap	−5.7%	12,842	12.31
$55K VSIP Cap	−7.6%	17,075	12.12
VSIP + VERA: 2% Threat of RIF			
$25K VSIP Cap	−4.3%	9,770	12.49
$41K VSIP Cap	−6.1%	13,805	12.31
$55K VSIP Cap	−8.0%	17,990	12.12
VSIP with "Max" Formula + VERA			
$25K VSIP	−12.8%	28,852	11.63

of a job in the economy, so a 2 percent chance of involuntary separation means a 98 percent chance of remaining a DoD civilian and retaining the higher value of that position. As a result, the relatively small increase in voluntary outflow—an increase of less than 10 percent—is not surprising. Still, the fact that the increase in employees willing to accept VSIP was as large as that indicates the thickness or density of the distribution of workers at the margin defined by this choice between voluntary departure with VSIP and staying but being at risk of involuntary separation.

The effects of VSIP are concentrated on personnel with at least 20 years of service. VSIP is often accompanied by the offer of VERA, and those who are at least age 50 with at least 20 years of service can receive an unreduced annuity under VERA. Thus, VSIP together with VERA is particularly attractive to more-senior personnel. A few junior personnel also take VSIP, with the number increasing with the VSIP cap. Those with relatively low taste for DoD civil service may find that a VSIP offer puts them over the margin, and they opt to leave. But, the number of junior leavers is small even when the cap is $55,000. The limited responsiveness of junior personnel can be understood by the limited generosity of VSIP despite the much higher cap. By formula, VSIP is the smaller of severance pay and the cap, and for many junior personnel, severance pay will be less than the cap, as the examples in Table 2.1 suggest. For example, as shown in Table 2.1, an employee who makes $1,000 per week at age 35 with 10 years of service would get a VSIP of $10,000 while a 40-year-old employee with the same slary and 15 years of service would get a VSIP of $20,000. Raising the cap, therefore, does nothing in this range to increase the amount of VSIP. In contrast, senior personnel under VERA receive the full benefit of the higher cap. The $25,000 cap was clearly less than the severance pay amount, and the $41,000 or $55,000 cap, while still less than the severance pay amount for many workers, is nonetheless far larger than $25,000. For example, as shown in the examples in Table 2.1, a senior employee who is age 45, makes $1,000 per week, and has 20 years of service would receive $45,000.

The greater propensity for senior personnel to leave under VSIP is seen by the change in average experience under VSIP. Under the baseline, with no VSIP or VERA offer, average experience is 12.87 years. Under a $25,000 VSIP cap, average experience falls by about 0.40, or almost half a year, to 12.48 years. Under a $55,000 VSIP cap, average experience falls even more, by 0.75, or three-quarters of a year of experience. While the loss of experience represents a loss of capability, separations among more-senior personnel can open up promotion opportunities for the more-junior personnel who stay if the senior personnel occupy higher-ranked positions (though this is not modeled).

Junior personnel find VSIP relatively unattractive because the VSIP for which they are eligible is not the cap but is the value of severance pay, an amount that is less than the cap. We considered changes to the VSIP formula that could make VSIP more appealing to junior personnel. One reason for making VSIP more attractive to junior personnel is that making VSIP more attractive to a broader range of personnel could give DoD personnel managers more flexibility in shaping the workforce. We consider a change to the formula, labeled "Max" in the table and figures, such that VSIP is the maximum of severance pay and the VSIP cap, rather than the minimum. Thus, for junior personnel, for whom severance pay falls short of the cap, VSIP would increase up to the cap. This formula is also more attractive to senior personnel whose severance pay exceeds the cap; they would receive the value of severance pay.

Figure 4.4 shows the response of separations to changing the VSIP formula. The Max formula results in a large number of separations: 28,852, or a drop of about 13 percent in the workforce that is retained. The number of separations under the alternative formula is dramatically higher than the 8,899 separations under the current formula, a more than threefold difference. While it is still the case that senior personnel are more responsive to VSIP, the respon-

Figure 4.4
Effects of "Max" VSIP Formula Together with VERA Offer on
DoD Civilian Retention
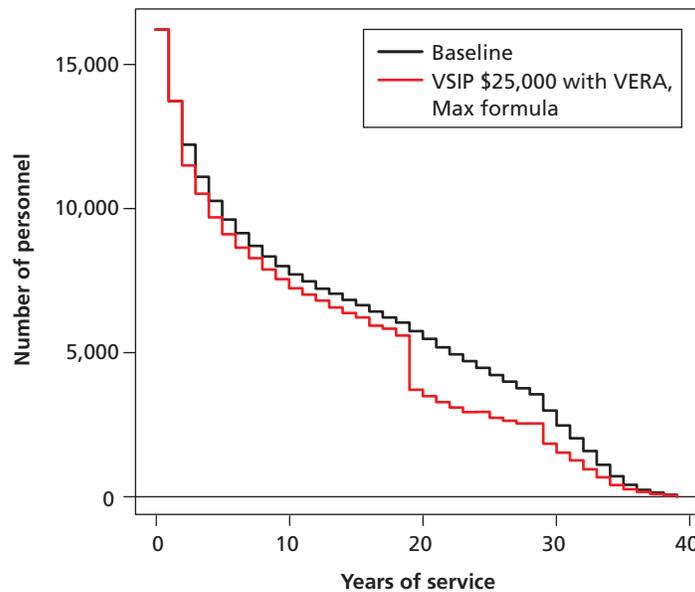
NOTES: % change in force = –12.8, net change in force = 28,852,
average years of service = 11.63.
RAND *RR1540-4.4*

siveness of junior personnel has increased as well. Still, overall, average experience falls by 0.81 years, or over three-quarters of a year.

Responsiveness of Total DoD Costs and Government Outlays to Changes in VSIP

Given the increase in separations under changes to VSIP, we can compute the savings associated with costs avoided in the current and future periods as well as the change in personnel costs to DoD and changes in Treasury outlays during the first year and cumulatively over a five-year period. This does not provide information on the relative cost-effectiveness of increasing VSIP to generate an additional separation, however. For that, we must consider marginal cost estimates, and we turn to those estimates later in the chapter.

In computing savings, costs avoided in our analysis include the salary payments of those who separated, the TSP contributions that DoD would have made on their behalf, and the DB accrual charge associated with the FERS basic plan. The costs to DoD are the costs of the VSIP that occurs in the year that individuals separate. We assume that costs avoided also occur in the first year when individuals separate. The implicit assumption is that individuals separate at the beginning of the first year, thereby avoiding salary and other costs in that first year and in subsequent years. We consider a five-year time horizon, as in the GAO and CBO studies, and compute net costs or savings to DoD in the first year and cumulative net costs or savings over a five-year period.

We also compute net savings or costs to the Treasury in terms of changes in outlays. The DB accrual charge is an intergovernmental transfer between DoD and the Treasury and is not included in savings or increases to outlays. On the other hand, changes in retirement benefits paid to retirees do affect government outlays. Changes in benefits may occur because individuals change the timing of their retirement decisions as a result of VSIP and VERA or the benefit amount that is paid changes, as is the case with VERA, which provides an unreduced annuity to those retiring early. The change in outlays associated with changes in payments to retirees is not included in DoD costs. These estimates assume that vacated positions created by VSIP and VERA are eliminated. We discuss later the implications of the estimates for restructuring when vacated positions may be filled by potentially lower-cost personnel.

Table 4.2 shows the change in net DoD costs and in net Treasury outlays when VSIP varies from $25,000 to $41,000 to $55,000 and when we consider an alternative formula based on the maximum of $25,000 and severance pay. The table shows net costs and net outlays after the first year and then cumulatively over a five-year horizon. All dollar figures in the table are in 2015 billions of dollars. In each case, VSIP is accompanied by a VERA offer. As with the retention analysis, we consider the cost and outlay implications when VSIP and VERA are offered under no implicit threat of an involuntary separation and with a 2 percent threat.

The top row shows the number of separations induced by the policy, as discussed above. The top panel of the table, labeled "Savings," shows the savings to DoD due to cost avoidance in the first year and over five years, due to lower salary, TSP, and DB accrual charge payments. For example, a VSIP of $25,000 without the threat of involuntary separation saves $0.75 billion, or $750 million, in salary cost avoidance after the first year. The middle panel, labeled "Costs or Outlay Change," shows the VSIP costs and the change in DB outlays in the first year and on net over the five-year horizon. For example, VSIP of $25,000 costs $0.48 billion,

Table 4.2
Schedule of Responsiveness of Cost and Outlays Due to Varying VSIP, in Billions of 2015 Dollars

	VSIP + VERA Without Threat of Involuntary Separation						VSIP + VERA With 2% Threat of Involuntary Separation						Max VSIP Formula	
	$25,000 VSIP Cap		$41,000 VSIP Cap		$55,000 VSIP Cap		$25,000 VSIP Cap		$41,000 VSIP Cap		$55,000 VSIP Cap			
	1st Year	5-Year Cumu-lative	1st Year	5-Year Cumu-lative	1st Year	5-Year Cumu-lative	1st Year	5-Year Cumu-lative	1st Year	5-Year Cumu-lative	1st Year	5-Year Cumu-lative	1st Year	5-Year Cumu-lative
Separations	8,899		12,842		17,075		9,770		13,805		17,990		28,852	
Savings														
Salary change	$(0.75)	$(3.22)	$(1.09)	$(4.56)	$(1.45)	$(6.01)	$(0.82)	$(3.54)	$(1.17)	$(4.91)	$(1.52)	$(6.34)	$(2.44)	$(9.97)
TSP cont. change	$(0.04)	$(0.16)	$(0.05)	$(0.23)	$(0.07)	$(0.30)	$(0.04)	$(0.18)	$(0.06)	$(0.25)	$(0.08)	$(0.32)	$(0.12)	$(0.50)
DB accrual charge	$(0.11)	$(0.48)	$(0.16)	$(0.67)	$(0.22)	$(0.89)	$(0.12)	$(0.52)	$(0.17)	$(0.73)	$(0.23)	$(0.94)	$(0.36)	$(1.48)
Total	$(0.90)	$(3.86)	$(1.31)	$(5.46)	$(1.74)	$(7.19)	$(0.98)	$(4.24)	$(1.40)	$(5.88)	$(1.81)	$(7.59)	$(2.92)	$(11.95)
Cost or outlay change														
VSIP	$0.48	$0.48	$0.92	$0.92	$1.45	$1.45	$0.50	$0.50	$0.95	$0.95	$1.48	$1.48	$3.22	$3.22
DB outlay change	$0.18	$0.81	$0.25	$1.06	$0.32	$1.33	$0.19	$0.83	$0.25	$1.09	$0.32	$1.34	$0.49	$1.98
Total	$0.66	$1.29	$1.17	$1.99	$1.76	$2.77	$0.68	$1.33	$1.20	$2.03	$1.80	$2.82	$3.71	$5.20
Change in outlays	$(0.13)	$(2.09)	$0.02	$(2.80)	$0.24	$(3.53)	$(0.18)	$(2.39)	$(0.02)	$(3.12)	$0.20	$(3.83)	$1.15	$(5.27)
Change in DoD Costs	$(0.42)	$(3.38)	$(0.39)	$(4.54)	$(0.29)	$(5.75)	$(0.49)	$(3.75)	$(0.45)	$(4.94)	$(0.35)	$(6.12)	$0.30	$(8.73)
Cutoff for restructuring costs (% of savings)		87.6%		83.1%		79.9%		88.3%		83.9%		80.6%		73.0%

NOTE: Figures in parentheses indicate cost or outlay decreases ("savings").

given the 8,899 separations induced by the program. The lower part of the table shows the net change in outlays and the net change in DoD costs (or savings). The net change in outlays equals the savings due to cost avoidance of lower salary and TSP payments plus the costs associated with VSIP and the changes in DB retirement benefit payments. The net change in DoD costs equals the savings due to the cost avoidance of lower salary, TSP, and DB accrual charge payments plus the costs due to VSIP. For example, on net, a VSIP of $25,000 (without the threat of involuntary separation) reduces government outlays by $0.13 billion and reduces DoD costs by $0.42 billion after one year. The last row of the table is discussed later in the context of the savings associated with restructuring rather than downsizing.

We find that after the first year, VSIP with VERA yields a net savings to DoD, though the net savings is lower at higher VSIP cap amounts. Specifically, net savings is $0.42 billion with a $25,000 cap but $0.39 billion under a $41,000 cap and $0.29 billion under a $55,000 cap. The savings are greater when VSIP and VERA are accompanied with a 2 percent chance of involuntary separation because the number of separations is greater in this case. For example, instead of a $0.39 billion net savings under a $41,000 VSIP cap, we estimate a $0.45 billion net savings when VSIP is accompanied with a threat of involuntary separation, a difference of $60 million.

We also find that after the first year, net government outlays decrease slightly, by $130 million to $180 million, depending on whether employees face an involuntary separation threat, when VSIP is at the current cap of $25,000. But, at higher VSIP amounts, the savings disappear and outlays may increase. With a cap of $41,000, the change in net Treasury outlays is virtually zero, while at a higher cap of $55,000, outlays increase by $0.24 billion. Thus, at higher VSIP levels, net government outlays increase after the first year, and the savings in cost avoidance of salary and TSP payments are not enough to offset outlays due to VSIP and the change in DB retiree payments.

The results on the cumulative net change in costs and outlays over a five-year horizon show that VSIP with VERA yields a net savings to both DoD and the Treasury, and the amount of net cumulative savings to DoD is greater at higher VSIP amounts. Specifically, five-year net cumulative savings to DoD increases from over $3 billion under a $25,000 cap ($3.38 billion) to about $4.5 billion under a $41,000 cap and further increases to $5.75 billion under a $55,000 cap. Net cumulative savings to DoD are even greater over five years when VSIP is accompanied by the 2 percent threat of being subject to involuntary separation. For example, under a VSIP cap of $25,000, net cumulative savings are $3.75 billion rather than $3.38 billion, a difference of $370 million.

Similarly, net cumulative savings in outlays over five years to the Treasury are greater at higher VSIP amounts, and the threat of involuntary separation increases savings to the Treasury for a given VSIP amount. Specifically, five-year net cumulative savings to the Treasury increases from $2.09 billion to $2.80 billion when the VSIP cap is raised from $25,000 to $41,000 or from $2.39 billion to $3.12 billion when VSIP is also accompanied by the 2 percent threat of involuntary separation. Savings further increase to $3.53 billion under a $55,000 cap (or $3.83 billion with a 2 percent involuntary separation threat).

Savings to DoD and the Treasury increase with VSIP amount when we consider a longer time horizon than one year because a longer horizon allows for more time for the savings from cost avoidance to accumulate and cost avoidance savings are greater when VSIP is higher. On the other hand, the higher cost of VSIP when the VSIP cap is greater only lasts for one year, so eventually the savings from cost avoidance overtakes the costs of higher VSIP.

The last columns consider the net savings after the first year and cumulatively over five years when we replace the VSIP formula with one that gives the maximum of $25,000 or severance pay. After the first year, both DoD and the Treasury would experience a net increase in costs and outlays. The alternative formula is more generous and generates far more separations, and the costs and outlays associated with these separations after the first year overtake the savings from cost avoidance. Specifically, after the first year, VSIP costs are $3.22 billion under the alternative formula, in contrast to the $0.48 billion cost of VSIP using the traditional formula. However, over the five-year horizon, net cumulative savings are substantial to both DoD and the Treasury and far exceed the savings under the other alternatives considered in the table. Over five years, net cumulative outlays savings are over $5 billion and net cumulative DoD cost savings are nearly $8.75 billion. By comparison, under today's VSIP formula and even with a cap raised to $55,000 and a 2 percent threat of involuntary separation, the DoD and Treasury savings fall short of these amounts.

It is important to put these savings figures in context of the retention figures shown earlier in this chapter. We find that increasing VSIP increases separations, particularly among more-senior personnel. The higher VSIP amounts from the maximum formula generate substantial savings, but the average experience of the retained workforce is lower, and presumably so is its capability. Yet if the reduction is part of a downsizing effort, the position is no longer required, otherwise the VSIP would not have been offered. Further, the reduction in retention among more-senior personnel could have benefits insofar as senior personnel are employed in senior leadership positions. Vacancies in more-senior positions open up promotion opportunities for more-junior personnel. Furthermore, if defense planners need to reduce the size of the workforce, inducing more-senior personnel to leave could avoid creating workforce imbalances, or "bathtubs," that could arise if the reductions occurred among mid-career or junior personnel without offsetting hiring actions.

Changes in Total Costs and Outlays Under Restructuring

The cost results shown so far are for the case of downsizing when positions vacated as a result of VSIP and VERA are eliminated. However, VSIP and VERA are also used to restructure the force. That is, these incentives are used to induce separations from positions that are then filled by either or both new and existing employees. How much cost savings are realized under restructuring depends on the salary, TSP contribution, and DB accrual charge costs of the replacement employees. If the replacements are as costly as the separating employees, costs savings are eliminated, and in fact DoD costs increase by the amount of the VSIP bill (assuming only VSIP is used and not involuntary separation with severance pay). The breakeven point is where the costs of the replacements equals the net savings generated by those who leave. For example, under a $25,000 VSIP cap (in the absence of a 2 percent RIF threat), net cumulative savings to DoD over five years is $3.38 billion. Thus, the cost of the replacement workforce must not exceed $3.38 billion if restructuring is not to increase costs. If replacement costs are less than $3.38 billion, then restructuring would still produce cost savings for DoD, though less than the downsizing case when positions are eliminated.

The last row of Table 4.2 shows the breakeven point, expressed as a percentage of cost avoidance savings. For example, under the $25,000 VSIP cap, the breakeven is 87.6 percent ($3.38/$3.86). That is, the costs of replacements can be, at most, 88 percent of the costs saved by the separations induced by VSIP, or else restructuring will end up increasing personnel costs to DoD. This is a factor that may bear on the restructuring, though of course the ben-

efits of restructuring in terms of improved workforce capability and productivity also must be considered. Sufficiently high benefits could justify an increase in cost, for instance. The table shows that the replacement percentage is lower when the VSIP cap is higher. Although higher VSIP produces more cost savings because more individuals are induced to leave, higher VSIP also costs more. Under a $55,000 VSIP cap, the breakeven percentage is about 80 percent. The lowest breakeven percentage is under the Max formula. In this case, replacement costs can be, at most, 73 percent of the cost savings produced by separating employees.

Marginal DoD Costs and Outlays of VSIP with VERA

The decision to use VSIP to separate personnel versus another tool, such as involuntary separation, rests on whether, at the margin, the incremental costs of using VSIP are less than the incremental costs of using the other tool to produce that separation, or alternatively, if the incremental savings is more under VSIP than under another tool. In this section, we show marginal cost and marginal outlay estimates of VSIP with VERA that will be a basis for comparison with other approaches discussed in the next chapter.

Table 4.3 shows estimates of the incremental or marginal net DoD cost and outlays of VSIP under our different scenarios. Marginal cost is computed as the change in total net cumulative costs associated with increasing VSIP divided by the change in separations. It indicates the incremental net cumulative cost or savings associated with generating an additional separation by increasing VSIP. Similarly, marginal outlays are computed as the change in total net cumulative outlays divided by the change in separations. The table shows incremental costs and outlays when the VSIP cap is increased from $25,000 to $41,000 and from $41,000 to $55,000, both when we assume no threat of involuntary separation and when we assume employees make their separation decisions under a threat of a 2 percent. It also shows incremental costs and outlays from using the Max formula versus the standard formula. Note that, unlike Table 4.2, where dollars are in billions, in Table 4.3, dollars are in thousands. We compute marginal cost, considering a one-year horizon and then a five-year horizon.

We find that after the first year, the incremental cost and incremental outlays of increasing VSIP are positive. That is, at the margin, producing another separation by increasing VSIP

Table 4.3
Marginal Cost (Savings) and Outlays of VSIP with VERA, in Thousands of 2015 Dollars

	VSIP + VERA with No RIF Threat				VSIP+VERA with 2% RIF Threat				Max VSIP Formula vs. $25,000 Cap (No RIF Threat)	
	$41,000 vs. $25,000 VSIP Cap		$55,000 vs. $41,000 VSIP Cap		$41,000 vs. $25,000 VSIP Cap		$55,000 vs. $41,000 VSIP Cap			
	1st Year	5-Year Cumu- lative	1st Year	5-Year Cumul- ative	1st Year	5-Year Cumu- lative	1st Year	5-Year Cumu- lative	1st Year	5-Year Cumu- lative
Separations	12,842 vs. 8,899		17,075 vs. 12,842		13,805 vs. 9,770		17,990 vs. 13,805		28,852 vs. 8,899	
Change in outlays	$38.73	$(180.74)	$50.38	$(172.70)	$38.71	$(181.18)	$52.72	$(169.40)	$63.95	$(159.55)
Change in DoD costs	$9.39	$(294.52)	$21.77	$(285.08)	$9.45	$(294.88)	$24.06	$(281.72)	$36.30	$(268.08)

(in conjunction with VERA) increases costs and outlays on net after one year. For example, producing another separation by increasing VSIP from $25,000 to $41,000 increases outlays on net by $38,730 in the first year and increases DoD costs on net by $9,390. The first-year marginal outlay and cost estimates are virtually the same when employees make the VSIP separation decision under the 2 percent threat of involuntary separation, $38,710 and $9,450, respectively.

Table 4.3 shows that for year 1, marginal outlays and marginal costs increase at higher VSIP levels. In other words, producing an additional separation by increasing VSIP from $41,000 to $55,000 increases outlays and costs by more, $50,380 and $21,770, respectively (in the absence of an involuntary separation threat), amounts higher than $38,730 and $9,390, respectively. Rising marginal costs and outlays occur at higher VSIP levels because of selection on tastes and moving up in the taste distribution and into the tails of the distribution at higher levels of VSIP. At lower VSIP levels, the incentive induces separations among those who are closer to the margin of the stay-leave decision and who have tastes that are closer to the mean level of tastes. Given our assumption that tastes are normally distributed, those with tastes closer to mean tastes make up the bulk of those in the civil service. But at higher VSIP levels, VSIP operates on those who already turned down a lower VSIP level. These individuals have a stronger attachment to the civil service. They have higher tastes for DoD civil service—their tastes are more likely to be in the tail of the normal taste distribution, and there are fewer of these individuals. Consequently, an additional separation costs more and increases outlays by more at higher VSIP levels. The same logic explains the substantially higher marginal outlay and marginal cost on net under the Max formula approach after the first year, $63,950 and $36,300, respectively.

The table also shows that over a five-year horizon, marginal outlays and costs are negative under the scenarios we consider, an increase in the cap from $25,000 to $41,000 and from $41,000 and $55,000. That is, generating an additional separation by increasing VSIP reduces net cumulative outlays and net cumulative costs over five years; even though VSIP has increased and therefore costs more, the separation induced by VSIP reduces costs and outlays by more than the VSIP cost, i.e., the additional separation generates a net cumulative savings at the margin. At lower VSIP levels, for example, increasing VSIP from $25,000 to $41,000, incremental outlays fall by $180,740 over five years while incremental DoD costs fall by $294,520. The results are virtually the same regardless of whether VSIP separation decisions are made with or without the threat of involuntary separation.

The incremental savings (e.g., the fall in incremental outlays and DoD costs) are less at higher VSIP amounts, however. Generating a separation by increasing VSIP from $41,000 to $55,000 reduces the outlay savings to $172,700 and reduces the cost savings to $285,080; these figures are less than the savings of $180,740 and $294,520, respectively, when VSIP is increased from $25,000 to $41,000. Incremental savings are even less under the Max formula, $159,550 for outlays and $268,080 for DoD costs.

In the next chapter, we compare these incremental cost and outlay figures to marginal cost estimates under different RIF scenarios.

Separations, Costs, and Outlays Under RIF

Whether increasing VSIP is a cost-effective policy depends on the cost of the relevant alternative policy. In this chapter, we consider the retention, costs, and outlay changes of downsizing using involuntary separation. In particular, to facilitate comparison with VSIP, we compare the retention, cost, and outlay effects of a smaller RIF and a larger one. A smaller RIF is defined to be approximately the same size as the effect on voluntary separation of a VSIP cap of $25,000, while a larger one is defined to be the same but for a higher cap of $41,000. That is, the smaller RIF with involuntary separation is defined to produce about 8,900 separations, while the larger one is defined to produce about 12,800 separations.

In parallel with the results in the previous chapter, we show the effects of a smaller and larger RIF on retention, on total costs and outlay changes, and on marginal costs and outlays. It is critical to recognize that our computations of costs to DoD and the Treasury provide only a partial accounting of the costs of RIF. As discussed in earlier chapters, RIFs with involuntary separations are perceived to hurt morale and productivity more than RIFs with voluntary separations. Because of the bumping and retreating rules associated with RIF, turbulence occurs as multiple employees are shifted across positions to achieve a single separation. Such turbulence cause disruption and adjustment costs. Our computations of costs to DoD and changes in government outlays do not incorporate measures of the effects on morale, productivity, or capability, and so may understate the government costs of a RIF with involuntary separation.

However, we can compute the value of a lost civil service career to employees subject to involuntary separation, net of severance pay. This is a cost that is not borne by DoD, but by employees themselves. We show how estimates of total cost and marginal costs change when we also incorporate these costs to employees.

It is important to recognize that VSIP and involuntary separation are not necessarily mutually exclusive. Civilian planners can use VSIP II to create position vacancies that are then filled by employees subject to RIF who are given priority placement to fill the vacated positions. The use of RIF and VSIP II allows planners to restructure the workforce while downsizing. Involuntary separation and VSIP may also be used at the same time if VSIP is inadequate to generate enough separations to meet downsizing goals. If not enough employees are willing to take a VSIP offer, planners will have to expect involuntary separations as well as bumping and retreating. Indeed, a key reason for increasing the VSIP cap is to avoid or decrease this scenario so that enough separations are generated with VSIP without having to resort to involuntary separation as well.

Because involuntary separation may be required if VSIP is not set high enough for enough employees to be willing to accept VSIP and separate, we also consider a third RIF scenario (in addition to the smaller and larger downsizing mentioned earlier) in which a VSIP of $25,000

is offered and is followed by a chance of involuntary separation. As discussed in Chapter Four, a $25,000 VSIP with a 2 percent *threat* of involuntary separation generates 9,770 separations. But, if DoD requires more than 9,770 separations—say, a larger downsize of 12,800 separations—there will also have to be involuntary separations. We consider a RIF that generates about 3,072 involuntary separations, on top of the voluntary separations under a VSIP of $25,000, and compare the cost and outlays under the entire package (VSIP + involuntary separation) and costs and outlays under VSIP alone.

As discussed in Chapter Four, bumping and retreating rules under RIF affect which employees actually separate and therefore retention, costs, and outlays. We implement the impact of these rules in our model by assuming that those with between three and 24 years of service have a chance of being randomly involuntarily separated. The selection of the lower bound of three years is based on the assumption that relatively new hires would not likely be targeted for involuntary separation, while the upper bound reflects the fact that those subject to involuntary separation with at least 25 years of service are eligible for discontinued service retirement.[1] The randomness reflects our lack of specific knowledge as analysts about each employee's competitiveness in bumping and retreating, though those implementing the RIF take these details into account. The likelihood of being selected for involuntary separation is derived from the model and is the probability required to achieve a given size of drawdown. For example, for a smaller drawdown of 8,900 involuntary separations among those with between three and 24 years of service, we find that a 5.2 percent probability of being randomly selected is required. The probabilities required for each scenario are indicated in the tables shown below.

As in the previous chapter, we begin with a presentation of the impact of the RIF on the number of involuntary separations and the experience mix of the workforce retained, followed by results on the change in total costs and outlays. We then show estimates of marginal cost.

Separations and Experience Mix Under RIF with Involuntary Separation

Obviously, reductions in force increase separations, and we consider scenarios where a smaller (8,900) and a larger (12,800) downsizing are desired. These correspond to the reductions under a VSIP of $25,000 versus $41,000 and are 4.0 percent versus 5.7 percent of the workforce, respectively. Because we are approximating the bumping and retreating rules, as discussed in Chapter Three, the number of personnel involuntarily separated is approximately but not exactly equal to the number of personnel separated under VSIP with VERA.

As in our analysis of VSIP with VERA, we assume a one-year downsizing window, so our measure of the effect of downsizing on separations is the change in separations during the first year.

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[1] As mentioned, starting at three years of service reflects a conservative assumption regarding eligibility for severance pay and VSIP, given that the eligibility for each requires 12 months continuous DoD service. Still, we recognize that new hires may be affected due to their low retention standing. (Veteran's preference—the federal government policy to give eligible veterans preference in appointments over other applicants—may protect some of them.) Extending the window to the first year of service would have little effect on our results, however, because a relatively small fraction of employees have one or two years of service. Therefore, for a drawdown of a given size, including these employees would have only a small effect on cost and cost saving. Furthermore, as shown in our tabulations in Chapter Two, relatively few employees receiving severance pay have fewer than four years of service.

In our analysis, involuntary separation with bumping and retreating rules results in involuntary separations among employees with between three and 24 years of service. Figure 5.1 shows the retention effects of such a RIF, with the lower panel showing the effects of a larger drawdown and the upper panel showing the effects of a smaller one. Table 5.1 shows the percentage change in force size, the reduction in force, and the average years of service under a larger and smaller drawdown. The first column also shows the required probability of involuntary separation, as indicated by the model, to generate a drawdown of a given size.

Because employees are affected over a wide range of years of service, three to 24 years, the decrease in retention is fairly uniform across these years (Figure 5.1), and there is little effect on average experience. Under a smaller drawdown, average experience increases slightly from 12.87 to 12.92, while under a larger drawdown, average experience increases to 12.93. These results are in marked contrast to those shown in Table 4.1 for VSIP. Average experience decreases dramatically with VSIP and VERA because separations are concentrated among more-senior personnel.

The differing effects of VSIP and VERA versus involuntary separation on the experience mix suggest that these alternative approaches could have different effects on the productivity of the workforce that is retained. By concentrating separations among personnel with more seniority, DoD is more likely to lose individuals with valuable experience under VSIP with VERA than under a RIF with involuntary separation. On the other hand, these more-senior personnel could be in leadership positions and could be reducing the promotion opportunities for more-promising employees. In contrast, under involuntary separation, the separation of employees with 3–24 years of service, for example, those in their mid-career, means that the losses come from the pool of possible future leaders and those who would make up the most experienced force in the future. Furthermore, past studies (reviewed in the appendix) show that involuntary separations result in less employee engagement, lower morale, and lower productivity. The net effects on productivity as a result of the change in experience mix could clearly differ under these policies, but whether the losses are greater is an open question and an important area for future research.

We also consider a scenario in which VSIP does not generate enough separations and so must be followed by involuntary separations. We capture this scenario by first showing the retention effects of a $25,000 VSIP with VERA (assuming a 2 percent involuntary separation threat), shown in the upper panel of Figure 5.2. This graph replicates the results shown in Figure 4.2 in the previous chapter and shows that the $25,000 VSIP with threat of RIF generates 9,770 separations. But suppose a larger drawdown is desired, equal to 12,800 separations so that 9,770 separations are insufficient. We find that a RIF with about a 2 percent probability of being involuntarily separated generates an additional 3,052 separations. The effects on separation and experience mix are shown in the lower panel of Figure 5.2 and in Table 5.1. VSIP with VERA affects more-senior personnel, as discussed in the previous chapter and, by itself, reduces average experience to 12.49 years. Involuntary separations affect those with between three and 24 years of service, and average experience is roughly the same as the baseline. The effect of these policies together is separation across a wide range of years of service but with more separation among senior personnel. If the VSIP offer remained the same but more separations were required by the RIF, then involuntary separations would have to increase and, as mentioned, these would fall in the three-to-24-years-of-service range.

Figure 5.1
RIF with Bumping and Retreating (3–24 years of service)
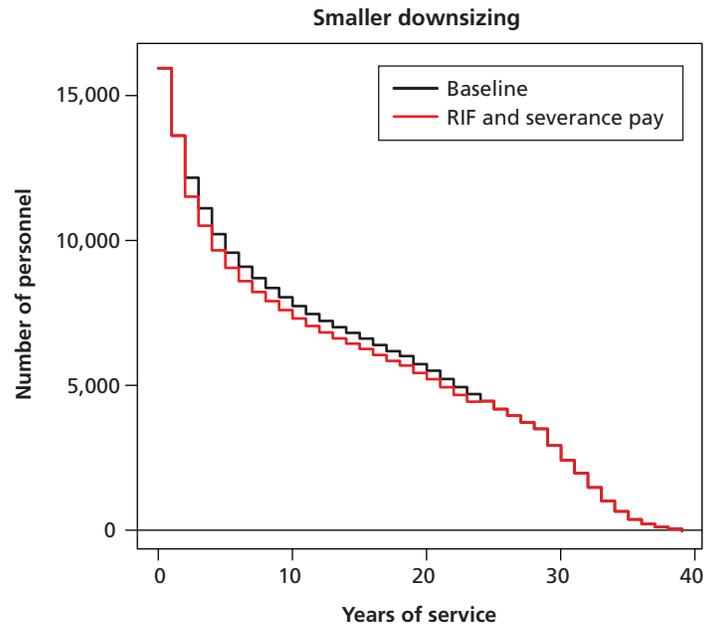
NOTES: % change in force = –4.0, net change in force = 8,956, average years of service = 12.92.
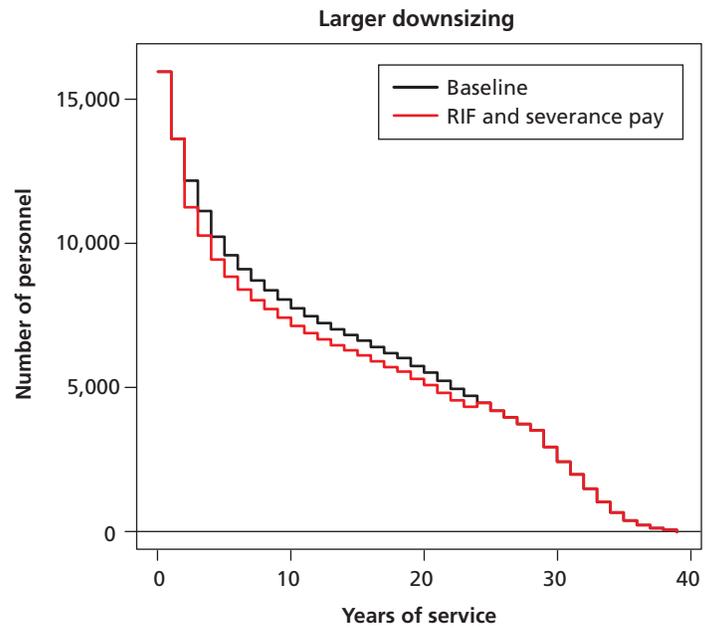
NOTES: % change in force = –5.7, net change in force = 12,835, average years of service = 12.93.

RAND *RR1540-5.1*

Table 5.1
Separations Under Alternative RIF Scenarios

	Probability of Being Subject to Involuntary Separation	% Change in Force Size Relative to Baseline of No VSIP+VERA	Reduction in Force Size Relative to Baseline Force of 225,888	Average Years of Service (Baseline: 12.87)
RIF with Involuntary Separation (3–24 years of service)				
Smaller downsizing	5.2%	−4.0%	8,956	12.92
Larger downsizing	7.5%	−5.7%	12,835	12.93
VSIP Followed by Involuntary Separation (3–24 years of service)				
$25K VSIP (with 2% involuntary separation threat)	N/A	−4.3%	9,770	12.76
Smaller downsizing via involuntary separation	2.0%	−1.4%	3,052	12.89
Total		−5.7%	12,822	

Changes in Total DoD Costs and Government Outlays Under RIF

Table 5.2 parallels Table 4.2 and shows the savings from cost avoidance and the change in costs and outlays associated with RIF via involuntary separations. As with VSIP, cost avoidance includes savings from avoided salary costs and the costs of TSP and DB accrual charge contributions. Costs and outlay changes include the cost of severance pay given to those who qualify and separate under RIF, as well as the cost of outplacement, relocation, and retraining services offered to those subject to RIF who qualify for these services. Outlays also include the change in DB outlays as a result of the RIF. The table shows the net costs and net outlays after one year and cumulatively over a five-year horizon.

The bottom section of the table shows the sum of the value of a lost DoD civil service career to employees who are separated as a result of the RIF. We sum this value across all employees who involuntary separate as a result of the RIF. This lost value represents a cost to the individual of the RIF and captures the fact that many personnel would prefer to stay in the civil service, but the RIF prevents them from making that choice. We do not include this cost in the computation of net DoD costs and outlays. However, the last row of the table shows the sum of the cost to employees and net DoD costs and outlays.

Not surprisingly, we find that the involuntary separations generate net cumulative savings in costs and in outlays over a five-year period. We also find savings after the first year, even though the first year costs and outlays also include the costs of severance pay and transition costs. Further, a larger drawdown generates greater savings in costs and outlays both after the first year and over the five-year horizon. Specifically, after five years, the change in net cumulative DoD costs is $3.42 billion with a smaller RIF but $4.93 billion with a larger RIF.

It is of interest to compare the changes in total cost and outlays under involuntary separations in Table 5.2 to the changes under VSIP in Table 4.2. It is important to recognize that these comparisons do not provide guidance on the relative cost-effectiveness of achieving an additional separation with a RIF versus VSIP—for that guidance, we consider marginal cost—but they do provide information on how DoD budgets and government outlays would change under involuntary separations versus VSIP. Also, the sizes of the drawdowns in the compari-

Figure 5.2
$25,000 VSIP + VERA with RIF with Involuntary Separation
(3–24 years of service)
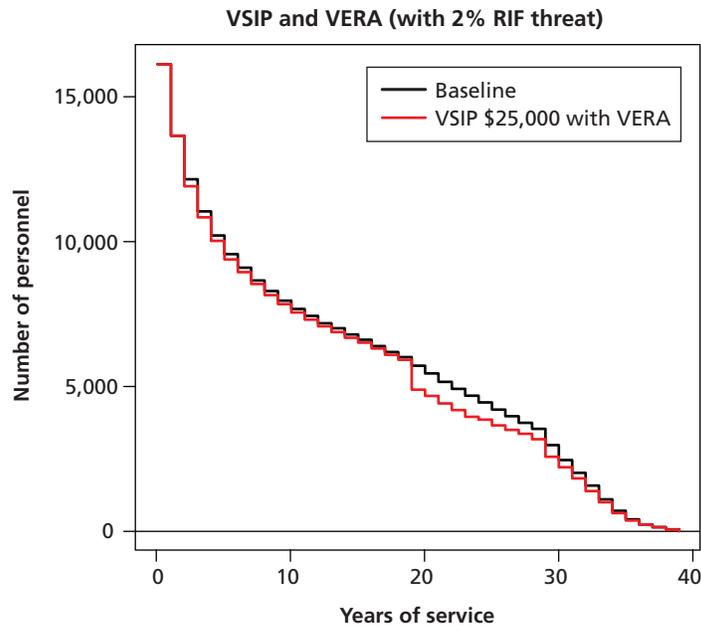
VSIP and VERA (with 2% RIF threat)

NOTES: % change in force = –4.3, net change in force = 9,770, average years of service = 12.49.

RIF with voluntary separation
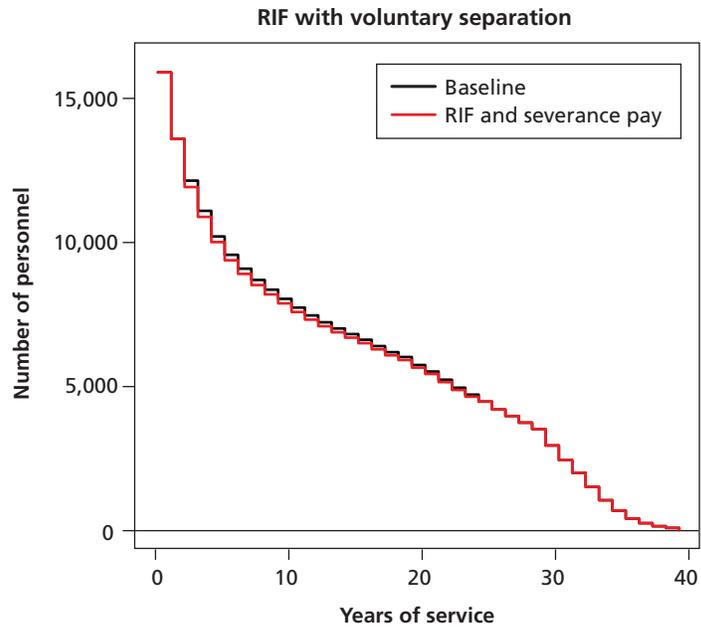
NOTES: % change in force = –1.4, net change in force = 3,052, average years of service = 12.89.

RAND *RR1540-5.2*

Table 5.2
Total Cost and Outlays Under Alternative RIF Scenarios, in Billions of 2015 Dollars

	RIF with Bumping and Retreating (3–24 years of service)			
	Smaller Downsizing (5.2% Involuntary Separation Probability)		Large Downsizing (7.5% Involuntary Separation Probability)	
	1st Year	5-Year Net Cumulative	1st Year	5-Year Net Cumulative
Separations	8,956		12,835	
Savings				
Salary change	$(0.72)	$(3.45)	$(1.03)	$(4.96)
TSP contribution change	$(0.04)	$(0.16)	$(0.05)	$(0.24)
DB accrual charge change	$(0.10)	$(0.49)	$(0.15)	$(0.70)
Total	$(0.84)	$(3.95)	$(1.21)	$(5.68)
Cost or outlay change				
Severance pay	$0.46	$0.46	$0.67	$0.67
Outplacement, relocation, retraining	$0.21	$0.21	$0.30	$0.30
DB outlay change	$0.01	$0.03	$0.01	$0.04
Total	$0.69	$0.71	$0.98	$1.01
Change in outlays	$(0.06)	$(2.91)	$(0.09)	$(4.18)
Change in DoD costs	$(0.18)	$(3.42)	$(0.26)	$(4.93)
Cost to employees subject to involuntary separation	$1.45	$1.45	$2.07	$2.07
Change in outlays + cost to employees	$1.39	$(1.45)	$1.98	$(2.11)
Change in DoD costs + cost to employees	$1.28	$(1.97)	$1.81	$(2.86)

sons are close but not exact. The involuntary separations under the smaller and larger drawdowns were set to be roughly comparable with VSIPs of $25,000 and $41,000, respectively, in the absence of an involuntary separation threat. For example, there are 8,899 separations induced by a VSIP of $25,000 but 8,956 under a smaller RIF through involuntary separations, a difference of 57 separations. Similarly, there are 12,842 separations induced by a VSIP cap of $41,000 but 12,835 separations under a larger RIF, a difference of 7.

Focusing on the five-year horizon results, we find that involuntary separations generate more net cumulative savings in outlays than does VSIP, regardless of drawdown size. For example, given a larger drawdown of roughly 12,800 separations, involuntary separations generate a net cumulative savings in outlays of $4.18 billion, while a VSIP cap of $41,000 generates $2.80 billion cumulative net savings, a difference of over $1.38 billion over five years. Thus, both involuntary separations and VSIP generate savings in outlays over a five-year horizon, but the effect is larger for involuntary separations. Although VSIP recipients tend to have more years of service and higher pay, suggesting that their departure would generate a greater decrease in outlays than involuntary separations, especially in the first year, VSIP recipients

with VERA begin their retirement benefits earlier than would have been the case otherwise. This increases outlays and decreases net savings.

Involuntary separations and VSIP also generate budgetary savings to DoD over the five-year horizon, but, in contrast to outlay changes, the change in cumulative five-year DoD costs is roughly about the same for a smaller drawdown under involuntary separations versus VSIP and somewhat greater for a larger drawdown. Specifically, for the larger drawdown, involuntary separations generate net cumulative savings over five years to DoD of $4.93 billion, while a $41,000 VSIP together with VERA generates $4.54 billion, slightly lower. Under a smaller drawdown, involuntary separations generate a DoD savings over five years of $3.42 billion, while the $25,000 VSIP cap together with VERA generates $3.38 savings. DoD budgetary savings under involuntary separations versus VSIP with VERA reflect different forces. Severance payments and transition-related costs affect the savings under involuntary separation, though in total, these costs are roughly the same as VSIP costs, even though VSIP costs are currently capped at $25,000. As mentioned, employees who take VSIP tend to have more seniority and higher pay than those involuntarily separated, so the decrease in salary cost is greater under VSIP when they leave in the first year, though the remaining force is more junior in the later years. For the larger drawdown, these same forces are at work but are even larger, given the larger size of the drawdown, so, on net, the DoD budgetary savings are less under VSIP with VERA; but for a smaller drawdown, these factors seem to balance out. Summarizing, the budget impact to DoD of involuntary separations versus VSIP is about the same or slightly larger under involuntary separation, while the outlay impact is larger under involuntary separations over the five-year horizon.

Accounting for the cost to employees subject to involuntary separation changes these results, however. Since separation under VSIP and VERA is voluntary, this cost is not relevant to those subject to buyouts. We find that the sum of the cost to employees of an involuntary separation is $1.45 billion, net of severance payments, for a smaller RIF of 8,956, and over $2 billion for a larger drawdown. These costs are substantial but are not included in DoD budget Treasury outlay figures. When we consider this broader concept of cost—adding these costs to the change in net outlays and in net DoD costs under involuntary separations—we find that the VSIP is less costly than involuntary separations on net, regardless of whether government costs are measured in terms of changes in net outlays or net DoD costs, and regardless of whether we consider a one-year or five-year horizon.

We also consider the budgetary and outlay impact of a larger drawdown that is accomplished with a lower level of VSIP of $25,000 followed by a smaller RIF through involuntary separations. The results are shown in Table 5.3. The left panel replicates the savings and cost changes shown in Table 4.2. The middle panel shows the savings and cost changes for the involuntary separations, while the right panel totals the savings and cost changes of VSIP (with VERA) together with the involuntary separations to generate a larger drawdown of about 12,800 separations. The table also shows net DoD costs and net outlays, and at the bottom it shows the cost to employees who are subject to the 2 percent probability of involuntary separation and the sum of the costs and net DoD costs and net outlays.

Not surprisingly, we find that VSIP followed by involuntary separations generates a net savings in outlays and in DoD budgetary costs, measured as the net cumulative change in outlays and costs over a five-year horizon. However, the VSIP-with-involuntary-separations approach generates fewer savings in outlays than involuntary separations alone but more savings than the VSIP approach alone. Specifically, over the five-year horizon, net cumulative sav-

Table 5.3
Total Cost and Outlays Under $25,000 VSIP + VERA with Involuntary Separations, in Billions of 2015 Dollars

	$25,000 VSIP + VERA with 2% Threat of Involuntary Separation		Involuntary Separations (2% Prob.)		Total	
	1st Year	5-Year Cumulative	1st Year	5-Year Cumulative	1st Year	5-Year Cumulative
Separations	9,970		3,052		12,822	
Savings						
Salary change	$(0.82)	$(3.54)	$(0.25)	$(1.17)	$(1.07)	$(4.71)
TSP contribution change	$(0.04)	$(0.18)	$(0.01)	$(0.06)	$(0.05)	$(0.23)
DB accrual charge	$(0.12)	$(0.52)	$(0.04)	$(0.17)	$(0.16)	$(0.69)
Total	$(0.98)	$(4.24)	$(0.30)	$(1.39)	$(1.28)	$(5.63)
Cost or outlay change						
VSIP	$0.50	$0.50			$0.50	$0.50
Severance pay			$0.17	$0.17	$0.17	$0.17
Outplacement, relocation, Retraining			$0.07	$0.07	$0.07	$0.07
DB outlay change	$0.19	$0.83	$0.00	$0.01	$0.19	$0.84
Total	$0.68	$1.33	$0.25	$0.25	$0.93	$1.58
Change in outlays	$(0.18)	$(2.39)	$(0.01)	$(0.97)	$(0.19)	$(3.31)
Change in DoD costs	$(0.48)	$(3.75)	$(0.05)	$(1.15)	$(0.53)	$(4.84)
Cost to employees subject to RIF	NA	NA	$0.45	$0.45	$0.45	$0.45
Change in outlays + cost to employees	$(0.18)	$(2.39)	$0.44	$(0.52)	$0.26	$(2.92)
Change in DoD costs + cost to employees	$(0.49)	$(3.75)	$0.40	$(0.70)	$(0.09)	$(4.44)

ings of the VSIP-with-involuntary-separations strategy yields a $3.31 billion savings in outlays (generating 12,822 separations); while a VSIP strategy alone, where the VSIP cap is $41,000 (generating 12,842 separations), yields a five-year savings in outlays of $2.80 billion (Table 4.2); and an involuntary separations strategy alone gives $4.18 billion savings in outlays (Table 5.2) (generating 12,835 separations). Thus, the mixed strategy generates more net savings in outlays than VSIP alone but less net savings than involuntary separations alone. The rationale is the same as given above for VSIP, with the additional proviso here that the involuntary separations after VSIP have a lower incremental cost than the VSIP-induced separations because they do not go on to receive retirement benefits and the force remaining after the separations is not quite as junior when VSIP is followed by involuntary separation. As a result, net outlay savings are higher. In terms of net DoD costs, the mixed strategy yields more cumulative net savings over five years than either VSIP alone or involuntary separations alone. Net cumulative cost savings to DoD is $4.84 billion over five years, compared with $4.54 billion under a VSIP of $41,000 (Table 4.2) and $4.93 billion under a larger RIF through involuntary separations (Table 5.2).

We estimate that the cost to involuntarily separated employees in terms of the lost value of their DoD civilian careers, net of severance payments, is smaller under the mixed strategy than under involuntary separations alone ($450 million in the mixed strategy but over $2 billion under involuntary separations alone). This occurs because involuntary separations are smaller under the mixed strategy. Incorporating the cost to employees into our net cost and outlays figures, we find that the mixed strategy generates more savings in terms of outlays and costs than VSIP alone or than involuntary separations alone. Specifically, net cumulative savings in outlays over five years, including the cost to employees, is $2.92 billion under the mixed strategy, $2.80 billion under VSIP alone, and $2.11 billion under involuntary separations alone. Similarly, net cumulative savings in DoD costs over five years, including the cost to employees, is $4.44 billion under the mixed strategy, $4.54 billion under VSIP alone, and $2.86 billion under involuntary separations alone.

Marginal DoD Costs and Outlays of RIF with Involuntary Separation

Table 5.4 shows estimates of the incremental or marginal DoD costs and outlays of RIF by involuntary separation. Marginal cost or savings is computed as the change in total cost associated with increasing the size of the drawdown under RIF divided by the change in separations. In the computation, the change in separations is 3,879 (12,835 − 8,956). It indicates the incremental cost or savings associated with generating an additional involuntary separation. Similarly, marginal outlays are computed as the change in total outlays divided by the change in separations. Dollars in Table 5.4 are in thousands, not billions as in Table 5.3.

We find that an additional involuntary separation reduces DoD costs and outlays on net in both the first year and cumulatively over five years. That is, the incremental net DoD costs and outlays are negative after the first year and over the five-year horizon. Specifically, an additional involuntary separation reduces government outlays by $7,440 and reduces DoD costs by $20,090 after the first year. The change in the net cumulative outlays over five years is $328,190, while the change in net cumulative DoD costs is $386,730. Thus, at the margin, involuntary separations generate a savings to both government outlays and to DoD.

Table 5.4
Marginal Cost (Savings) and Outlays of RIF Through Involuntary Separations, in Thousands of 2015 Dollars

	RIF with Involuntary Separation (3–24 years of service)	
	1st Year	**5-Year Cumulative**
Separations	12,835 vs. 8,956	
Change in outlays	$(7.44)	$(328.19)
Change in DoD costs	$(20.09)	$(386.73)
Cost to employees subject to involuntary separation	$158.56	$158.56
Change in outlays + cost to employees	$151.12	$(169.63)
Change in DoD costs + cost to employees	$138.47	$(228.17)

The results in Tables 5.4 and 4.3 allow us to compare the relative cost-effectiveness of achieving an additional separation through involuntary separation versus through increasing VSIP. We find that involuntary separation is more cost-effective at the margin than increasing VSIP, both after the first year and cumulatively over five years. After the first year, increasing VSIP increases both DoD costs and outlays at the margin, while expanding involuntary separations reduces both DoD costs and outlays. Specifically, an additional separation *increases* DoD net costs after the first year by $9,390 and increases net outlays by $38,730 when achieved by increasing VSIP. In contrast, an additional separation achieved through involuntary separation *reduces* DoD net costs and net outlays after the first year by $20,090 and $7,440, respectively. Over a five-year horizon, incremental costs and outlays are negative when VSIP is increased. That is, there is a savings at the margin over the five-year horizon. As discussed in the previous chapter, over five years, increasing VSIP generates cumulative outlay savings of $180,740 on net per additional separation and generates a $294,520 cost savings on net to DoD. Involuntary separations generate even larger savings over five years, at the margin. Incremental net savings in outlays over five years is $328,190 and incremental net DoD savings in DoD costs is $386,730. Thus, at the margin, involuntary separations yield more savings to the government.

However, there is another cost element that we can incorporate into these incremental cost estimates: the cost to employees as measured by the lost value of their civil service career due to being separated involuntarily by the RIF, net of the severance payments they receive. The marginal or incremental cost to employees of involuntary separation is $158,560. That is, an additional involuntary separation under a RIF results in an additional $158,560 cost to employees. When we add this marginal cost for employees to the incremental net savings in outlays as well as to the incremental net savings in DoD costs, shown in the final rows of Table 5.3, we find that the cost-effectiveness of involuntary separation is much lower. Furthermore, involuntary separation is no longer more cost-effective than VSIP. Specifically, accounting for the cost to the individual, the incremental net cumulative savings of involuntary separation in terms of outlays is now $169,630, while under VSIP associated with VERA, the incremental savings is greater, $180,740. Similarly, in terms of DoD costs, accounting for the cost to employees yields an incremental net cumulative savings over five years of $228,170 for involuntary separation

but a savings $294,520 under VSIP with VERA. Thus, incremental savings are greater under VSIP when we account for the cost to employees who are separated involuntarily.

Of course, our analysis does not include other elements of the cost of a RIF that are not amenable to measurement. These include the disruption and turbulence induced by the bumping and retreating rules whereby multiple employees may be required to change positions to generate a single separation. These employees must adapt to a new position, and their co-workers must adapt to a new member of the work team. The moving of multiple employees generates uncertainty and delays in workflow. Furthermore, employees changing into new positions may lack knowledge that is specific to the new position, knowledge that is only gained through experience in the position. Thus, there are adjustment costs as individuals "get up to speed" in their new positions. The available literature indicates that a RIF with involuntary separation will hurt morale as individuals worry whether they may lose their job and be unable to immediately find a satisfactory new position. Incorporating these other factors could further reduce the relative cost-effectiveness of a RIF via involuntary separation relative to VSIP.

Conclusions

The analysis presented in this report was motivated by the questions of whether the current level of VSIP is high enough to generate voluntary separations consistent with DoD's planned force size reductions and whether VSIP is cost-effective at the margin relative to other approaches to downsizing DoD. Whether VSIP is high enough depends on the number of positions to be vacated, and whether VSIP is cost-effective depends on the comparison approach. Unfortunately, no past research exists on the responsiveness of DoD civilians to changes in the VSIP cap or on the relative cost-effectiveness of VSIP relative to other approaches, such as involuntary separation, to workforce shaping. Consequently, civilian personnel managers have no analytic basis for guiding policy, including recommending an increase to the VSIP cap, should the number of positions to be vacated warrant such an increase. Furthermore, managers have no empirical basis for recommending an increase in VSIP relative to increasing involuntary separations to achieve a given downsizing or restructuring goal.

Our analysis fills this gap. It provides information on how increasing VSIP affects voluntary separation behavior and therefore on whether the current level of VSIP is adequate to achieve a given amount of separations. It also provides estimates of the budgetary impact of increasing VSIP to DoD as well as the impact on government outlays, and it provides marginal or incremental cost estimates that contain information on the cost-effectiveness of increasing VSIP to achieve an additional separation relative to using an involuntary separation.

Our analysis indicates that VSIP is an effective method of generating additional voluntary separations. Increasing the VSIP cap from the current $25,000 to $41,000 (the value of the $25,000 in 2015 dollars) generates about 45 percent more separations, and increasing the real value even more—say, to $55,000—generates even more separations. VSIP with VERA produces budgetary net savings to DoD both after the first year and cumulatively after five years. VSIP also produces net cumulative savings to the Treasury over five years. Furthermore, the net savings to DoD and the Treasury are larger over a five-year horizon when the VSIP cap is larger. We also find that changing the VSIP formula by allowing VSIP to be the maximum, rather than the minimum, of the cap and severance pay would generate a large number of VSIP takers, at significant net savings to DoD and to the Treasury. While the focus of our analysis is on downsizing and the effects on costs of the elimination of positions, it also provides information on the net savings under restructuring, when vacated positions are not eliminated but filled by other employees. We find that the cost of replacements must be at most between 73 and 88 percent of the savings generated by vacating the positions for restructuring to produce a net cumulative savings over five years to DoD.

We find that involuntary separations also generate a net savings to DoD and Treasury, as does a mixed strategy involving a VSIP offer and the possibility of involuntary separation.

We find that both the mixed strategy and using involuntary separations alone generate more budgetary and outlays savings than VSIP with VERA. However, these budgetary and outlay figures do not incorporate the cost borne by the individuals who are actually separated and lose the value of their DoD civilian career. We compute this cost, net of severance payments they receive. When we incorporate these costs, VSIP with a maximum level of $25,000 generates $3.38 billion net cumulative savings to DoD and $2.09 billion net cumulative savings in outlays over five years. When the maximum level is $41,000, net cumulative savings to DoD are $4.54 billion and net cumulative Treasury outlay savings are $2.80 billion over five years. These savings are less than the amount of net cumulative savings to DoD and to outlays under a mixed strategy of VSIP and involuntary separation and more savings than involuntary separation alone.

The costs to individuals who are separated involuntarily also affect our estimates of the incremental savings and costs of a RIF relative to VSIP. We find that involuntary separation is less cost-effective at the margin than VSIP with VERA when we account for the cost borne by employees who are separated in terms of the value of their lost career net of severance pay. Though borne by the employee who is involuntarily separated, such costs could hurt the morale of the remaining workforce, especially if there is uncertainty about who will be involuntarily separated, thereby potentially hurting retention and workforce productivity. Consequently, such costs are relevant to workforce planners. Indeed, policy planners have generally preferred to use VSIP and VERA rather than involuntary separation, when feasible, suggesting that they have indirectly incorporated the costs to individuals in their decisionmaking, as well as effects on morale, productivity, and turbulence.

Our results are based on simulations using the DRM estimated for GS employees with at least a bachelor's degree who are under FERS. We scaled our results to an estimate of the number of such employees using DMDC data on the DoD civilian workforce in 2011, yielding an estimate of 225,888, and our results use this figure as the baseline force size. The DoD civilian workforce is clearly larger than this subgroup, and a natural question is to what extent our results for this workforce can be extrapolated to the larger group. Ultimately, the effects of VSIP and VERA as well as the estimates of incremental cost and savings for other subgroups of the DoD civilian workforce require DRM estimates for these subgroups. In past research on the retention and cost of active and reserve personnel in the uniform services, we have estimated separate DRM models and developed separate simulation capabilities for each armed service branch, and have found that the estimated models differ across the service branches. That said, in analyses of the retention and cost effects of compensation reform for the armed services, we have also found that the general direction of effects on retention and costs is quite similar across the services. That is, the quantitative estimates differ somewhat, but the direction of the effects is usually the same. This observation leads us to conclude that our general findings on the effects of increasing VSIP on separations and costs in terms of direction of effects are likely to be similar for other subgroups of DoD civilians, although the specific magnitude of effects will require additional research and estimation of models for these groups.

Because of concerns about problems associated with layoffs, such as lower morale, turbulence, disruption, and possible skill and experience imbalances, an important area to pursue in the future is to identify the extent of these problems under a RIF or reorganization and the factors that might mitigate them. OPM conducts an annual "Viewpoint" survey and provides tabulations by agency on a range of responses related to employee attitudes toward their employment, including overall satisfaction with their organization. DoD should consider a

survey that focuses specifically on downsizing policies and how employees perceive these policies and their impact on them and their organization as a whole. Such information could allow planners to better assess the potential problems associated with a RIF and therefore the value to employees of a "soft landing" provided by using higher levels of VSIP. The survey could also include modules that are specific to supervisors and planners to elicit information on how downsizing policies affect productivity, for example. A possible model for this approach is the Current Population Survey, overseen by the Bureau of Labor Statistics (BLS). The BLS conducts the monthly CPS to assess the general health of the labor force but also conducts periodic supplemental surveys that focus on special topics of concern regarding the U.S. labor force, such as worker displacement, work experience of workers with disabilities, and veterans' employment, to name a few areas. Similarly, DoD might consider a survey that supplements the annual OPM Viewpoint survey that focuses on downsizing in DoD.

DoD plans a 14.2 percent reduction in the DoD civilian workforce between 2017 and 2021. Our analysis indicates that increasing the VSIP cap could be an important tool in achieving future reductions in a cost-effective manner. Looking beyond this drawdown, planners may wish to use VSIP for restructuring purposes. Currently, VSIP together with VERA is particularly attractive to more-senior personnel. Policymakers may wish to consider an alternative VSIP formula in the future that makes voluntary separation more attractive for more-junior personnel. As senior employees retire and the workforce becomes more junior, a VSIP that was more attractive to junior personnel could be a valuable added capability for downsizing or reshaping. An alternative formula could expand the attractiveness of the incentive to a broader array of employees, thereby providing additional flexibility in managing personnel and avoiding the adverse, intangible effects of involuntary separations. Development of a new formula should be an area for future research and analysis.

Finally, the differing effects of VSIP and VERA versus involuntary separation on the experience mix of the workforce that is retained suggest that these alternative approaches could have different productivity effects. Another important area for future research is to consider the implications of alternative approaches to downsizing and restructuring on the skill mix and productivity of the force that is retained. Today's VSIP is typically used along with VERA, and the combination is attractive to employees with high years of service, though as mentioned it could be more attractive if the VSIP cap were increased or the VSIP formula were changed. In contrast, the incidence of involuntary separation with severance pay tends to fall on employees with low or mid-level years of service (the range in our simulations was three to 24 years of service). The combination of VSIP (plus VERA) and involuntary separation with severance pay can therefore decrease a workforce across the entire years-of-service range. Depending on the desired ex post experience mix, drawdown managers can use these tools to shape the reduction. Although our empirical analysis has focused on retention effects, we have also argued that VSIP can help to avoid turbulence and morale effects in the workforce and reduce career-loss costs to separating employees. To the extent that these aspects enter the policy calculus, a VSIP with a higher cap or a different formula that puts it on par with severance pay would expand its attractiveness to a much wider spectrum of years of service, making it a more potent tool for reshaping or downsizing.

Review of the Literature on Private-Sector Downsizing Practices

Research on downsizing focuses on both force reduction and force shaping, drawing a clear distinction between workforce reduction programs, which simply reduce the number of employees; workforce redesign, which involves modifying the way workers are organized and the way work is completed; and a more systemic transformation, which involves both redesign and reduction to completely transform the way an organization does business (Appelbaum, Everard, and Hung, 1999).

The literature on downsizing suggests that firms most often turn to downsizing to reduce costs and improve profitability (Mirvis, 1997). However, the literature also makes clear that downsizing does not always lead to an improvement in firm performance or even significant cost savings. Several studies of companies that have pursued downsizing strategies find that a relatively small fraction of these companies end up improving their performance relative to pre-downsizing or increasing their "return on assets." This is in part because downsizing can lead to a loss of valuable institutional knowledge. Furthermore, downsizing that does not lead to the elimination of positions is unlikely to reduce costs, i.e., decreasing the size of one part of an organization with increasing the size of another part by the same amount (Bruton, Keels, and Shook, 1996; Cascio, 1993; De Meuse, Vanderheiden, and Bergmann, 1994; Cascio, Young, Morris, 1997).

The literature goes on to identify a number of different factors that are associated with improvement in performance (measured relative to pre-downsizing or measured as "return on assets") and customer satisfaction following downsizing and factors that are associated with firm deterioration after downsizing. Table A.1 lists some of these factors. First, on the positive side, the literature recommends that downsizing be implemented following extensive analysis and planning to ensure that elimination of specific positions and the loss of a given number of personnel does not lead to loss of institutional knowledge or disruption of business processes (Cameron, 1994; Cascio, 1993). Second, the literature suggests that downsizing should be done incrementally rather than abruptly and all at once (Cameron, 1994). Third, employee communication and participation in the planning for and execution of downsizing are important to maintaining employee morale during downsizing (Cameron, 1994). Finally, the literature stresses that a reduction in force must be accompanied by a reduction of work and a strategic reorientation of the way work is completed in order to be successful (Cameron, 1994).

The literature also offers some insight into downsizing strategies that do not seem to work or that have negative outcomes for organizations that choose to use them. For example, strategies that drastically reduce the size of the workforce and lead only to an increase in employee workloads for remaining employees are generally unsuccessful. Downsizing strategies that work through attrition, in which downsizing occurs when an organization simply chooses

Table A.1
Factors Associated with the Effect of Downsizing on Firm Performance and Profitability

Factors Associated with Improvement	Factors Associated with Deterioration
Analysis and planning	Downsizing by attrition, layoffs, and outsourcing
Incremental implementation	Downsizing that increases workload
Employee communication	Reward and appraisal system changed
Reduction in force accompanied by reduction in work	No quality improvement in product
Well-defined downsizing goals	Little attention to employee morale

SOURCES: Based on Cameron, 1994; Cascio, 1993.

not to hire new personnel as existing employees retire or leave for other jobs, also tend to have poor outcomes (Cameron, 1994). Downsizing that includes changes in the appraisal system and rewards offered to employees tends to contribute to poor employee morale. In fact, literature suggests that one of the major problems associated with downsizing is a drop in employee morale following the reduction in force, among the employees who remain (Cameron, 1994; Sverke, Hellgren, and Naswall, 2002). The literature calls this "survivor's guilt" and notes that it can play a major role in the firm's performance following the reduction in force. Measures such as communication with employees and providing outplacement services to those employees who lose their jobs are cited as ways to prevent low employee morale (Cameron, 1994).

More broadly, a substantial literature has developed, particularly in the field of industrial psychology, focusing on the effects of job insecurity on employees' attitudes toward the organization, their well-being and performance, and the performance of the organization. Reviews of this literature can be found in Sverke, Hellgren, and Naswall (2002), Sparks, Faragher, and Cooper (2001), and King (2000). Studies often use survey data from organizations or experimental data. For example, Vahtera, Kivimaki, and Pentti (1997) find evidence of a positive relationship between the degree of downsizing and absences due to sickness. In their meta-analysis of the literature, Sverke, Hellgren, and Naswall (2002) report that job insecurity is positively related to employee dissatisfaction and negatively associated with commitment and trust of the organization and self-rated measures of employee performance. Interestingly, Brockner et al. (1992) find an inverted U-shaped relationship between job insecurity and the work effort of remaining employees. Using survey data from retail chain stores, they find that job insecurity is positively related to work effort at low levels of effort but negatively related to effort at high levels of job insecurity. That is, at larger perceived levels of job insecurity, they find survivors of downsizing are more likely to be unmotivated. Using experimental data from a sample of graduate students, Reisel et al. (2007) find that job insecurity is negatively related to job satisfaction and indirectly negatively related to perceived organization performance. In short, the psychology literature generally finds that job insecurity is associated with negative employee attitudes and behaviors and that these behaviors are negatively associated with perceived organizational performance.

Involuntary Severance Programs

Downsizing can occur through either involuntary reductions in force or programs that encourage voluntary separation with monetary or other incentives. Involuntary severance packages include some form of compensation and sometimes outplacement services provided to employees who are separated. Literature on involuntary severance describes the function, generosity, and eligibility criteria for involuntary severance packages. It suggests that severance pay can serve a number of functions, including as a form of job insurance, a human resource tool, and as a social benefit (Holzman et al., 2011). Literature on involuntary severance also considers the effect that severance pay has on workforce management. In general, this work finds that severance plans, regardless of size and structure, can distort workforce management decisions because they raise separation costs and may cause managers to be more hesitant to separate employees than they would or should otherwise be (Parsons, 2005).

According to existing literature, involuntary severance plans link payments to the position the employee held and the length of service (Parsons, 2005). For example, an employee might get two weeks of pay per year of service. Most involuntary severance plans have some cap on total benefits and last between 2 and 52 weeks, depending on the organization (Parsons, 2005; World at Work, 2014). Most are also nonnegotiable, meaning there is a standard amount that is offered and there is no room for variation across employees. The caps tend to be more generous for senior executives than for employees at lower levels of the organization. Many plans also include outplacement services, which provide laid-off employees with assistance in finding a new job (World at Work, 2014). BLS data suggest that about 25 percent of the U.S. workforce is covered by private, employee-provided severance pay plans (Parsons, 2005). However, this coverage varies significantly by industry and position. Coverage by severance pay plans is more common in larger organizations, among white-collar jobs, and for more-senior personnel. In general, eligibility for severance pay is based on positional level and years of service (Parsons, 2005; Bishow and Parsons, 2004).

There are some data sources that could be used to study involuntary severance in more detail. In its National Compensation Survey, BLS provides information on eligibility for, but not receipt of, severance pay (BLS, no date-c). The Employee Benefit Survey, also provided by BLS, provides more detail on the incidence of severance pay, but only in years 1999–2000 (BLS, no date-a). In other years, any severance pay is combined with other benefits, such as bonuses, and so it is difficult to explicitly separate severance pay from other payments. The Mass Layoff Statistics Database (BLS, no date -b) covers the period 1996 to present and includes information on established firms that have had at least 50 new unemployment insurance claims during a five-week period. It also includes information on the reason for employee separations and information on how many individuals go on to file for unemployment insurance.

There are also a number of human resources consulting firms that conduct surveys on severance packages and report these results in tabular form. For example, Lee Hecht Harrison conducted its most recent survey in 2011 based on survey of HR executives (Lee Hecht Harrison, 2011). The survey results include information on benefit amount and calculation as well as program eligibility and coverage. Another comprehensive survey of severance pay is the World at Work *Severance and Change-in-Control Plans Survey*, which has been conducted fre-

quently since 2003 and most recently in 2014.[1] It provides information on reduction-in-force causes, severance plan types, benefit composition, and eligibility based on a survey of members (World at Work, 2014). Tables A.2–A.3 and Figure A.1 reproduce some of the data from the 2014 survey. Several observations can be drawn from this information. Table A.2 shows that many organizations have different severance plans for executives and employees (World at Work, 2014). These plans may vary in length or generosity. Figure A.1 suggests that the most common components used in calculating the size of a severance pay package are based on years of service, position, and pay (World at Work, 2014). Table A.3 shows that the most common benefit formula uses one week of pay per year of service. So, an employee who worked at a firm for ten years would receive ten weeks of severance pay (World at Work, 2014). A final important point for these graphs is that there has not been that much change since 2003 in the types of written severance plans that are offered or the elements that are considered. The broader literature on severance pay confirms this observation, finding that the frequency of severance pay has not changed much in the past decade, despite the economic downturn starting in 2008–2009 (Parsons, 2005; World at Work, 2014). However, there has been a decrease in severance pay benefit formulas with a linear relationship to years of service. For instance, in 2003, 37 percent of plans used a formula of one week of severance pay for each year of service, and in 2014 only 24 percent did so (World at Work, 2014).

Table A.2
Types of Written Severance Plans

	2003 (n = 696)	2005 (n = 605)	2007 (n = 522)	2009 (n = 702)	2011 (n = 478)	2014 (n = 489)
One plan for all employees	n/a	n/a	n/a	n/a	n/a	30
One plan for CEO, one plan for key officers/ executives or direct reports to CEO, one plan for all other employees (three total plans)	36	35	42	32	31	26
No severance plan	18	19	14	15	13	14
One plan for CEO, one plan for all other employees (two total plans)	13	8	8	8	9	3
One plan for CEO, one plan for key officers/ executives or direct reports to CEO, no other employees covered (two total plans)	1	2	3	2	3	2
CEO plan only, no other employees covered (one plan only)	0	1	1	1	1	0
Other	31	35	33	42	43	25

SOURCE: Data from World at Work, 2014.

NOTE: "Other" includes many variations that provide different plans to employees at different levels.

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[1] The survey sample frame included 5,982 World at Work members, of whom 589 responded, leading to a cleaned final dataset of 537 responses. The typical respondent (and typical World at Work member) is at the managerial or higher level of a large company in North America.

Figure A.1
Elements Considered in Severance Pay Calculations
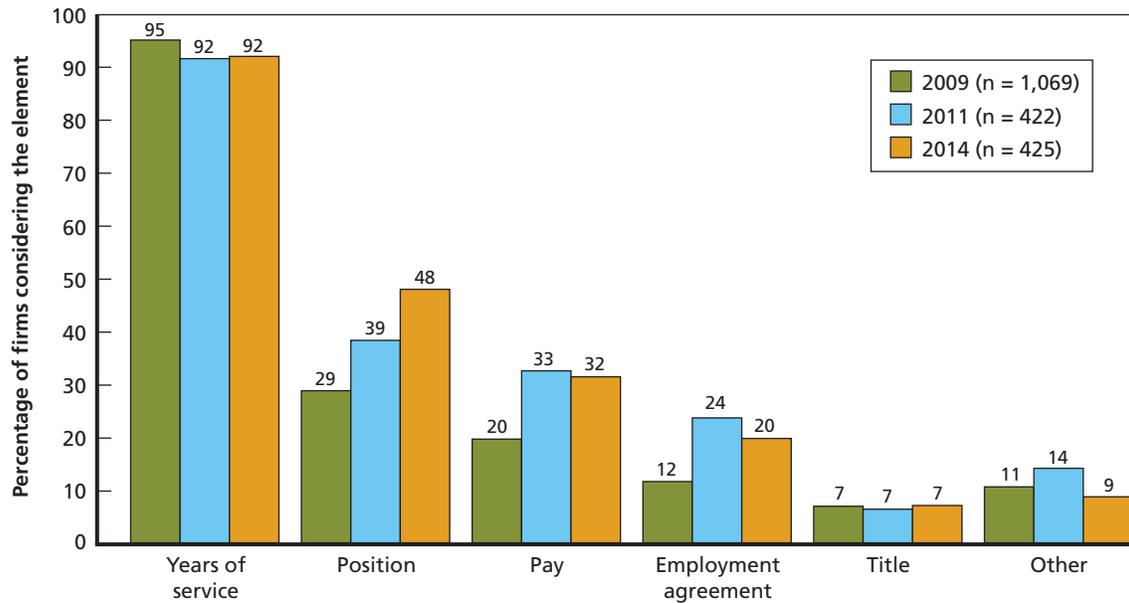
SOURCE: Adapted from World at Work, 2014.

RAND *RR1540-A.1*

Table A.3
Severance Pay Benefit Formula

	2003 (n = 559)	2005 (n = 573)	2007 (n = 447)	2009 (n = 609)	2011 (n = 414)	2014 (n = 408)
One week per year of service	37	32	31	31	20	24
Two weeks per year of service	22	23	20	18	21	16
Three weeks per year of service	n/a	n/a	n/a	n/a	n/a	1
One month per year of service	2	1	3	2	5	2
More than one month per year of service	n/a	n/a	n/a	1	1	1
Number of weeks per year of service up to a tier, then flat amount thereafter	5	5	7	4	5	5
Other	34	39	40	35	32	42

SOURCE: Data from World at Work, 2014.

Voluntary Severance

Voluntary severance packages are incentives, including compensation and sometimes periods of continued health insurance and outplacement services, used to encourage employees to willingly leave the firm. Firms may use voluntary severance programs to facilitate downsizing without having to involuntarily separate employees. Literature on voluntary severance programs is more limited than that on involuntary severance and includes primarily news articles rather than more-rigorous academic research. However, voluntary severance plans have been

reasonably common among large corporations over the past decade. A review of news coverage over the past decade suggests that voluntary severance has been used by large companies, including Amazon, General Motors, Ford, Hewlett Packard, Delta, Northwest, and the Heinz Company.

What literature does exist suggests that the structure of voluntary severance packages and the eligibility for these programs is similar to those of involuntary severance plans (Parsons, 2005). The payments are temporary and are based on hierarchical position and years of service. Voluntary severance payments typically offer 1–2 weeks of benefits per year of service (Parsons, 2005). Eligibility for voluntary severance packages varies from organization to organization and may be restricted to certain ranks or types of positions (Parsons, 2005). Although both voluntary and involuntary severance packages can be used to reduce the size of a workforce, voluntary severance packages do not allow firms to fully control which employees choose to leave. This adds an element of risk because there is a chance that more valuable employees may be the ones choosing to leave leading to a loss of institutional knowledge or unique skills (Cameron, 2005; Clarke, 2005). Employers can, however, shape the profile of employees who choose to leave by offering the package to only sectors or ranks of the organization where loss of employees can be absorbed. Research into the types of employees who choose to take voluntary separation packages suggests that employees who take these types of options are often those who fear being involuntarily separated (Parsons, 2005). Finally, the literature suggests that, like involuntary severance programs, voluntary severance packages can distort workforce management because employees may choose to remain in their jobs when they might otherwise separate in hopes that a voluntary severance option will become available (Parsons, 2005; Clarke, 2005).

Literature on voluntary severance includes research on the structure and effect of early retirement packages, which are typically offered only to employees who are nearing retirement eligibility. Early retirement packages are usually provided as a lump-sum payment or as continued compensation for some period. In some cases, early retirement packages are offered only for a limited period of time, known as an early retirement "window." In other cases, early retirement options are always available to employees meeting eligibility criteria. Research on early retirement programs also suggests that pension programs can be structured to serve as a sort of voluntary severance plan. Specifically, programs that offer pensions that vary with the individual's retirement date can encourage workers to retire at a certain age. Lazear notes that,

> If the expected present value of the pension declines with later retirement, then the worker sacrifices some benefits to remain on the job. Stated conversely, firms appear to be willing to pay a larger pension value (stock, not flow, of course) to workers who retire early. These larger pensions can be interpreted as severance pay because they induce the worker to leave the job more frequently than he would in the absence of such a structure. (Lazear, 1983, p. 57).

Data on voluntary severance programs are very limited. Right Management Consultants (previously known as Right Associates) conducted two surveys of severance programs, which include both voluntary and involuntary severance programs at a sample of organizations that were diverse in sector and size (Right Associates, 1990; Right Management Consultants, 2003). Parsons (2005) provides information on the results of these surveys, including information on the prevalence of severance packages, eligibility for these plans, and the size and

composition of severance benefits. However, the tabular results do not separate voluntary and involuntary severance plans. As a result, they are of limited value to researchers interested in studying voluntary severance packages. More promising is the Health and Retirement Survey, which has been conducted every two years since the mid-1990s (Institute for Social Research and National Institute on Aging, University of Michigan, no date) and asks a number of questions specifically about early retirement options. The Health and Retirement Survey asks questions about whether or not the respondent has been offered early retirement, whether or not the respondent took it, what it consisted of (lump sum, continued compensation, health insurance, other benefits), and whether or not the incentive influenced the respondent's decision to retire. These data could be used to study the prevalence, structure, and size of typical early employment options.

Summary

The literature on downsizing in the private sector provides insight into the best downsizing strategies and the use of voluntary and involuntary severance packages, including early retirement. The literature emphasizes that the strategy used to downsize is central to the effect of downsizing on the firm or organization. Downsizing that occurs alongside restructuring of the workforce and the way work is done within the organization can help a firm improve its performance and profits. Severance packages can be used to achieve a reduction in force, but they come with risks, including the loss of valuable personnel and institutional knowledge and damage to the morale of remaining employees. Voluntary severance programs can be especially useful downsizing tools that facilitate a RIF without having to involuntary separate employees. However, because the firm cannot fully control who takes the voluntary severance package, the risk of losing valuable employees may be higher. Even early retirement options can be risky. Although they allow a firm to incentivize employees nearing retirement (who may draw higher salaries) to leave, these employees often have invaluable experience that may be irreplaceable. If firms do choose to use voluntary severance packages, the literature suggests (although there is no systematic data) that these programs tend to be based on an employee's position and years of service and that eligibility for the package may be limited. Some literature, particularly that on early retirement, suggests that these variables (size and structure of benefits) can be altered and combined to help shape who and how many employees take the separation incentive. Thus, the literature suggests that organizations should carefully consider their options and the consequences of any downsizing strategy.

Lists of Figures and Tables

Figures

Tables

Abbreviations

BA/BS	bachelor of arts/bachelor of science degree
BLS	U.S. Department of Labor, Bureau of Labor Statistics
CBO	Congressional Budget Office
CPI-U	Consumer Price Index for All Urban Consumers
CSRS	Civil Service Retirement System
DB	defined benefit
DMDC	Defense Manpower Data Center
DoD	U.S. Department of Defense
DRM	Dynamic Retention Model
FEGLI	Federal Employees Group Life Insurance
FEHB	Federal Employees Health Benefit
FERS	Federal Employees Retirement System
GAO	U.S. General Accounting Office (before 2004), U.S. Government Accountability Office (after 2004)
GS	general schedule
MRA	minimum retirement age
NSPS	National Security Personnel System
OPM	Office of Personnel Management
RIF	reduction in force
TSP	Thrift Savings Plan
VERA	Voluntary Early Retirement Authority
VSIP	Voluntary Separation Incentive Payment

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The U.S. Department of Defense (DoD) plans to reduce the size of its civilian workforce through 2021. An important downsizing tool available to personnel managers is the Voluntary Separation Incentive Payment (VSIP), but its cap, $25,000, has not been adjusted since 1993.

The authors of this report used RAND's dynamic retention model (DRM) for DoD civilians to compare the cost-effectiveness of alternative approaches to achieving a given downsizing. These include packages of VSIP, voluntary early retirement authority (VERA), and involuntary separation if also needed, versus using involuntary separation alone.

Increasing the VSIP cap to $41,000 (the real value of VSIP in 2015 dollars) increases voluntary separations by about 45 percent and, compared with the $25,000 cap, would result in greater net savings to DoD and greater net savings in government outlays over five years. Although the apparent cost savings, as reflected in the budget, are greater when involuntary separations are used, there are off-budget costs, such as workplace turmoil, disruption, and lower morale, associated with involuntary separation. The authors used the DRM to estimate the cost borne by employees who are involuntarily separated in terms of the value of the loss of employment, net of the severance pay they receive. Such costs could potentially hurt retention and workforce productivity among those who remain. Using this broader concept of cost that includes both the cost to the government and the cost borne by employees, VSIP generates more net savings and is more cost-effective at the margin than involuntary separation.

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